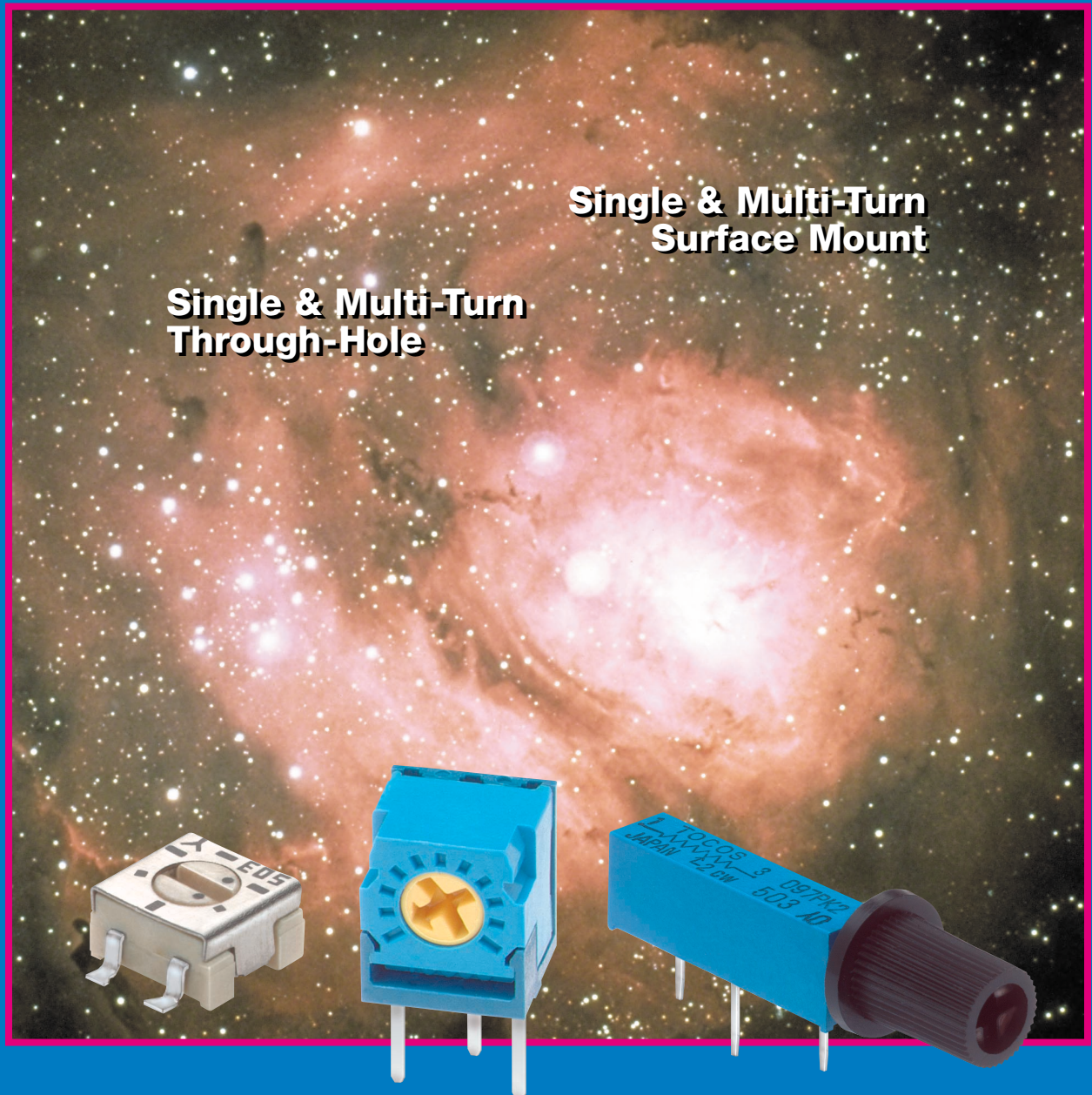


TOCOS[®]

TRIMMER POTENTIOMETERS



CATALOG 2002

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Single-Turn, Through-Hole Trimmer Potentiometers - Page 29

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We are TOCOS America, Inc.

a wholly owned subsidiary of Tokyo Cosmos Electric Co., Ltd. (TOCOS), a worldwide supplier of electronic components specializing in quality potentiometer products.

Established in 1957, TOCOS has kept pace with the demands of electronic technology for more than 40 years, supplying superior quality components at competitive prices around the world.

Our wide range of products represent the cutting edge of the electronics industry in major areas such as telecommunications, instrumentation, automotive technology, computer peripherals, consumer products, and the military.

Design and Manufacturing

The in-house design and manufacturing of automatic assembly machines and automatic testing and inspection equipment guarantees efficient, quality component production. We design and manufacture piece parts such as polymer resistive inks, multi-wire brush contacts, and plastic and metal component housings.

Research and Development

The continuing technological demand for products with higher accuracy, longer life, and better reliability has led us to utilize the ingenuity of all our employees through an innovative “think and create” philosophy, encouraging company-wide contributions to product research and development.

With the help of this program, we at TOCOS continue to develop better trimmer potentiometers as well as innovative products such as our thick-film hybrid IC's, flat self-regulating heater elements, and automotive electronic parts.

Quality Control

Our “total quality control environment” is supported by a start to finish inspection program that begins with the sales person who takes your order and ends with the supplier who must be certified to guarantee just-in-time delivery. Every work station is an inspection point in the manufacturing process and the finished products are always inspected for electrical and mechanical properties as well as environmental reliability.

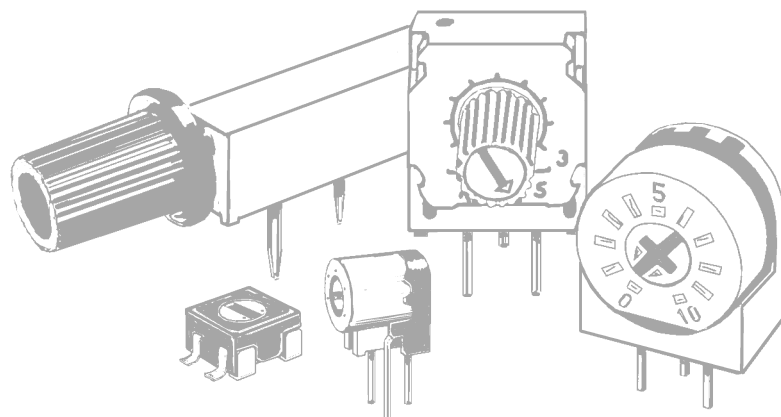
Reliability

TOCOS examines the performance of its products long after their sale, through the widely used FIT, or failure rate in the field methodology. Of the three hundred million units of our GF06 series produced over a 6-year span, less than 1ppm failed for a 0.06 (FIT) failure rate in the field.

Electronics technology has been one of the most exciting innovations of this century. We at TOCOS are committed to the bright future of technological progress, now and for the 21st century. So get to know TOCOS...you'll be glad you did.

ISO Certification

TOCOS products are manufactured by our parent company Tokyo Cosmos Electric Co. in ISO 9001 and ISO 9002 certified facilities.



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Warranty and Product Suitability

TOCOS warrants each product shipped to be free from defects. TOCOS agrees to remedy any defects or to furnish replacement part(s) in exchange, while under normal installation, use and service, provided that the defective material is sent, transportation prepaid, to TOCOS for confirmation of the defect.

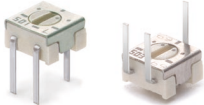


It is the buyer/specifier's responsibility to determine suitable use of TOCOS products in or for their product application. TOCOS makes no warranties and assumes no liability as to the suitability or sufficiency for the buyer's application of TOCOS products.

The information in this publication is believed to be accurate and reliable with no guarantee as to its completeness. The components described herein are designed, tested and manufactured to meet and or exceed the specifications for each product. TOCOS reserves the right to make changes to the specifications, without notice.

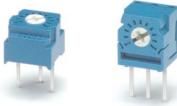
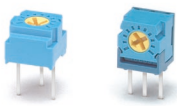

Surface Mount, Cermet Trimmer Potentiometers

Series	G3 Series	G4 Series	GV4 Series
Model Examples			
Nominal Size and Construction	3mm Square Sealed SMD	4mm Square Sealed SMD	4mm Square Sealed SMD
Resistive Element	Cermet	Cermet	Cermet
Adjustment Travel	Single-Turn: 220° ± 10°	Single-Turn: 200° ± 10°	Multi-Turn: 12 Turns ± 2 nominal
Adjustment Type	Top Adjust	Top, Side and Bottom Adjust	Top and Side Adjust Flush with Housing
Terminal Style	J-Hook: A Gull-Wing: B	J-Hook: A, D, S Gull-Wing: B, E, BF	J-Hook: W & J Gull-Wing: G
Resistance Range	50Ω to 2MΩ	50Ω to 2MΩ	10Ω to 2MΩ
Resistance Tolerance	± 20% Standard	± 20% Standard (± 10% Optional)	± 10% Standard
Power Rating	0.125 W at +70°C 0 W at +125°C	0.25 W at +70°C 0 W at +125°C	0.25 W at +85°C 0 W at +150°C
Temperature Range	-55°C to +125°C	-55°C to +125°C	-65°C to +150°C
Other Features	Single-Slot or Automatic Adjust Cross-Slot Design Space-Saving Size Embossed Tape & Reel	Single-Slot or Automatic Adjust Cross-Slot Design Space-Saving Size Embossed Tape & Reel	Excellent Adjustability TCR = ± 100ppm/°C Low CRV = 1% Embossed Tape & Reel
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Single-Turn, Through-Hole, Cermet Trimmer Potentiometers

Series	G4C Series	GF04 Series	RJC06 Series
Model Examples			
Nominal Size and Construction	4mm Square Sealed Through-Hole	4mm Round Sealed Through-Hole	1/4" Round Sealed Through-Hole
Resistive Element	Cermet	Cermet	Cermet
Adjustment Travel	Single-Turn: 200° ± 10°	Single-Turn: 190°	Single-Turn: 240° ± 10°
Adjustment Type	Top and Bottom Adjust	Top and Side Adjust	Top, Side and Bottom Adjust
Terminal Style	Triangular: C & CF	Triangular: W & S In-Line: U & V	Triangular, 15mmℓ: P & W Triangular, 5mmℓ: S & X Triangular, 8mmℓ: F
Resistance Range	50Ω to 2MΩ	100Ω to 1MΩ	10Ω to 1MΩ
Resistance Tolerance	± 20% Standard (± 10% Optional)	± 10% and ± 20%	± 10% and ± 20%
Power Rating	0.25 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C
Other Features	Through-Hole Versions of SMD G4 Series Designed for Flow or Reflow Soldering	Excellent Stability Low Noise and Low TC High Power Rating Space-Saving Size	Excellent Adjustability and Stability Low CRV and Low TC Gold Flushed Terminals
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Single-Turn, Through-Hole, Cermet Trimmer Potentiometers

Series	GF06 Series	GF063 Series	GF063-K Series
Model Examples			
Nominal Size and Construction	1/4" Square Sealed Through-Hole	1/4" Square Sealed Through-Hole	1/4" Square Sealed Through-Hole
Resistive Element	Cermet	Cermet	Cermet
Adjustment Travel	Single-Turn: 210° ± 10°	Single-Turn: 210° ± 10°	Single-Turn: 210° ± 10°
Adjustment Type	Top and Side Adjust	Top and Side Adjust	Top Knob and Side Knob Adjust
Terminal Style	Triangular: P, P1, P2, W, Y, Y1, S, S1, X & X1 In-Line: U, U1, V & V1	Triangular: P, P1, P2, W, Y, Y1, S, S1, X & X1 In-Line: U, U1, V & V1	Triangular: PK, P1K, W, SK, S1K, XK & X1K In-Line: UK, VK & V1K
Resistance Range	10Ω to 5MΩ	10Ω to 5MΩ	10Ω to 5MΩ
Resistance Tolerance	±10% and ±20%	±10% and ±20%	±10% and ±20%
Power Rating	0.5 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C
Other Features	14 Models Available Cross-Slot Rotor Design Zero Backlash Tape & Reel or Ammo Box	18 Models Available Cross-Slot Design with Larger Rotor than GF06 Series Tape & Reel or Ammo Box	Same Housing Size and Design as GF063 Series Tape & Ammo Box for PK, P1K & UK Models
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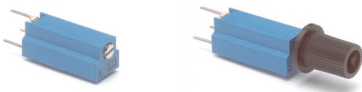
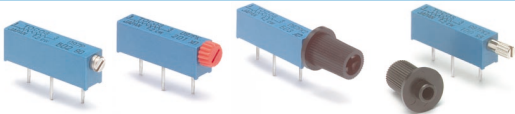
Single-Turn, Through-Hole, Cermet and Wirewound Trimmer Potentiometers

Series	GF12 Series	G12 Series	RA12 Series
Model Examples			
Nominal Size and Construction	12mm Square Sealed Through-Hole	1/2" Round Sealed Through-Hole	12mm Round Sealed Through-Hole
Resistive Element	Cermet	Cermet	Wirewound
Adjustment Travel	Single-Turn: 270° ± 10°	Single-Turn: 270° ± 10°	Single-Turn: 270° ± 10°
Adjustment Type	0S, 5S, 10S 8.2SK Styles in Top and Side Adjust	Top and Side Adjust	Top and Side Adjust
Terminal Style	Triangular: P, S, X & R	Triangular: P, S & X	Triangular: P, S & X
Resistance Range	10Ω to 1MΩ	10Ω to 1MΩ	10Ω to 20kΩ
Resistance Tolerance	±10% and ±20%	±10% and ±20%	±10% Standard
Power Rating	0.75 W at +70°C 0 W at +125°C	1.0 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C	-55°C to +125°C
Other Features	Flush Rotor, 5 or 10mm Metal Shafts, or Knurled Plastic Shaft Stable, Infinite Resolution 5,000 Cycle Lifetime	Dial Markings Excellent Stability 1.0 Watt Power Rating Low Noise and Low TC	High Setting Stability Low Equivalent Noise Resistance Low Temperature Coefficient Long Rotational Life
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Multi-Turn, Through-Hole, Square Cermet Trimmer Potentiometers

Series	GV6 Series	RJC26 Series
Model Examples		
Nominal Size and Construction	1/4" Square Sealed Through-Hole	1/4" Square Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Multi-Turn: 2 Turns (735° ± 10°)	Multi-Turn: 8.5 Turns ± 1
Adjustment Type	Top and Side Adjust	Top and Side Adjust
Terminal Style	Triangular: P & S In-Line: U & V	Triangular: W & X
Resistance Range	10Ω to 1MΩ	100Ω to 5MΩ
Resistance Tolerance	±10% and ±20%	±10% and ±20% (≤ 2MΩ); +30%, -20% (≥ 3MΩ)
Power Rating	0.5 W at +70°C 0 W at +125°C	0.25 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	Space-Saving, Low Profile Design Excellent Stability and Adjustability Low Noise Tape & Reel or Ammo Box	11-Turn Mechanical Travel High Setting Accuracy State-of-the-Art Brush Contact Design Stop-Clutch Action at Ends of Element
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Multi-Turn, Through-Hole, Rectilinear Cermet Trimmer Potentiometers

Series	RJC07R Series	RJC097 Series
Model Examples		
Nominal Size and Construction	3/4" Rectilinear Sealed Through-Hole	3/4" Rectilinear Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Multi-Turn: 13 Turns ± 3	Multi-Turn: 15 Turns ± 3
Adjustment Type	Top Adjust	Side Adjust
Terminal Style	Triangular: R (without knob) and RK2 (with permanent knob)	Triangular: P (without knob); PK (small knob); PK1 (removable knob); PK2 (permanent knob)
Resistance Range	10Ω to 1MΩ	10Ω to 1MΩ
Resistance Tolerance	±10% and ±20%	±10% and ±20%
Power Rating	0.75 W at +40°C 0 W at +125°C	0.75 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	Space-Saving, Vertical Mount Design High Performance, Excellent Stability Single-Slot Top Adjustment Knob Style for Fingertip Control	Single-Slot Short Shaft, Small or Large Permanent Knobs or Extended Shaft with Removable Knob Excellent Stability and Low Noise State-of-the-Art Brush Contact Design
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Surface Mount Cermet Trimmers

3mm Square, Single-Turn, Sealed

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
22A	3313J	TS3YJ	ST-3A			G3A
22B						G3B

4mm Square, Single-Turn, Sealed, Industrial

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
23A, 23J	3314J	ST53YJ, TS4YJ	ST-4A		4J	G4A
23B, 23G, 23GL	3314G	ST53YL, TS4YL	ST-4B		4G	G4B
	3314H		ST-4C			G4C
23S	3314S, 3314Z		ST-4G			G4SA

4mm Square, Multi-Turn, Sealed

B.I. (Beckman)	Bourns		Dale	BC Components	Murata	Spectrol	TOCOS®
10-Turn	11-Turn	5-Turn	11-Turn	12-Turn	11-Turn		12-Turn
44J	3224J	3214J	TSM43ZJ	SM-4A	POG5HN		GV4J
44G	3224G	3214G	TSM43ZL				GV4G
44W	3224W	3214W	TSM43YJ	SM-4W	POG5AN		GV4W

4mm Square, Single-Turn, Open Frame

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS® *Discontinued
21X	3304A, 3364A	ST-23		RVG4J03A		TRG043S1*
21W	3304C			RVG4J04A		TRG042S1*
21Z	3304W, 3364W	ST-22		RVG4H01A	4H	TRG043S4*

Through-Hole Cermet Trimmers

1/4" and 3/8" Square, Single-Turn

B.I. (Beckman)		Bourns		Dale		BC Components		Murata	Spectrol		TOCOS®
1/4"	3/8"	1/4"	3/8"	1/4"	3/8"	1/4"	3/8"	3/8"	1/4"	3/8"	1/4"
25P		3323P, 3362P		T70YE		CT-6P, FT-6P			76P		GF06P
						CT-6P, FT-6P					GF06P1
	72P	3362R	3386P	T70YP	T20YP	CT-6R	8038EKP	3104P		63P	GF06P2
25W		3362H		T70YB		CT-6W			76H		GF06W
25U		3323U, 3362U	3386U	T70YU		CT-6V, FT-6V					GF06U
	72PL		3386T				8038EKA	3104T			GF06U1
			3386Y				8038EKI	3104Y			GF06Y
	72PM		3386F		T20YM		8038EKH	3104F			GF06Y1
25X		3323X, 3362X	3386H	T70XH	T20XH	CT-6N	8038EKX	3104H		63M	GF06X
25RX	72X	3323W, 3362W	3386X			CT-6X, FT-6X	8038EKU	3104X	76W	63X	GF06X1
25S		3323S		T70XF		CT-6S, FT-6S					GF06S
25RS						CT-6G					GF06S1
25V		3362M	3386W	T70XW	T20XW	CT-6H, FT-6H		3104W			GF06V
25RV	72XL		3386C				8038EKV	3104C		63S	GF06V1
25UTR		3362U				CT-6TV, FT-6TV					GF06UT, UT2
25VTR		3362M				CT-6TH, FT-6TH					GF06VT, VT2

Through-Hole Cermet Trimmers (Continued)

4mm Round, Single-Turn

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
24W			RJ-4W	1103H		GF04W
24S			RJ-4WS	1104B		GF04S
						GF04V
24U						GF04U
						GF04VT
24UF						GF04UT

1/4" Round, Single-Turn

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
62M, (82M)	3329P	T7RYA	RJ-6P	3321P	75P	RJC06P
62P, (82P)	3329H	T7RYB	RJ-6W	3321H	75H	RJC06W
(82PA)	3329W	T7RXX	RJ-6X	3321N		RJC06X
	3329S		RJ-6S	3321S		RJC06S
			RJ-6F	3321F		RJC06F

1/2" Round, Single-Turn

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
93P (Reverse Pin-out)			RJ-13P			G12P
			RJ-13S			G12S
						G12X

1/4" Square, 2-Turn

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
	3339P		TM-7P	1102P (4-Turn)		GV6P
			TM-7S	1102S (4-Turn)		GV6S

1/4" Square, 11-Turn

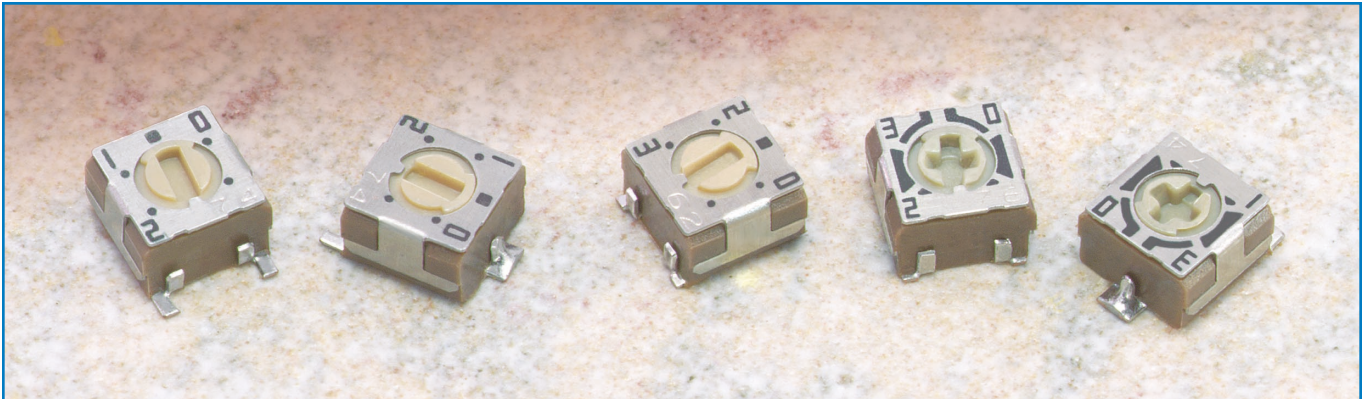
B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
64W	3262W, 3266W	T63YB	RJ-5W, 8026EKW	3107W	74W	RJC26W
64X	3262X, 3266X	T63XB	RJ-5X, 8026EKX	3107X	74X	RJC26X

3/4" Rectilinear, 15-Turn

B.I. (Beckman)	Bourns	Dale	BC Components	Murata	Spectrol	TOCOS®
89P	3006P	T18	CT-20P	2103P	43P	RJC097P
89X	3006Y		CT-20X	2103Y	43Y	RJC097X

This Cross Reference Guide does not infer exact interchangeability in all instances. For further information concerning product substitutes, contact Tocos at 847-884-6664 or your Tocos representative.

3mm Surface Mount, Single-Turn, Sealed Cermet Trimmers



Features

- 3mm square SMD, single-turn, sealed cermet trimmers
- Available in J-hook and gull-wing terminal configurations
- Top adjustment in single-slot or automatic adjust cross-slot design
- Wide temperature range of -55°C to $+125^{\circ}\text{C}$
- Designed for flow, reflow or infrared reflow soldering
- Sealed to withstand immersion cleaning processes
- Tape and reel packaging
- Meets EIA, EIAJ, IPC, VECL standard SMD trimmer designs

Specifications

Electrical

Standard Resistance Range	..... 50Ω to $2\text{M}\Omega$ (standard 1, 2 & 5 sequence)
Resistance Tolerance	..... $\pm 20\%$ standard
End Resistance	..... 1% or 3Ω , whichever is greater
Resistance Taper	..... B = Linear
Peak Noise (C.R.V.)	..... 2% or 3Ω , whichever is greater
Power Rating	..... 0.125 watt at $+70^{\circ}\text{C}$; 0 watt at $+125^{\circ}\text{C}$
Maximum Input Voltage	..... 200VDC or power rating, whichever is smaller
Temperature Coefficient	..... $\pm 100\text{ppm}/^{\circ}\text{C}$, 200Ω to $1\text{M}\Omega$ $\pm 250\text{ppm}/^{\circ}\text{C}$, other values
Insulation Resistance	..... $100\text{M}\Omega$ minimum at 500VDC
Dielectric Strength	..... 500VAC, 1 minute
Adjustment Travel	..... $220^{\circ} \pm 10^{\circ}$

Mechanical

Mechanical Travel	..... $250^{\circ} \pm 10^{\circ}$
Shaft Torque	..... 50 gf·cm (0.69 oz·in) max.
Stop Strength	..... 200 gf·cm (2.77 oz·in) min.
Flammability of Plastic Materials	..... Meets UL 94V-0
Nominal Weight	..... 0.068g
Marking	..... Resistance value or code, date code

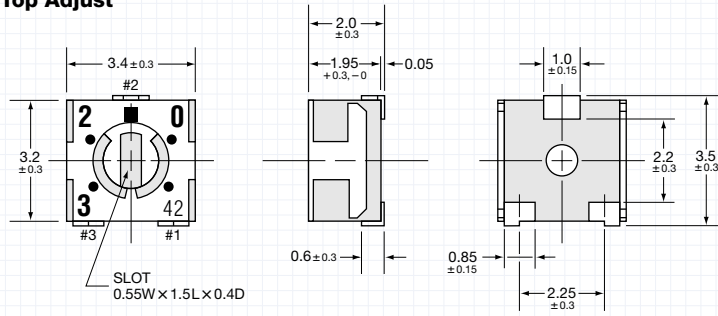
Environmental

Temperature Range	..... -55°C to $+125^{\circ}\text{C}$
Low Temperature Operation	... -55°C , 0.125 watt, 1 hour $\Delta\text{T}/\text{R} \leq \pm 2\%$, S.S. $\leq \pm 2\%$
High Temperature Exposure	..... $+125^{\circ}\text{C}$, 250 hours $\Delta\text{T}/\text{R} \leq \pm 2\%$, S.S. $\leq \pm 2\%$
Load Life	..... $+70^{\circ}\text{C}$, 0.125 watt, 1,000 hours $\Delta\text{T}/\text{R} \leq \pm 3\%$, S.S. $\leq \pm 2\%$
Thermal Shock	..... -55°C , $+125^{\circ}\text{C}$, 30 minutes each, 5 cycles $\Delta\text{T}/\text{R} \leq \pm 2\%$, S.S. $\leq \pm 1\%$
Shock	..... 100G, 6ms, 6 directions, 3 times each $\Delta\text{T}/\text{R} \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Vibration	..... 10-2,000Hz, 1.5mm amplitude, 20G, 12 hours $\Delta\text{T}/\text{R} \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Humidity	..... $+40^{\circ}\text{C}$, 90-95% RH, 0.125 watt, 500 hours $\Delta\text{T}/\text{R} \leq \pm 3\%$, S.S. $\leq \pm 2\%$
Moisture Resistance	..... -10°C to $+65^{\circ}\text{C}$, 80-98% RH, 0.125 watt, 10 cycles, 240 hours $\Delta\text{T}/\text{R} \leq \pm 3\%$
Soldering Heat Resistance	..... 240°C , 10 seconds $\Delta\text{T}/\text{R} \leq \pm 1\%$
Seal Test	..... $+85^{\circ}\text{C}$, hot water for 1 minute
Rotational Life	... 100 cycles without discontinuity, no load $\Delta\text{T}/\text{R} \leq \pm 5\%$

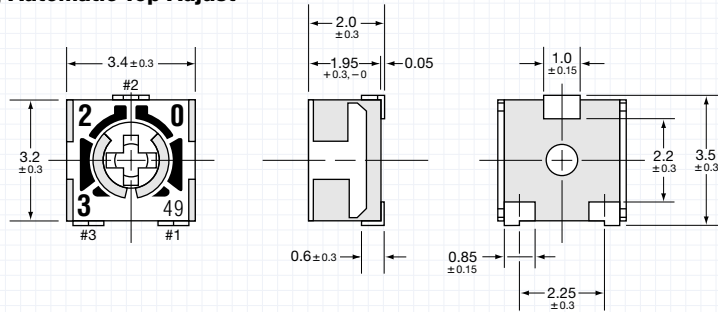
$\Delta\text{T}/\text{R}$ = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

Unit: mm

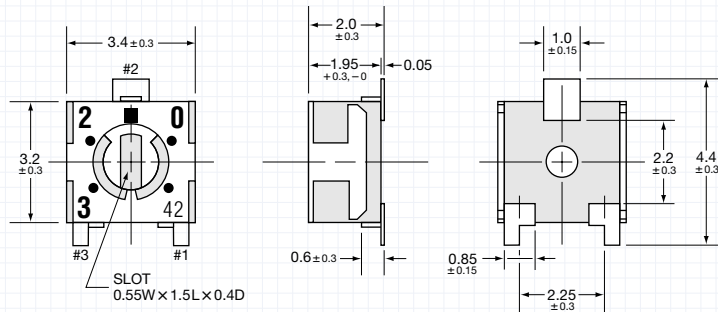
G3A J-Hook, Single-Slot, Top Adjust



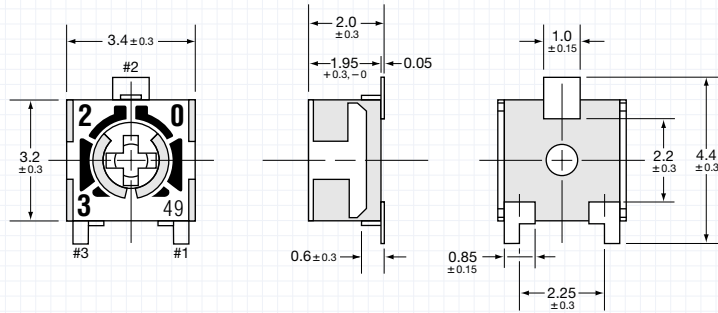
G31A J-Hook, Cross-Slot, Automatic Top Adjust



G3B Gull-Wing, Single-Slot, Top Adjust



G31B Gull-Wing, Cross-Slot, Automatic Top Adjust

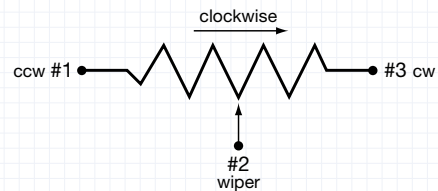
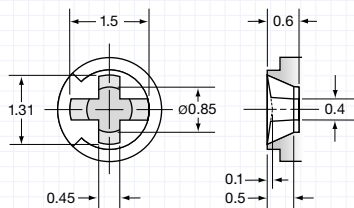


Cross-Slot Dimensions

Electrical Schematic

All G31 Models

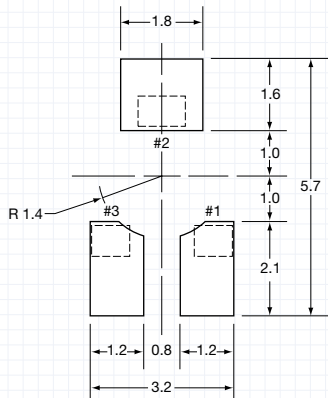
Unit: mm



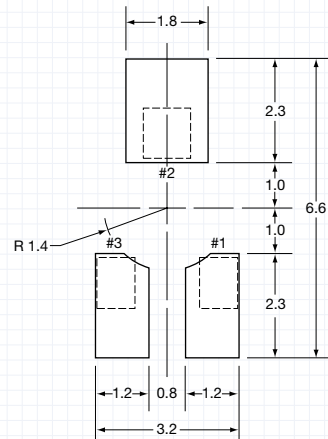
Recommended Land Patterns

Flow Soldering Method

G3A & G31A

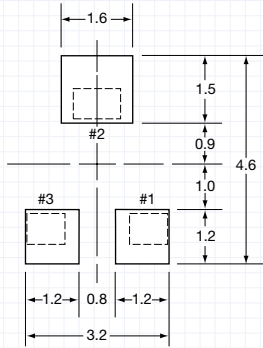


G3B & G31B

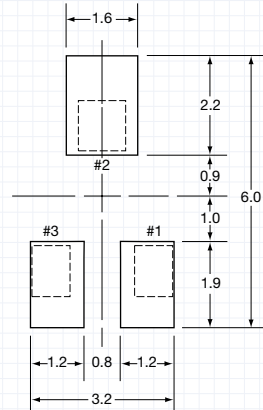


Reflow Soldering Method

G3A & G31A

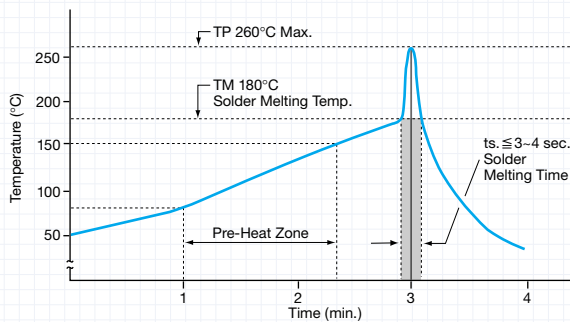


G3B & G31B

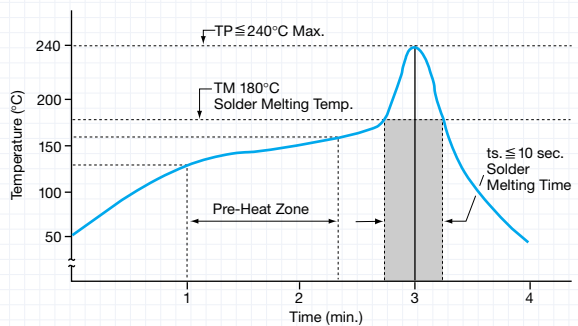


Recommended Soldering Profiles

Flow Soldering Profile



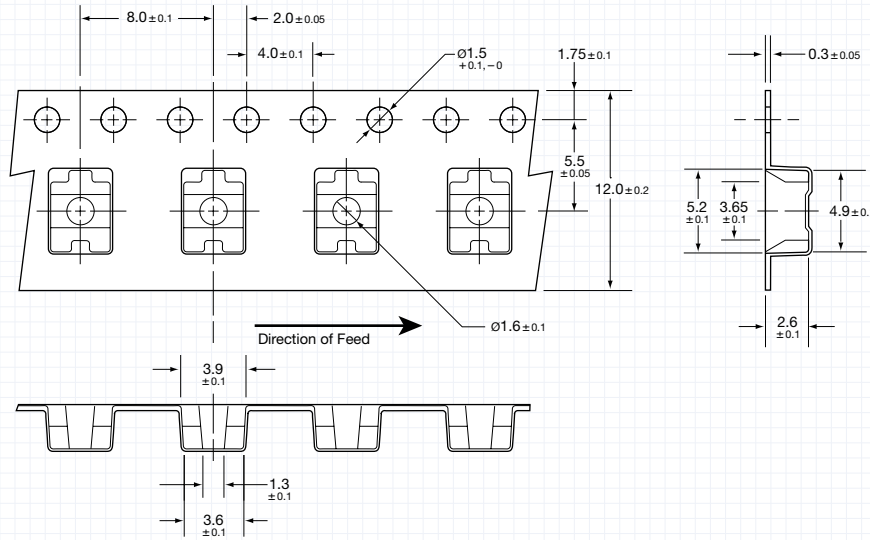
Reflow Soldering Profile



Embossed Tape Dimensions

Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

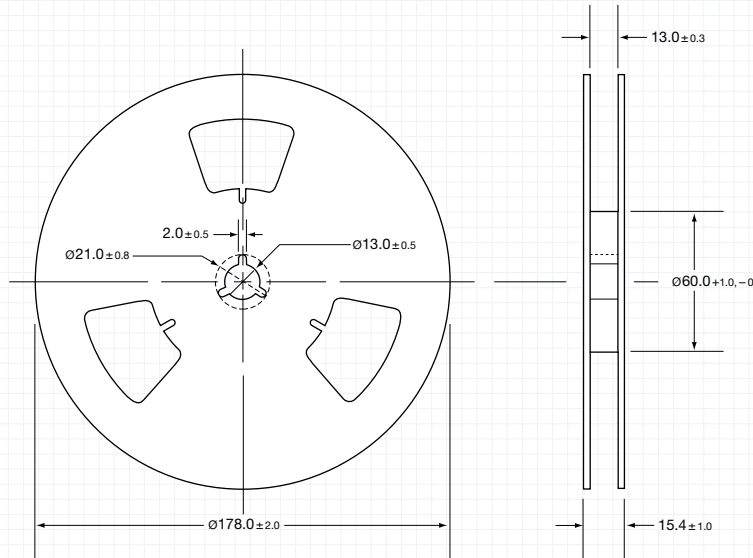
G3AT, G31AT, G3BT, G31BT



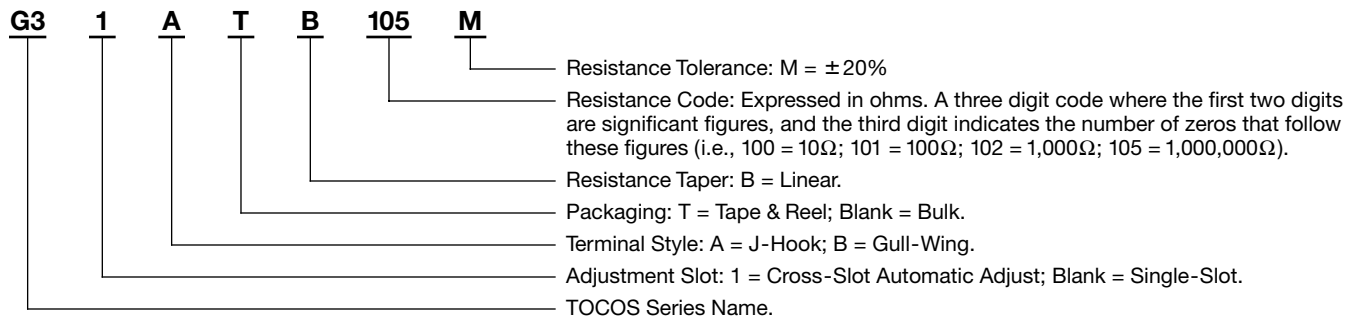
Reel Dimensions

Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

G3AT, G31AT, G3BT, G31BT



500 Pieces Per 7" Reel

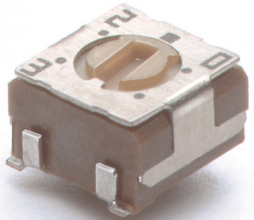


Part Numbers

Nominal Resistance		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	

G3A J-Hook, Single-Slot, Top Adjust

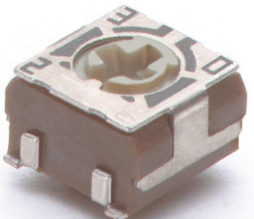
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk
50	500	G3AT B 500 M	G3A B 500 M
100	101	G3AT B 101 M	G3A B 101 M
200	201	G3AT B 201 M	G3A B 201 M
500	501	G3AT B 501 M	G3A B 501 M
1,000	102	G3AT B 102 M	G3A B 102 M
2,000	202	G3AT B 202 M	G3A B 202 M
5,000	502	G3AT B 502 M	G3A B 502 M
10,000	103	G3AT B 103 M	G3A B 103 M
20,000	203	G3AT B 203 M	G3A B 203 M
50,000	503	G3AT B 503 M	G3A B 503 M
100,000	104	G3AT B 104 M	G3A B 104 M
200,000	204	G3AT B 204 M	G3A B 204 M
500,000	504	G3AT B 504 M	G3A B 504 M
1,000,000	105	G3AT B 105 M	G3A B 105 M
2,000,000	205	G3AT B 205 M	G3A B 205 M



G3A

G31A J-Hook, Cross-Slot, Automatic Top Adjust

Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk
50	500	G31AT B 500 M	G31A B 500 M
100	101	G31AT B 101 M	G31A B 101 M
200	201	G31AT B 201 M	G31A B 201 M
500	501	G31AT B 501 M	G31A B 501 M
1,000	102	G31AT B 102 M	G31A B 102 M
2,000	202	G31AT B 202 M	G31A B 202 M
5,000	502	G31AT B 502 M	G31A B 502 M
10,000	103	G31AT B 103 M	G31A B 103 M
20,000	203	G31AT B 203 M	G31A B 203 M
50,000	503	G31AT B 503 M	G31A B 503 M
100,000	104	G31AT B 104 M	G31A B 104 M
200,000	204	G31AT B 204 M	G31A B 204 M
500,000	504	G31AT B 504 M	G31A B 504 M
1,000,000	105	G31AT B 105 M	G31A B 105 M
2,000,000	205	G31AT B 205 M	G31A B 205 M



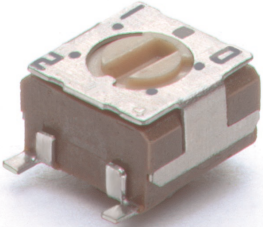
G31A

G3 Series

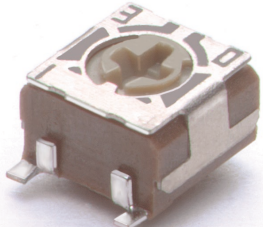
Part Numbers

Nominal Resistance		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	

G3B Gull-Wing, Single-Slot, Top Adjust

Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	 <p>G3B</p>
50	500	G3BT B 500 M	G3B B 500 M	
100	101	G3BT B 101 M	G3B B 101 M	
200	201	G3BT B 201 M	G3B B 201 M	
500	501	G3BT B 501 M	G3B B 501 M	
1,000	102	G3BT B 102 M	G3B B 102 M	
2,000	202	G3BT B 202 M	G3B B 202 M	
5,000	502	G3BT B 502 M	G3B B 502 M	
10,000	103	G3BT B 103 M	G3B B 103 M	
20,000	203	G3BT B 203 M	G3B B 203 M	
50,000	503	G3BT B 503 M	G3B B 503 M	
100,000	104	G3BT B 104 M	G3B B 104 M	
200,000	204	G3BT B 204 M	G3B B 204 M	
500,000	504	G3BT B 504 M	G3B B 504 M	
1,000,000	105	G3BT B 105 M	G3B B 105 M	
2,000,000	205	G3BT B 205 M	G3B B 205 M	

G31B Gull-Wing, Cross-Slot, Automatic Top Adjust

Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	 <p>G31B</p>
50	500	G31BT B 500 M	G31B B 500 M	
100	101	G31BT B 101 M	G31B B 101 M	
200	201	G31BT B 201 M	G31B B 201 M	
500	501	G31BT B 501 M	G31B B 501 M	
1,000	102	G31BT B 102 M	G31B B 102 M	
2,000	202	G31BT B 202 M	G31B B 202 M	
5,000	502	G31BT B 502 M	G31B B 502 M	
10,000	103	G31BT B 103 M	G31B B 103 M	
20,000	203	G31BT B 203 M	G31B B 203 M	
50,000	503	G31BT B 503 M	G31B B 503 M	
100,000	104	G31BT B 104 M	G31B B 104 M	
200,000	204	G31BT B 204 M	G31B B 204 M	
500,000	504	G31BT B 504 M	G31B B 504 M	
1,000,000	105	G31BT B 105 M	G31B B 105 M	
2,000,000	205	G31BT B 205 M	G31B B 205 M	

Packaging

Standard:

Tape & Reel Packaging
500 pieces per 7" reel.

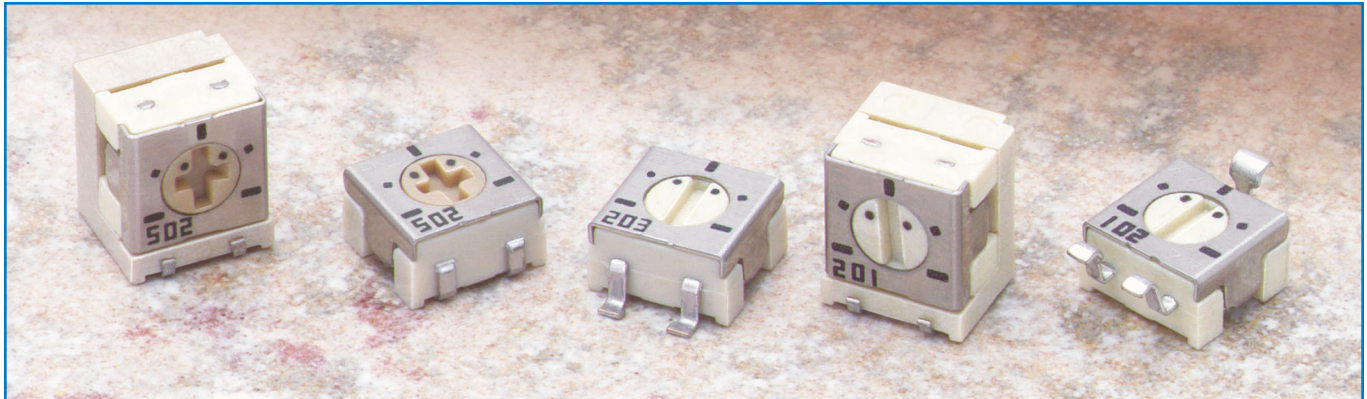
Bulk Packaging

100 pieces per vinyl bag.
1,000 pieces per box.

Cleaning Guidelines

For cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

4mm Surface Mount, Single-Turn, Sealed Cermet Trimmers



Features

- 4mm square SMD, single-turn, sealed cermet trimmers
- Available in J-hook and gull-wing terminal configurations
- Top, side and bottom adjustment in single-slot or automatic adjust cross-slot design
- Tape and reel packaging
- High setting accuracy, zero backlash
- Meets EIA, EIAJ, IPC, VECL standard SMD trimmer designs
- Designed for flow, reflow or infrared reflow soldering
- Sealed to withstand immersion cleaning processes

Specifications

Electrical

Standard Resistance Range	50Ω to 2MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±20% standard ±10% optional for 100Ω to 1MΩ
End Resistance	1% or 3Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	2% or 3Ω, whichever is greater
Power Rating	0.25 watt at +70°C; 0 watt at +125°C
Maximum Input Voltage	200VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C, 200Ω to 1MΩ ±250ppm/°C, other values
Insulation Resistance	100MΩ minimum at 500VDC
Dielectric Strength	500VAC, 1 minute
Adjustment Travel	200° ±10°

Mechanical

Mechanical Travel	240° ±10°
Shaft Torque	150 gf·cm (2.08 oz·in) max.
Stop Strength	300 gf·cm (4.16 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.14g (A, B, D, E) 0.16g (BF); 0.24g (SA)
Marking	Resistance value or code, date code

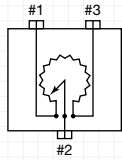
Environmental

Temperature Range	-55°C to +125°C
Low Temperature Operation	-55°C, 0.25 watt, 45 minutes ΔT/R ≤ ±2%, S.S. ≤ ±2%
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±2%, S.S. ≤ ±2%
Load Life	+70°C, 0.25 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±2%, S.S. ≤ ±1%
Shock	100G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±1%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95%RH, 0.25 watt, 500 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Moisture Resistance	-10°C to +65°C, 80-98%RH, 0.25 watt, 10 cycles, 240 hours ΔT/R ≤ ±3%
Soldering Heat Resistance	260°C, 10 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	100 cycles without discontinuity, no load ΔT/R ≤ ±5%

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

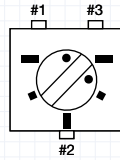
For through-hole models of the G4 series,
refer to the G4C Series on page 29.

All A, B, D & E Models
Position of Rotor Inside



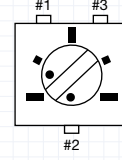
Position of the rotor inside is the same for both types of markings.

Standard Markings
Outside Positions



G4A & G4B

Reverse Markings
Outside Positions



G4D & G4E

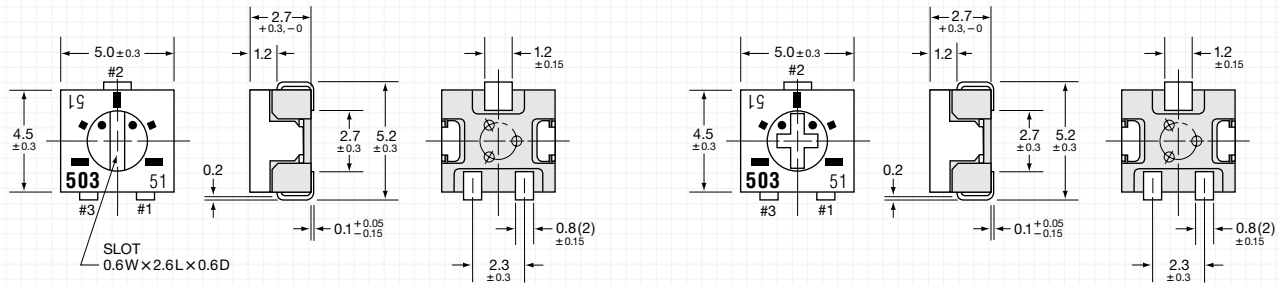
The D and E reverse markings models have the same parts and are constructed the same as the A and B models respectively. The only difference is the outside markings.

Dimensions

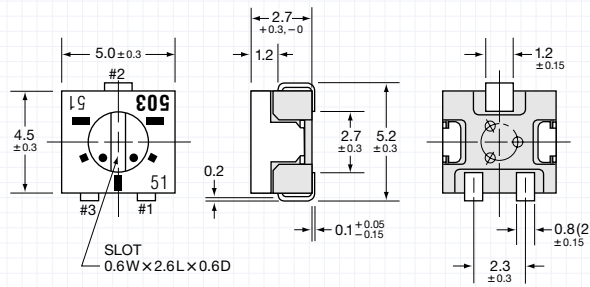
G4A J-Hook, Single-Slot, Top Adjust

G41A J-Hook, Cross-Slot, Top Adjust

Unit: mm

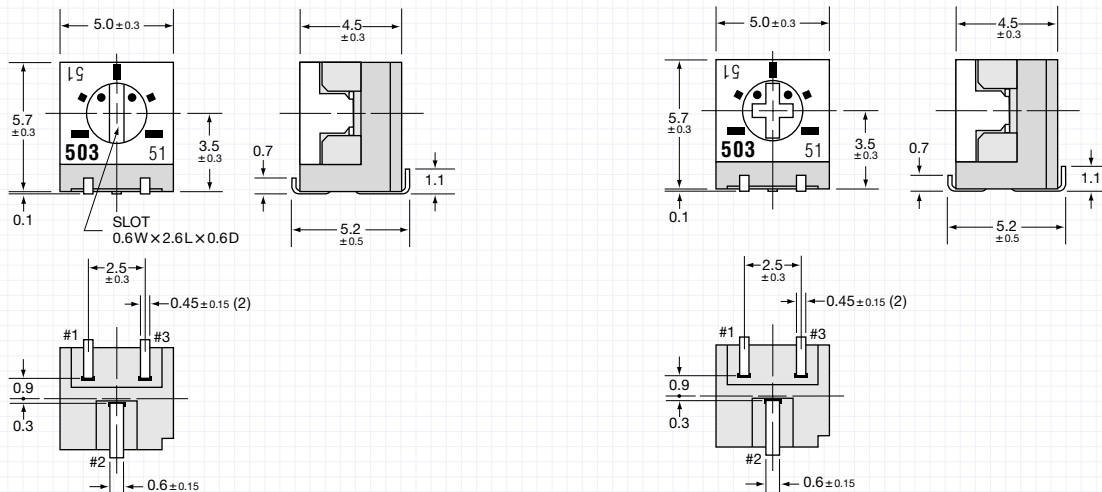


G4D Reverse Markings, J-Hook, Single-Slot, Top Adjust



G4SA J-Hook, Single-Slot, Side Adjust

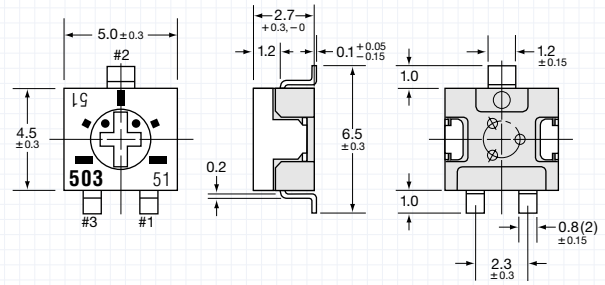
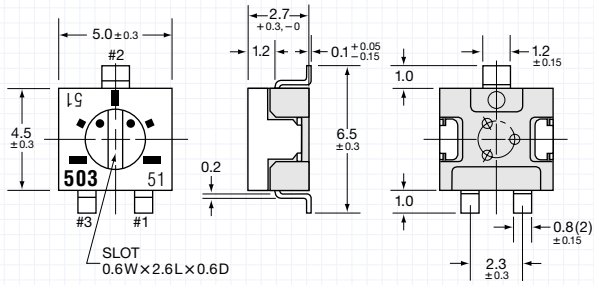
G41SA J-Hook, Cross-Slot, Side Adjust



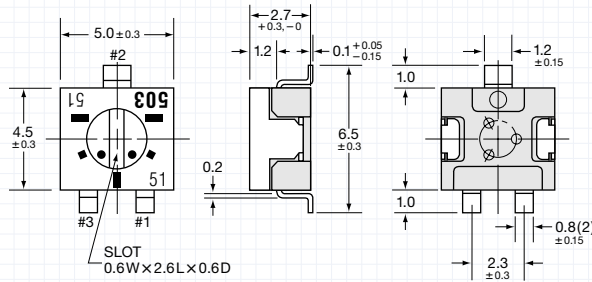
G4B Gull-Wing, Single-Slot, Top Adjust

G41B Gull-Wing, Cross-Slot, Top Adjust

Unit: mm

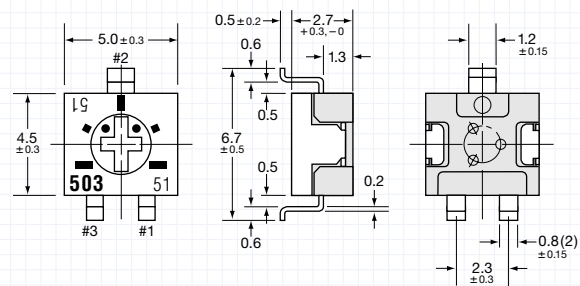
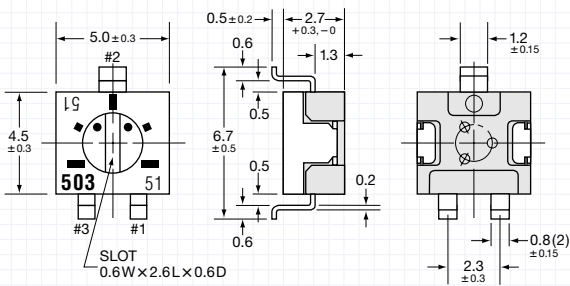


G4E Reverse Markings, Gull-Wing, Single-Slot, Top Adjust



G4BF Gull-Wing, Single-Slot, Bottom Adjust

G41BF Gull-Wing, Cross-Slot, Bottom Adjust

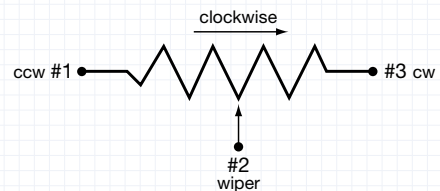
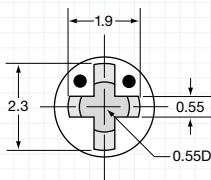


Cross-Slot Dimensions

Electrical Schematic

All G41 Models

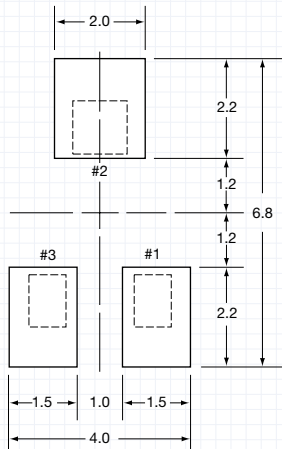
Unit: mm



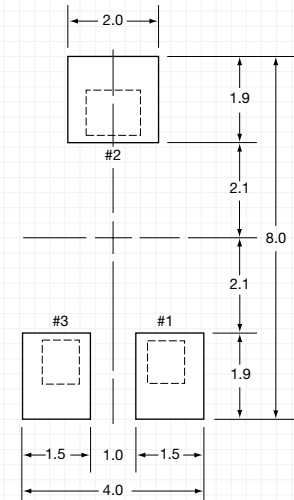
Recommended Land Patterns

Flow Soldering Method

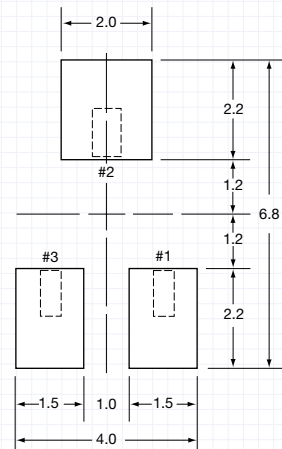
G4A, G41A, G4D



G4B, G41B, G4E

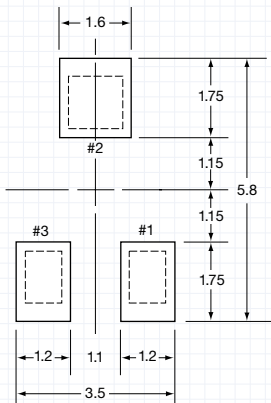


G4SA, G41SA

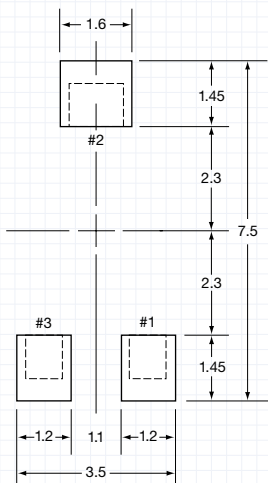


Reflow Soldering Method

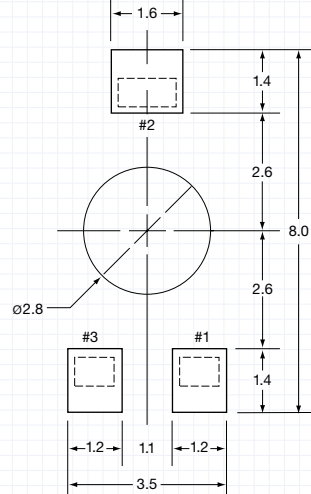
G4A, G41A, G4D



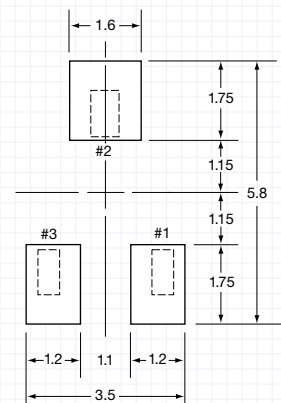
G4B, G41B, G4E



G4BF

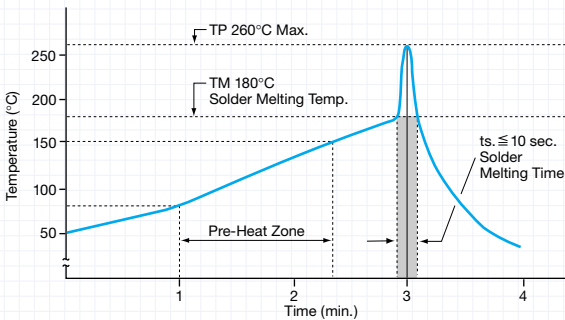


G4SA, G41SA

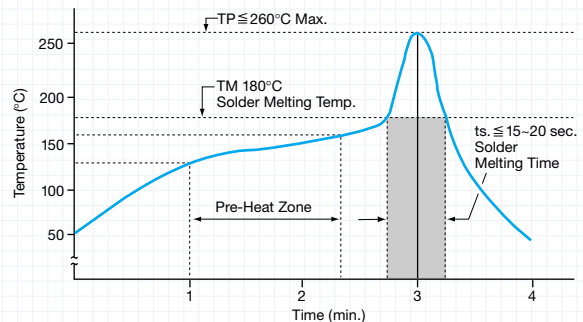


Recommended Soldering Profiles

Flow Soldering Profile



Reflow Soldering Profile

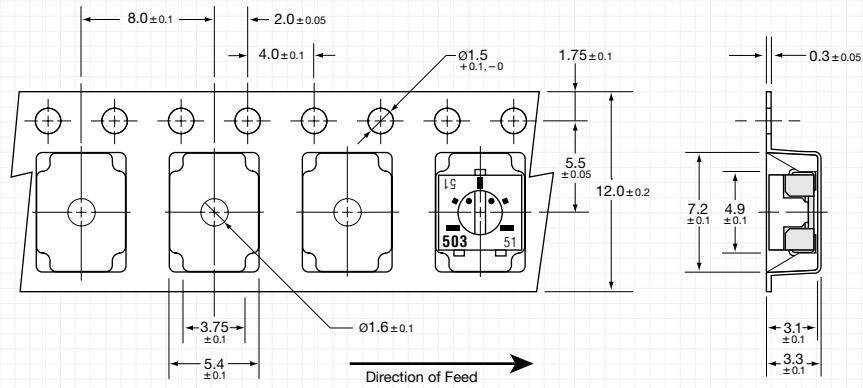


Embossed Tape Dimensions

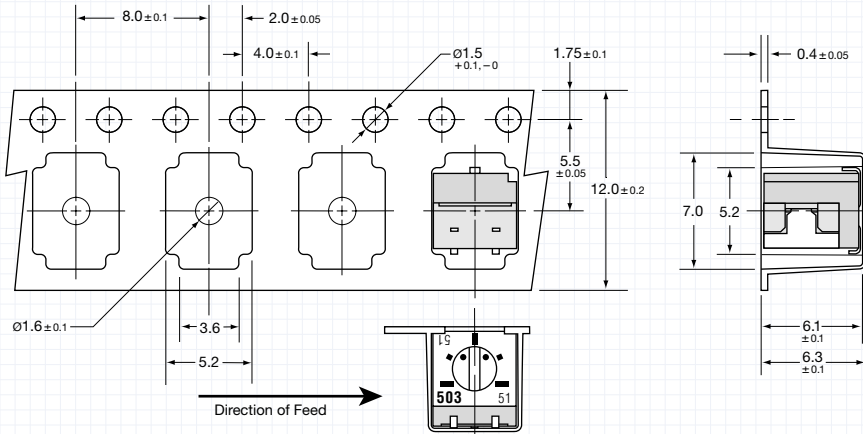
Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

Unit: mm

G4AT, G41AT, G4DT, G4BT, G41BT, G4ET



G4SAT, G41SAT

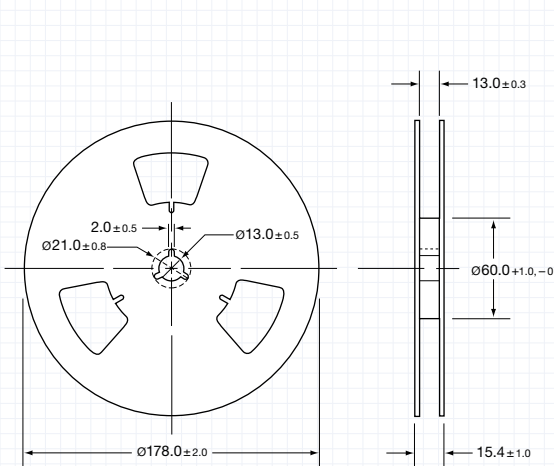


Reel Dimensions

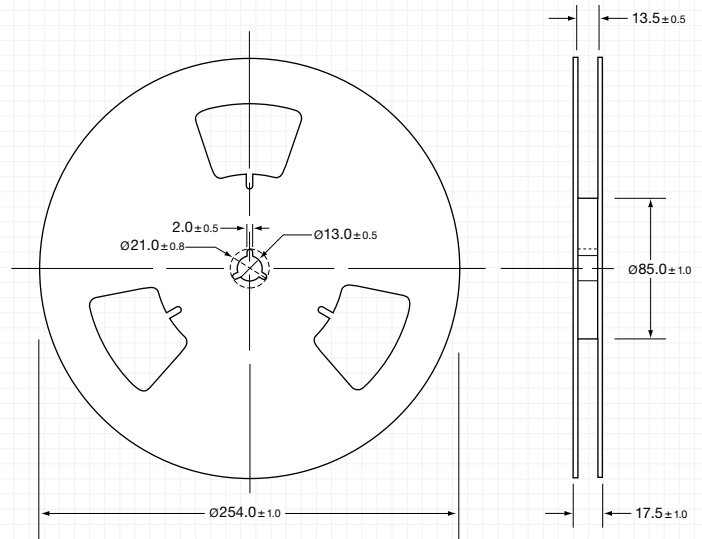
Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

G4AT, G41AT, G4DT, G4BT, G41BT, G4ET

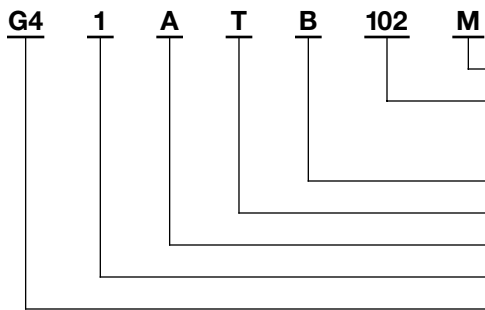
G4SAT, G41SAT



500 Pieces Per 7" Reel



750 Pieces Per 10" Reel



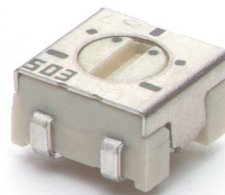
Resistance Tolerance: M = $\pm 20\%$ standard; K = $\pm 10\%$ optional for 100 Ω to 1M Ω .
 Resistance Code: Expressed in ohms. A three digit code where the first two digits are significant figures, and the third digit indicates the number of zeros that follow these figures (i.e., 100 = 10 Ω ; 101 = 100 Ω ; 102 = 1,000 Ω ; 105 = 1,000,000 Ω).
 Resistance Taper: B = Linear.
 Packaging: T = Tape & Reel; Blank = Bulk.
 Terminal Style: A, D, SA = J-Hook; B, BF, E = Gull-Wing.
 Adjustment Slot: 1 = Cross-Slot Automatic Adjust; Blank = Single-Slot.
 TOCOS Series Name.

Part Numbers

Nominal Resistance		Resistance Tolerance $\pm 10\%$		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Catalog No. Tape & Reel	Catalog No. Bulk	

G4A J-Hook, Single-Slot, Top Adjust

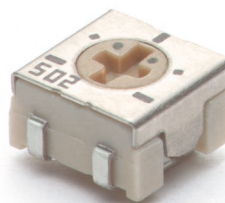
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Catalog No. Tape & Reel	Catalog No. Bulk
50	500	—	—	G4AT B 500 M	G4A B 500 M
100	101	G4AT B 101 K	G4A B 101 K	G4AT B 101 M	G4A B 101 M
200	201	G4AT B 201 K	G4A B 201 K	G4AT B 201 M	G4A B 201 M
500	501	G4AT B 501 K	G4A B 501 K	G4AT B 501 M	G4A B 501 M
1,000	102	G4AT B 102 K	G4A B 102 K	G4AT B 102 M	G4A B 102 M
2,000	202	G4AT B 202 K	G4A B 202 K	G4AT B 202 M	G4A B 202 M
5,000	502	G4AT B 502 K	G4A B 502 K	G4AT B 502 M	G4A B 502 M
10,000	103	G4AT B 103 K	G4A B 103 K	G4AT B 103 M	G4A B 103 M
20,000	203	G4AT B 203 K	G4A B 203 K	G4AT B 203 M	G4A B 203 M
50,000	503	G4AT B 503 K	G4A B 503 K	G4AT B 503 M	G4A B 503 M
100,000	104	G4AT B 104 K	G4A B 104 K	G4AT B 104 M	G4A B 104 M
200,000	204	G4AT B 204 K	G4A B 204 K	G4AT B 204 M	G4A B 204 M
500,000	504	G4AT B 504 K	G4A B 504 K	G4AT B 504 M	G4A B 504 M
1,000,000	105	G4AT B 105 K	G4A B 105 K	G4AT B 105 M	G4A B 105 M
2,000,000	205	—	—	G4AT B 205 M	G4A B 205 M



G4A

G41A J-Hook, Cross-Slot, Automatic Top Adjust

Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Catalog No. Tape & Reel	Catalog No. Bulk
50	500	—	—	G41AT B 500 M	G41A B 500 M
100	101	G41AT B 101 K	G41A B 101 K	G41AT B 101 M	G41A B 101 M
200	201	G41AT B 201 K	G41A B 201 K	G41AT B 201 M	G41A B 201 M
500	501	G41AT B 501 K	G41A B 501 K	G41AT B 501 M	G41A B 501 M
1,000	102	G41AT B 102 K	G41A B 102 K	G41AT B 102 M	G41A B 102 M
2,000	202	G41AT B 202 K	G41A B 202 K	G41AT B 202 M	G41A B 202 M
5,000	502	G41AT B 502 K	G41A B 502 K	G41AT B 502 M	G41A B 502 M
10,000	103	G41AT B 103 K	G41A B 103 K	G41AT B 103 M	G41A B 103 M
20,000	203	G41AT B 203 K	G41A B 203 K	G41AT B 203 M	G41A B 203 M
50,000	503	G41AT B 503 K	G41A B 503 K	G41AT B 503 M	G41A B 503 M
100,000	104	G41AT B 104 K	G41A B 104 K	G41AT B 104 M	G41A B 104 M
200,000	204	G41AT B 204 K	G41A B 204 K	G41AT B 204 M	G41A B 204 M
500,000	504	G41AT B 504 K	G41A B 504 K	G41AT B 504 M	G41A B 504 M
1,000,000	105	G41AT B 105 K	G41A B 105 K	G41AT B 105 M	G41A B 105 M
2,000,000	205	—	—	G41AT B 205 M	G41A B 205 M

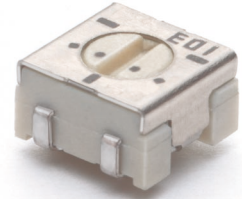


G41A

Nominal Resistance		Resistance Tolerance $\pm 10\%$		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Catalog No. Tape & Reel	Catalog No. Bulk	

G4D Reverse Markings, J-Hook, Single-Slot, Top Adjust

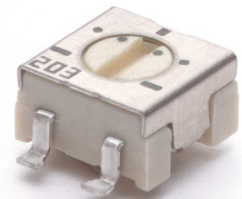
50	500	—	—	G4DT B 500 M	G4D B 500 M
100	101	G4DT B 101 K	G4D B 101 K	G4DT B 101 M	G4D B 101 M
200	201	G4DT B 201 K	G4D B 201 K	G4DT B 201 M	G4D B 201 M
500	501	G4DT B 501 K	G4D B 501 K	G4DT B 501 M	G4D B 501 M
1,000	102	G4DT B 102 K	G4D B 102 K	G4DT B 102 M	G4D B 102 M
2,000	202	G4DT B 202 K	G4D B 202 K	G4DT B 202 M	G4D B 202 M
5,000	502	G4DT B 502 K	G4D B 502 K	G4DT B 502 M	G4D B 502 M
10,000	103	G4DT B 103 K	G4D B 103 K	G4DT B 103 M	G4D B 103 M
20,000	203	G4DT B 203 K	G4D B 203 K	G4DT B 203 M	G4D B 203 M
50,000	503	G4DT B 503 K	G4D B 503 K	G4DT B 503 M	G4D B 503 M
100,000	104	G4DT B 104 K	G4D B 104 K	G4DT B 104 M	G4D B 104 M
200,000	204	G4DT B 204 K	G4D B 204 K	G4DT B 204 M	G4D B 204 M
500,000	504	G4DT B 504 K	G4D B 504 K	G4DT B 504 M	G4D B 504 M
1,000,000	105	G4DT B 105 K	G4D B 105 K	G4DT B 105 M	G4D B 105 M
2,000,000	205	—	—	G4DT B 205 M	G4D B 205 M



G4D

G4B Gull-Wing, Single-Slot, Top Adjust

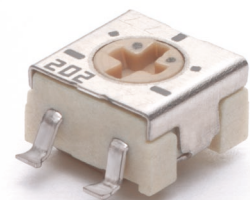
50	500	—	—	G4BT B 500 M	G4B B 500 M
100	101	G4BT B 101 K	G4B B 101 K	G4BT B 101 M	G4B B 101 M
200	201	G4BT B 201 K	G4B B 201 K	G4BT B 201 M	G4B B 201 M
500	501	G4BT B 501 K	G4B B 501 K	G4BT B 501 M	G4B B 501 M
1,000	102	G4BT B 102 K	G4B B 102 K	G4BT B 102 M	G4B B 102 M
2,000	202	G4BT B 202 K	G4B B 202 K	G4BT B 202 M	G4B B 202 M
5,000	502	G4BT B 502 K	G4B B 502 K	G4BT B 502 M	G4B B 502 M
10,000	103	G4BT B 103 K	G4B B 103 K	G4BT B 103 M	G4B B 103 M
20,000	203	G4BT B 203 K	G4B B 203 K	G4BT B 203 M	G4B B 203 M
50,000	503	G4BT B 503 K	G4B B 503 K	G4BT B 503 M	G4B B 503 M
100,000	104	G4BT B 104 K	G4B B 104 K	G4BT B 104 M	G4B B 104 M
200,000	204	G4BT B 204 K	G4B B 204 K	G4BT B 204 M	G4B B 204 M
500,000	504	G4BT B 504 K	G4B B 504 K	G4BT B 504 M	G4B B 504 M
1,000,000	105	G4BT B 105 K	G4B B 105 K	G4BT B 105 M	G4B B 105 M
2,000,000	205	—	—	G4BT B 205 M	G4B B 205 M



G4B

G41B Gull-Wing, Cross-Slot, Automatic Top Adjust

50	500	—	—	G41BT B 500 M	G41B B 500 M
100	101	G41BT B 101 K	G41B B 101 K	G41BT B 101 M	G41B B 101 M
200	201	G41BT B 201 K	G41B B 201 K	G41BT B 201 M	G41B B 201 M
500	501	G41BT B 501 K	G41B B 501 K	G41BT B 501 M	G41B B 501 M
1,000	102	G41BT B 102 K	G41B B 102 K	G41BT B 102 M	G41B B 102 M
2,000	202	G41BT B 202 K	G41B B 202 K	G41BT B 202 M	G41B B 202 M
5,000	502	G41BT B 502 K	G41B B 502 K	G41BT B 502 M	G41B B 502 M
10,000	103	G41BT B 103 K	G41B B 103 K	G41BT B 103 M	G41B B 103 M
20,000	203	G41BT B 203 K	G41B B 203 K	G41BT B 203 M	G41B B 203 M
50,000	503	G41BT B 503 K	G41B B 503 K	G41BT B 503 M	G41B B 503 M
100,000	104	G41BT B 104 K	G41B B 104 K	G41BT B 104 M	G41B B 104 M
200,000	204	G41BT B 204 K	G41B B 204 K	G41BT B 204 M	G41B B 204 M
500,000	504	G41BT B 504 K	G41B B 504 K	G41BT B 504 M	G41B B 504 M
1,000,000	105	G41BT B 105 K	G41B B 105 K	G41BT B 105 M	G41B B 105 M
2,000,000	205	—	—	G41BT B 205 M	G41B B 205 M

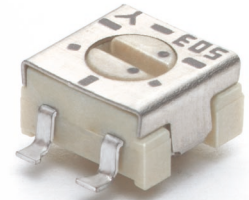


G41B

Nominal Resistance		Resistance Tolerance ±10%		Resistance Tolerance ±20%		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Catalog No. Tape & Reel	Catalog No. Bulk	

G4E Reverse Markings, Gull-Wing, Single-Slot, Top Adjust

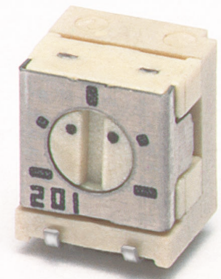
50	500	—	—	G4ET B 500 M	G4E B 500 M
100	101	G4ET B 101 K	G4E B 101 K	G4ET B 101 M	G4E B 101 M
200	201	G4ET B 201 K	G4E B 201 K	G4ET B 201 M	G4E B 201 M
500	501	G4ET B 501 K	G4E B 501 K	G4ET B 501 M	G4E B 501 M
1,000	102	G4ET B 102 K	G4E B 102 K	G4ET B 102 M	G4E B 102 M
2,000	202	G4ET B 202 K	G4E B 202 K	G4ET B 202 M	G4E B 202 M
5,000	502	G4ET B 502 K	G4E B 502 K	G4ET B 502 M	G4E B 502 M
10,000	103	G4ET B 103 K	G4E B 103 K	G4ET B 103 M	G4E B 103 M
20,000	203	G4ET B 203 K	G4E B 203 K	G4ET B 203 M	G4E B 203 M
50,000	503	G4ET B 503 K	G4E B 503 K	G4ET B 503 M	G4E B 503 M
100,000	104	G4ET B 104 K	G4E B 104 K	G4ET B 104 M	G4E B 104 M
200,000	204	G4ET B 204 K	G4E B 204 K	G4ET B 204 M	G4E B 204 M
500,000	504	G4ET B 504 K	G4E B 504 K	G4ET B 504 M	G4E B 504 M
1,000,000	105	G4ET B 105 K	G4E B 105 K	G4ET B 105 M	G4E B 105 M
2,000,000	205	—	—	G4ET B 205 M	G4E B 205 M



G4E

G4SA J-Hook, Single-Slot, Side Adjust

50	500	—	—	G4SAT B 500 M	G4SA B 500 M
100	101	G4SAT B 101 K	G4SA B 101 K	G4SAT B 101 M	G4SA B 101 M
200	201	G4SAT B 201 K	G4SA B 201 K	G4SAT B 201 M	G4SA B 201 M
500	501	G4SAT B 501 K	G4SA B 501 K	G4SAT B 501 M	G4SA B 501 M
1,000	102	G4SAT B 102 K	G4SA B 102 K	G4SAT B 102 M	G4SA B 102 M
2,000	202	G4SAT B 202 K	G4SA B 202 K	G4SAT B 202 M	G4SA B 202 M
5,000	502	G4SAT B 502 K	G4SA B 502 K	G4SAT B 502 M	G4SA B 502 M
10,000	103	G4SAT B 103 K	G4SA B 103 K	G4SAT B 103 M	G4SA B 103 M
20,000	203	G4SAT B 203 K	G4SA B 203 K	G4SAT B 203 M	G4SA B 203 M
50,000	503	G4SAT B 503 K	G4SA B 503 K	G4SAT B 503 M	G4SA B 503 M
100,000	104	G4SAT B 104 K	G4SA B 104 K	G4SAT B 104 M	G4SA B 104 M
200,000	204	G4SAT B 204 K	G4SA B 204 K	G4SAT B 204 M	G4SA B 204 M
500,000	504	G4SAT B 504 K	G4SA B 504 K	G4SAT B 504 M	G4SA B 504 M
1,000,000	105	G4SAT B 105 K	G4SA B 105 K	G4SAT B 105 M	G4SA B 105 M
2,000,000	205	—	—	G4SAT B 205 M	G4SA B 205 M



G4SA

G41SA J-Hook, Cross-Slot, Automatic Side Adjust

50	500	—	—	G41SAT B 500 M	G41SA B 500 M
100	101	G41SAT B 101 K	G41SA B 101 K	G41SAT B 101 M	G41SA B 101 M
200	201	G41SAT B 201 K	G41SA B 201 K	G41SAT B 201 M	G41SA B 201 M
500	501	G41SAT B 501 K	G41SA B 501 K	G41SAT B 501 M	G41SA B 501 M
1,000	102	G41SAT B 102 K	G41SA B 102 K	G41SAT B 102 M	G41SA B 102 M
2,000	202	G41SAT B 202 K	G41SA B 202 K	G41SAT B 202 M	G41SA B 202 M
5,000	502	G41SAT B 502 K	G41SA B 502 K	G41SAT B 502 M	G41SA B 502 M
10,000	103	G41SAT B 103 K	G41SA B 103 K	G41SAT B 103 M	G41SA B 103 M
20,000	203	G41SAT B 203 K	G41SA B 203 K	G41SAT B 203 M	G41SA B 203 M
50,000	503	G41SAT B 503 K	G41SA B 503 K	G41SAT B 503 M	G41SA B 503 M
100,000	104	G41SAT B 104 K	G41SA B 104 K	G41SAT B 104 M	G41SA B 104 M
200,000	204	G41SAT B 204 K	G41SA B 204 K	G41SAT B 204 M	G41SA B 204 M
500,000	504	G41SAT B 504 K	G41SA B 504 K	G41SAT B 504 M	G41SA B 504 M
1,000,000	105	G41SAT B 105 K	G41SA B 105 K	G41SAT B 105 M	G41SA B 105 M
2,000,000	205	—	—	G41SAT B 205 M	G41SA B 205 M

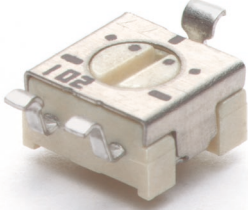


G41SA

Nominal Resistance		Resistance Tolerance $\pm 10\%$		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Catalog No. Tape & Reel	Catalog No. Bulk	

G4BF Gull-Wing, Single-Slot, Bottom Adjust

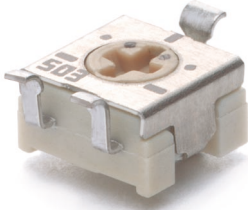
50	500	—	—	—	G4BF B 500 M
100	101	—	G4BF B 101 K	—	G4BF B 101 M
200	201	—	G4BF B 201 K	—	G4BF B 201 M
500	501	—	G4BF B 501 K	—	G4BF B 501 M
1,000	102	—	G4BF B 102 K	—	G4BF B 102 M
2,000	202	—	G4BF B 202 K	—	G4BF B 202 M
5,000	502	—	G4BF B 502 K	—	G4BF B 502 M
10,000	103	—	G4BF B 103 K	—	G4BF B 103 M
20,000	203	—	G4BF B 203 K	—	G4BF B 203 M
50,000	503	—	G4BF B 503 K	—	G4BF B 503 M
100,000	104	—	G4BF B 104 K	—	G4BF B 104 M
200,000	204	—	G4BF B 204 K	—	G4BF B 204 M
500,000	504	—	G4BF B 504 K	—	G4BF B 504 M
1,000,000	105	—	G4BF B 105 K	—	G4BF B 105 M
2,000,000	205	—	—	—	G4BF B 205 M



G4BF

G41BF Gull-Wing, Cross-Slot, Automatic Bottom Adjust

50	500	—	—	—	G41BF B 500 M
100	101	—	G41BF B 101 K	—	G41BF B 101 M
200	201	—	G41BF B 201 K	—	G41BF B 201 M
500	501	—	G41BF B 501 K	—	G41BF B 501 M
1,000	102	—	G41BF B 102 K	—	G41BF B 102 M
2,000	202	—	G41BF B 202 K	—	G41BF B 202 M
5,000	502	—	G41BF B 502 K	—	G41BF B 502 M
10,000	103	—	G41BF B 103 K	—	G41BF B 103 M
20,000	203	—	G41BF B 203 K	—	G41BF B 203 M
50,000	503	—	G41BF B 503 K	—	G41BF B 503 M
100,000	104	—	G41BF B 104 K	—	G41BF B 104 M
200,000	204	—	G41BF B 204 K	—	G41BF B 204 M
500,000	504	—	G41BF B 504 K	—	G41BF B 504 M
1,000,000	105	—	G41BF B 105 K	—	G41BF B 105 M
2,000,000	205	—	—	—	G41BF B 205 M



G41BF

Packaging**Standard:****Tape & Reel Packaging**

G4AT, G41AT, G4DT, G4BT, G41BT, G4ET
500 pieces per 7" reel.

G4SAT, G41SAT
750 pieces per 10" reel.

Bulk Packaging

All G4 Models
100 pieces per vinyl bag.
1,000 pieces per box.

Cleaning Guidelines

For cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

4mm Surface Mount, Multi-Turn, Sealed Cermet Trimmers



Features

- 4mm square SMD, multi-turn, sealed cermet trimmers
- Available in J-hook and gull-wing terminal configurations
- Top or side adjustment, flush with housing
- Meets EIA, EIAJ, IPC, VECI standard SMD trimmer designs
- Wide temperature range of -65°C to $+150^{\circ}\text{C}$
- TCR = $\pm 100\text{ppm}/^{\circ}\text{C}$; Low CRV = 1%
- Tape and reel packaging
- Designed for flow, reflow or infrared reflow soldering
- Sealed to withstand immersion cleaning processes

Specifications

Electrical

Standard Resistance Range	10 Ω to 2M Ω (standard 1, 2 & 5 sequence)
Resistance Tolerance	$\pm 10\%$ standard
End Resistance	1% or 2 Ω , whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 3 Ω , whichever is greater
Power Rating	0.25 watt at $+85^{\circ}\text{C}$; 0 watt at $+150^{\circ}\text{C}$
Maximum Input Voltage	300VDC or power rating, whichever is smaller
Temperature Coefficient	$\pm 100\text{ppm}/^{\circ}\text{C}$
Insulation Resistance	100M Ω minimum at 500VDC
Dielectric Strength	600VAC, 1 minute
Adjustment Travel	12 turns ± 2 nominal

Mechanical

Mechanical Travel	13 turns ± 1
Shaft Torque	180 gf·cm (2.49 oz·in) max.
Stop Strength	Clutch action or wiper idles
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.2g
Marking	Resistance value or code, date code

Environmental

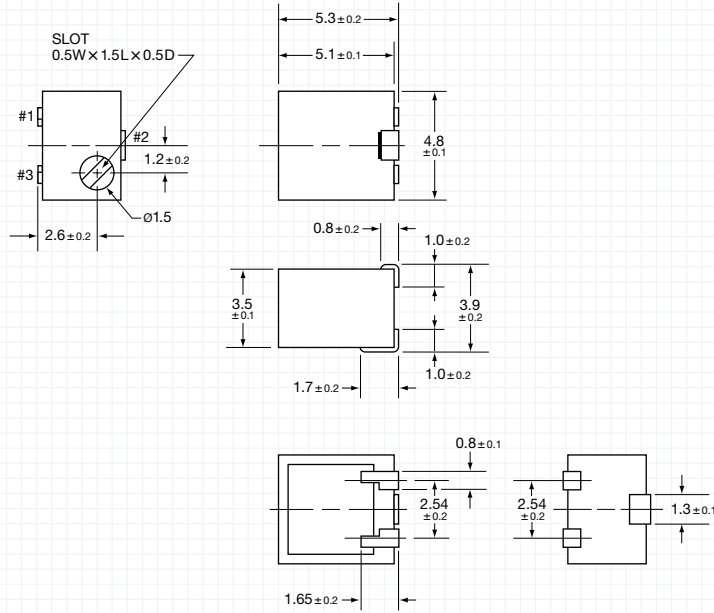
Temperature Range	-65°C to $+150^{\circ}\text{C}$
Low Temperature Operation	-65°C , 0.25 watt, 2 hours $\Delta T/R \leq \pm 1\%$, S.S. $\leq \pm 1\%$
High Temperature Exposure	$+150^{\circ}\text{C}$, 250 hours $\Delta T/R \leq \pm 2\%$, S.S. $\leq \pm 1\%$
Load Life	$+85^{\circ}\text{C}$, 0.25 watt, 1,000 hours $\Delta T/R \leq \pm 3\%$ or $\Delta R = 3\Omega$, S.S. $\leq \pm 2\%$
Thermal Shock	-65°C , $+150^{\circ}\text{C}$, 30 minutes each, 5 cycles $\Delta T/R \leq \pm 2\%$, S.S. $\leq \pm 1\%$
Shock	100G, 6ms, 6 directions, 3 times each $\Delta T/R \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours $\Delta T/R \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Humidity	$+40^{\circ}\text{C}$, 90-95% RH, 0.25 watt, 500 hours $\Delta T/R \leq \pm 3\%$, S.S. $\leq \pm 2\%$
Moisture Resistance	-10°C to $+65^{\circ}\text{C}$, 80-98% RH, 0.25 watt, 10 cycles, 240 hours $\Delta T/R \leq \pm 3\%$
Soldering Heat Resistance	260°C , 4 sec. in, 2 sec. out $\Delta T/R \leq \pm 1\%$
Seal Test	$+85^{\circ}\text{C}$, Fluorinert® for 1 minute
Rotational Life	100 cycles ($< 100\Omega$), 200 cycles ($\geq 100\Omega$) without discontinuity, no load $\Delta T/R \leq \pm 3\%$ or $\Delta R = 3\Omega$

$\Delta T/R$ = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

®Fluorinert is a registered trademark of 3M Co.

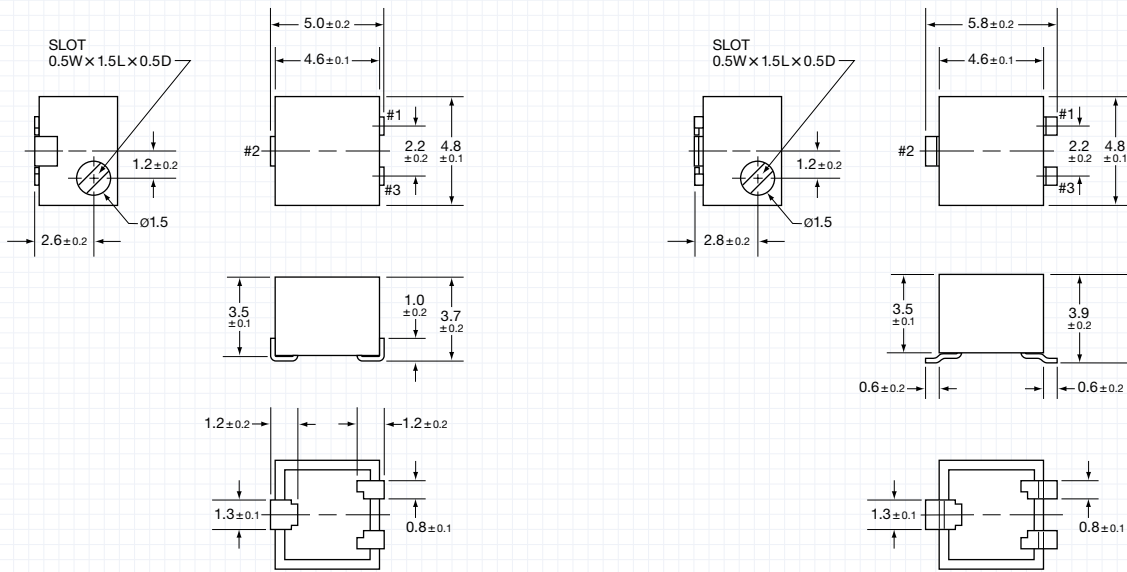
GV4W J-Hook, Single-Slot, Top Adjust

Unit: mm

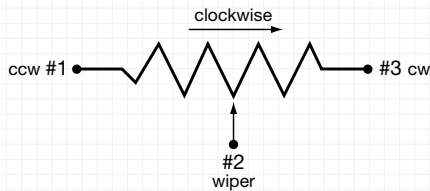


GV4J J-Hook, Single-Slot, Side Adjust

GV4G Gull-Wing, Single-Slot, Side Adjust



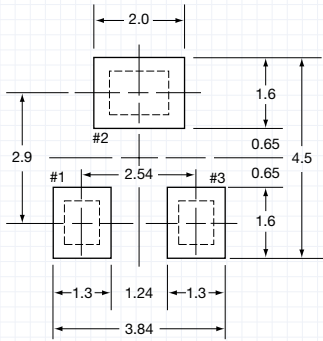
Electrical Schematic



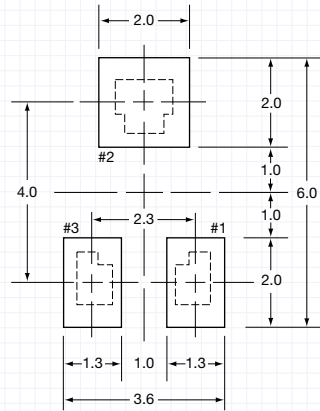
Recommended Land Patterns

Flow or Reflow Soldering Methods

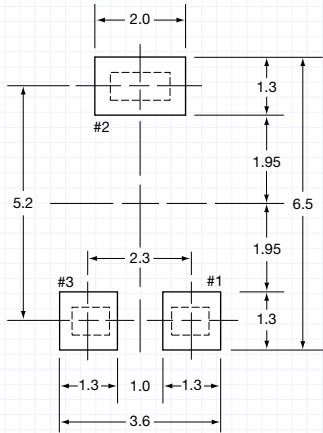
GV4W



GV4J

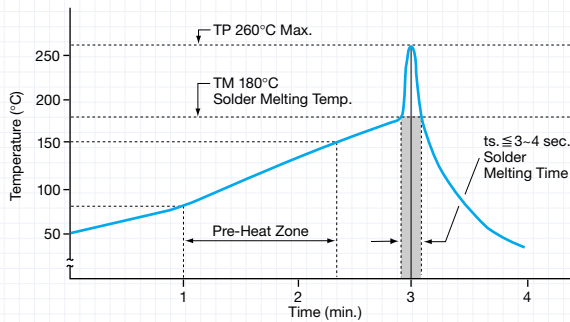


GV4G

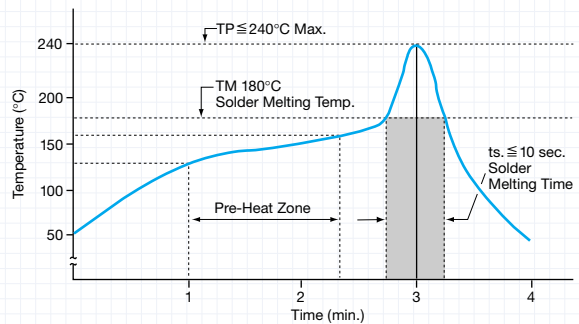


Recommended Soldering Profiles

Flow Soldering Profile



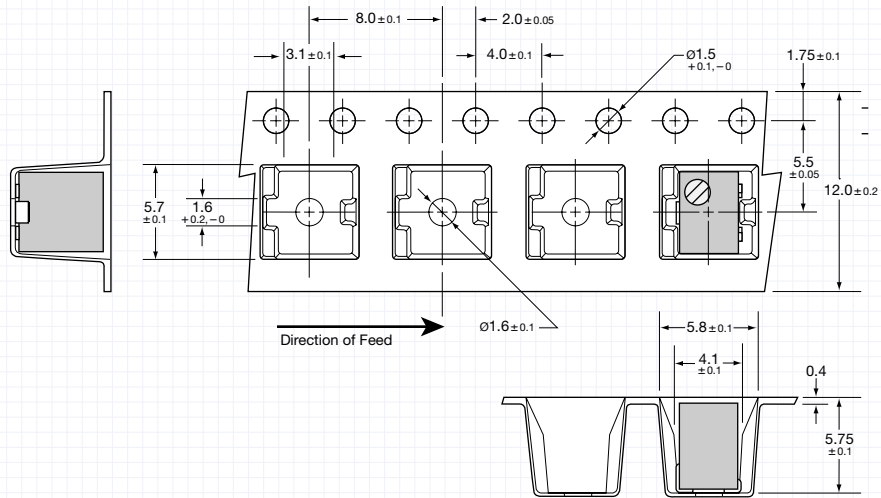
Reflow Soldering Profile



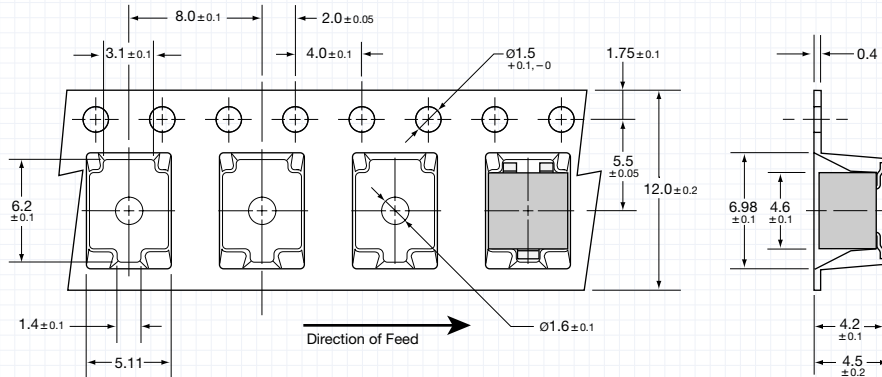
Embossed Tape Dimensions

Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

GV4WT



GV4JT, GV4GT

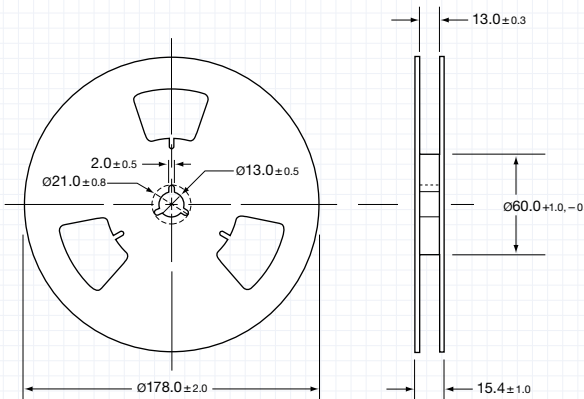


Reel Dimensions

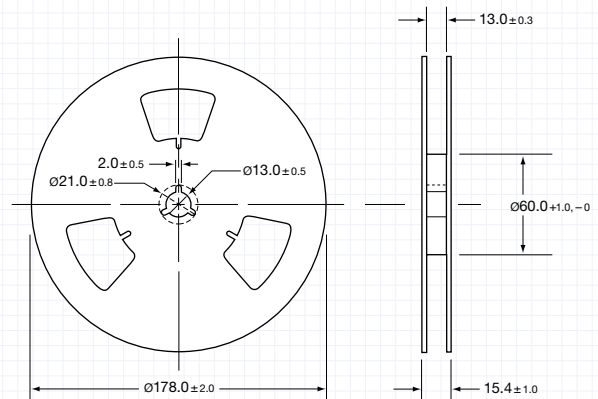
Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

GV4WT

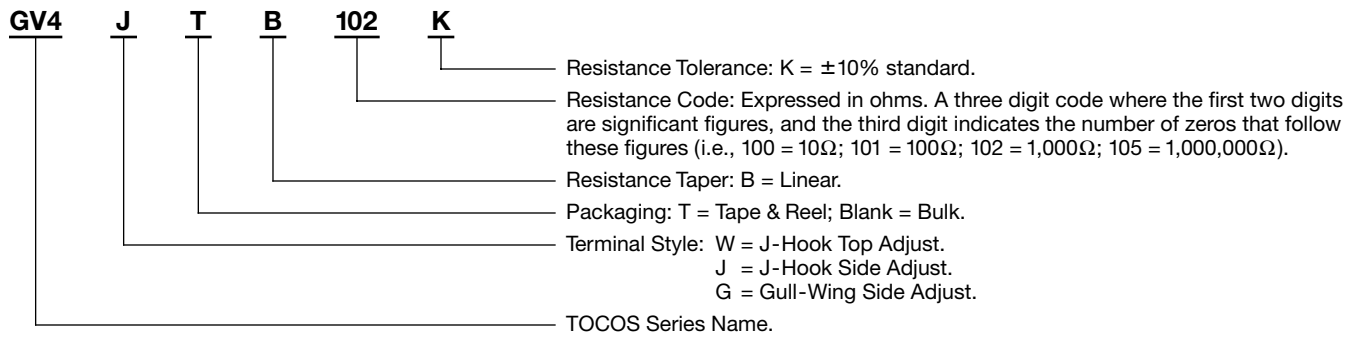
GV4JT, GV4GT



250 Pieces Per 7" Reel



500 Pieces Per 7" Reel



Part Numbers

Nominal Resistance		Resistance Tolerance $\pm 10\%$		Maximum Input Ratings		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Maximum Wiper Current (mA)	Maximum Input Voltage (V)	

GV4W J-Hook, Single-Slot, Top Adjust

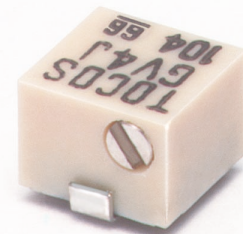
10	100	GV4WT B 100 K	GV4W B 100 K	100.0	1.00
20	200	GV4WT B 200 K	GV4W B 200 K	100.0	2.00
50	500	GV4WT B 500 K	GV4W B 500 K	70.7	3.53
100	101	GV4WT B 101 K	GV4W B 101 K	50.0	5.00
200	201	GV4WT B 201 K	GV4W B 201 K	35.4	7.07
500	102	GV4WT B 501 K	GV4W B 501 K	22.4	11.18
1,000	202	GV4WT B 102 K	GV4W B 102 K	15.8	15.80
2,000	502	GV4WT B 202 K	GV4W B 202 K	11.2	22.36
5,000	502	GV4WT B 502 K	GV4W B 502 K	7.07	35.35
10,000	103	GV4WT B 103 K	GV4W B 103 K	5.00	50.00
20,000	203	GV4WT B 203 K	GV4W B 203 K	3.54	70.70
50,000	503	GV4WT B 503 K	GV4W B 503 K	2.24	111.8
100,000	104	GV4WT B 104 K	GV4W B 104 K	1.58	158.11
200,000	204	GV4WT B 204 K	GV4W B 204 K	1.00	223.60
500,000	504	GV4WT B 504 K	GV4W B 504 K	0.40	300.00
1,000,000	105	GV4WT B 105 K	GV4W B 105 K	0.20	300.00
2,000,000	205	GV4WT B 205 K	GV4W B 205 K	0.10	300.00



GV4W

GV4J J-Hook, Single-Slot, Side Adjust

10	100	GV4JT B 100 K	GV4J B 100 K	100.0	1.00
20	200	GV4JT B 200 K	GV4J B 200 K	100.0	2.00
50	500	GV4JT B 500 K	GV4J B 500 K	70.7	3.53
100	101	GV4JT B 101 K	GV4J B 101 K	50.0	5.00
200	201	GV4JT B 201 K	GV4J B 201 K	35.4	7.07
500	102	GV4JT B 501 K	GV4J B 501 K	22.4	11.18
1,000	202	GV4JT B 102 K	GV4J B 102 K	15.8	15.80
2,000	502	GV4JT B 202 K	GV4J B 202 K	11.2	22.36
5,000	502	GV4JT B 502 K	GV4J B 502 K	7.07	35.35
10,000	103	GV4JT B 103 K	GV4J B 103 K	5.00	50.00
20,000	203	GV4JT B 203 K	GV4J B 203 K	3.54	70.70
50,000	503	GV4JT B 503 K	GV4J B 503 K	2.24	111.8
100,000	104	GV4JT B 104 K	GV4J B 104 K	1.58	158.11
200,000	204	GV4JT B 204 K	GV4J B 204 K	1.00	223.60
500,000	504	GV4JT B 504 K	GV4J B 504 K	0.40	300.00
1,000,000	105	GV4JT B 105 K	GV4J B 105 K	0.20	300.00
2,000,000	205	GV4JT B 205 K	GV4J B 205 K	0.10	300.00



GV4J

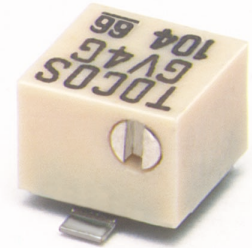
GV4 Series

Part Numbers

Nominal Resistance		Resistance Tolerance $\pm 10\%$		Maximum Input Ratings		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Reel	Catalog No. Bulk	Maximum Wiper Current (mA)	Maximum Input Voltage (V)	

GV4G Gull-Wing, Single-Slot, Side Adjust

10	100	GV4GT B 100 K	GV4G B 100 K	100.0	1.00
20	200	GV4GT B 200 K	GV4G B 200 K	100.0	2.00
50	500	GV4GT B 500 K	GV4G B 500 K	70.7	3.53
100	101	GV4GT B 101 K	GV4G B 101 K	50.0	5.00
200	201	GV4GT B 201 K	GV4G B 201 K	35.4	7.07
500	102	GV4GT B 501 K	GV4G B 501 K	22.4	11.18
1,000	202	GV4GT B 102 K	GV4G B 102 K	15.8	15.80
2,000	502	GV4GT B 202 K	GV4G B 202 K	11.2	22.36
5,000	502	GV4GT B 502 K	GV4G B 502 K	7.07	35.35
10,000	103	GV4GT B 103 K	GV4G B 103 K	5.00	50.00
20,000	203	GV4GT B 203 K	GV4G B 203 K	3.54	70.70
50,000	503	GV4GT B 503 K	GV4G B 503 K	2.24	111.8
100,000	104	GV4GT B 104 K	GV4G B 104 K	1.58	158.11
200,000	204	GV4GT B 204 K	GV4G B 204 K	1.00	223.60
500,000	504	GV4GT B 504 K	GV4G B 504 K	0.40	300.00
1,000,000	105	GV4GT B 105 K	GV4G B 105 K	0.20	300.00
2,000,000	205	GV4GT B 205 K	GV4G B 205 K	0.10	300.00



GV4G

Packaging

Standard:

Tape & Reel Packaging

GV4WT

250 pieces per 7" reel.

GV4JT, GV4GT

500 pieces per 7" reel.

Bulk Packaging

All GV4 Models

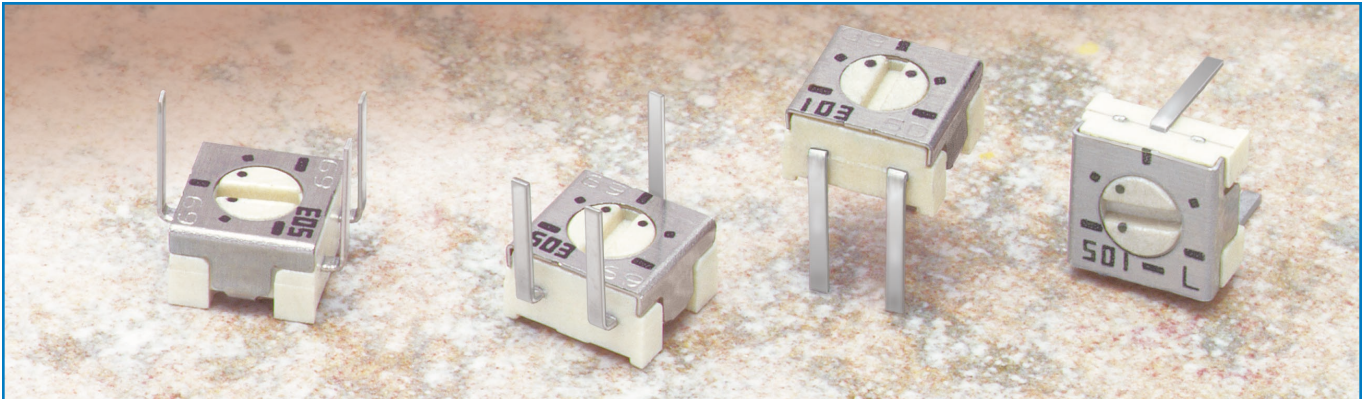
100 pieces per vinyl bag.

1,000 pieces per box.

Cleaning Guidelines

For cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

4mm Square, Single-Turn, Through-Hole, Sealed Cermet Trimmers



Features

- 4mm square, single-turn, through-hole, sealed cermet trimmers
- Top and bottom single-slot adjustment
- Space-saving G4 series SMD-sized units with through-hole terminals
- High setting accuracy, zero backlash
- Wide temperature range of -55°C to $+125^{\circ}\text{C}$
- Meets EIA, EIAJ, IPC, VECI standard SMD trimmer designs
- Sealed to withstand wave soldering and immersion cleaning processes

Specifications

Electrical

Standard Resistance Range	50 Ω to 2M Ω (standard 1, 2 & 5 sequence)
Resistance Tolerance	$\pm 20\%$ standard $\pm 10\%$ optional for 100 Ω to 1M Ω
End Resistance	1% or 3 Ω , whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	2% or 3 Ω , whichever is greater
Power Rating	0.25 watt at $+70^{\circ}\text{C}$; 0 watt at $+125^{\circ}\text{C}$
Maximum Input Voltage	200VDC or power rating, whichever is smaller
Temperature Coefficient	± 100 ppm/ $^{\circ}\text{C}$, 200 Ω to 1M Ω ± 250 ppm/ $^{\circ}\text{C}$, other values
Insulation Resistance	100M Ω minimum at 500VDC
Dielectric Strength	500VAC, 1 minute
Adjustment Travel	$200^{\circ} \pm 10^{\circ}$

Mechanical

Mechanical Travel	$240^{\circ} \pm 10^{\circ}$
Shaft Torque	150 gf·cm (2.08 oz·in) max.
Stop Strength	300 gf·cm (4.16 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.16g
Marking	Resistance value or code, date code

Environmental

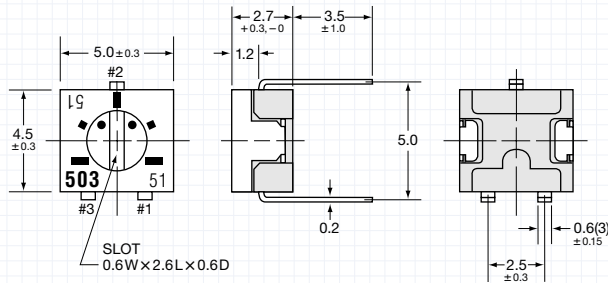
Temperature Range	-55°C to $+125^{\circ}\text{C}$
Low Temperature Operation	-55°C , 0.25 watt, 45 minutes $\Delta T/R \leq \pm 2\%$, S.S. $\leq \pm 2\%$
High Temperature Exposure	$+125^{\circ}\text{C}$, 250 hours $\Delta T/R \leq \pm 2\%$, S.S. $\leq \pm 2\%$
Load Life	$+70^{\circ}\text{C}$, 0.25 watt, 1,000 hours $\Delta T/R \leq \pm 3\%$, S.S. $\leq \pm 2\%$
Thermal Shock	-55°C , $+125^{\circ}\text{C}$, 30 minutes each, 5 cycles $\Delta T/R \leq \pm 2\%$, S.S. $\leq \pm 1\%$
Shock	100G, 6ms, 6 directions, 3 times each $\Delta T/R \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours $\Delta T/R \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Humidity	$+40^{\circ}\text{C}$, 90-95% RH, 0.25 watt, 500 hours $\Delta T/R \leq \pm 3\%$, S.S. $\leq \pm 2\%$
Moisture Resistance	-10°C to $+65^{\circ}\text{C}$, 80-98% RH, 0.25 watt, 10 cycles, 240 hours $\Delta T/R \leq \pm 3\%$
Soldering Heat Resistance	260°C , 10 seconds $\Delta T/R \leq \pm 1\%$
Seal Test	$+85^{\circ}\text{C}$, hot water for 1 minute
Rotational Life	100 cycles without discontinuity, no load $\Delta T/R \leq \pm 5\%$

$\Delta T/R$ = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

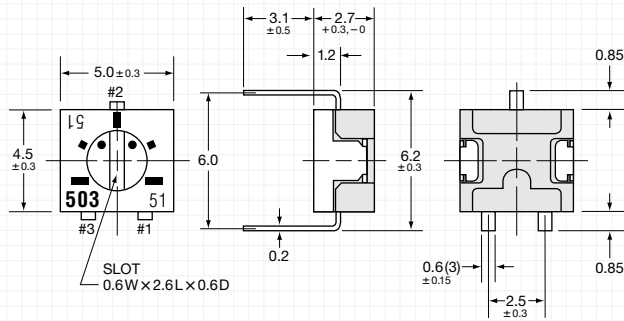
For surface mount models of the G4C series,
refer to the G4 Series on page 14.

G4C Through-Hole, C Terminal Style, Single-Slot, Top Adjust

Unit: mm



G4CF Through-Hole, CF Terminal Style, Single-Slot, Bottom Adjust

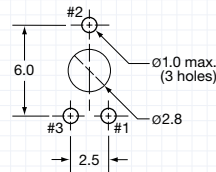
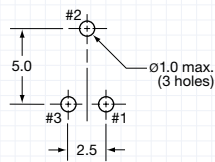


Recommended PCB Layouts

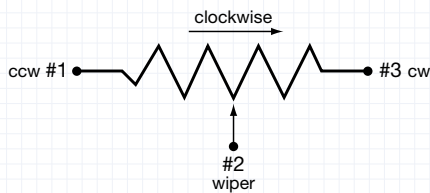
C Pin-Out

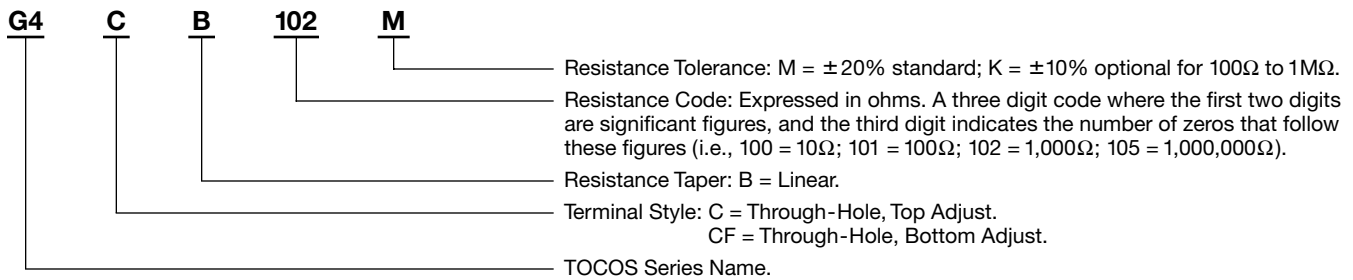
CF Pin-Out

Unit: mm



Electrical Schematic





Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

G4C Through-Hole, C Terminal Style, Single-Slot, Top Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	Potentiometer Styles
50	500	—	G4C B 500 M	
100	101	G4C B 101 K	G4C B 101 M	
200	201	G4C B 201 K	G4C B 201 M	
500	501	G4C B 501 K	G4C B 501 M	
1,000	102	G4C B 102 K	G4C B 102 M	
2,000	202	G4C B 202 K	G4C B 202 M	
5,000	502	G4C B 502 K	G4C B 502 M	
10,000	103	G4C B 103 K	G4C B 103 M	
20,000	203	G4C B 203 K	G4C B 203 M	
50,000	503	G4C B 503 K	G4C B 503 M	
100,000	104	G4C B 104 K	G4C B 104 M	
200,000	204	G4C B 204 K	G4C B 204 M	
500,000	504	G4C B 504 K	G4C B 504 M	
1,000,000	105	G4C B 105 K	G4C B 105 M	
2,000,000	205	—	G4C B 205 M	

G4CF Through-Hole, CF Terminal Style, Single-Slot, Bottom Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	Potentiometer Styles
50	500	—	G4CF B 500 M	
100	101	G4CF B 101 K	G4CF B 101 M	
200	201	G4CF B 201 K	G4CF B 201 M	
500	501	G4CF B 501 K	G4CF B 501 M	
1,000	102	G4CF B 102 K	G4CF B 102 M	
2,000	202	G4CF B 202 K	G4CF B 202 M	
5,000	502	G4CF B 502 K	G4CF B 502 M	
10,000	103	G4CF B 103 K	G4CF B 103 M	
20,000	203	G4CF B 203 K	G4CF B 203 M	
50,000	503	G4CF B 503 K	G4CF B 503 M	
100,000	104	G4CF B 104 K	G4CF B 104 M	
200,000	204	G4CF B 204 K	G4CF B 204 M	
500,000	504	G4CF B 504 K	G4CF B 504 M	
1,000,000	105	G4CF B 105 K	G4CF B 105 M	
2,000,000	205	—	G4CF B 205 M	

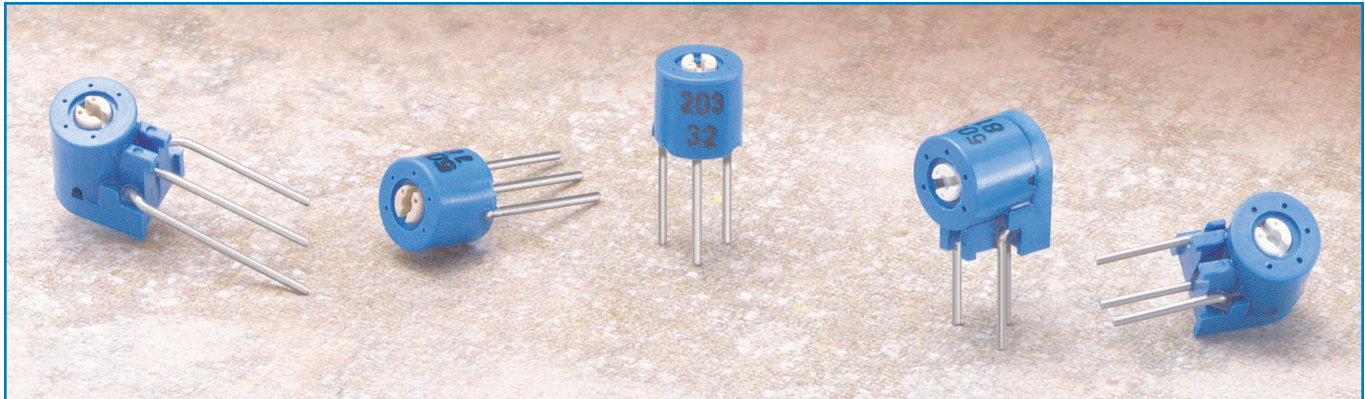
Packaging

Standard: Bulk Packaging
Quantity: 100 pieces per vinyl bag.
 1,000 pieces per box.

Soldering and Cleaning Guidelines

The G4C trimmers are designed to withstand flow or reflow soldering methods. Refer to the Surface Mount G4 series for soldering temperature profiles. For cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

4mm Round, Single-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 4mm round, single-turn, through-hole, sealed cermet trimmers
- Top and side adjust models
- Compact with high 0.5 watt power rating
- High setting stability with precious metal multi-contacts
- Low noise and low temperature coefficient
- Wide temperature range of -55°C to $+125^{\circ}\text{C}$
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning processes

Specifications

Electrical

Standard Resistance Range	100 Ω to 1M Ω (standard 1, 2 & 5 sequence)
Resistance Tolerance	$\pm 10\%$ and $\pm 20\%$
End Resistance	1% or 3 Ω , whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	2% or 3 Ω , whichever is greater
Power Rating	0.5 watt at $+70^{\circ}\text{C}$, 0 watt at $+125^{\circ}\text{C}$
Maximum Input Voltage	200VDC or power rating, whichever is smaller
Temperature Coefficient	$\pm 100\text{ppm}/^{\circ}\text{C}$, 200 Ω to 500k Ω $\pm 250\text{ppm}/^{\circ}\text{C}$, other values
Insulation Resistance	1,000M Ω minimum at 500VDC
Dielectric Strength	500VAC, 1 minute
Adjustment Travel	190 $^{\circ}$

Mechanical

Mechanical Travel	230 $^{\circ} \pm 10^{\circ}$
Shaft Torque	150 gf \cdot cm (2.08 oz \cdot in) max.
Stop Strength	200 gf \cdot cm (2.77 oz \cdot in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.2g (W, U); 0.3g (S, V)
Marking	Resistance code, date code

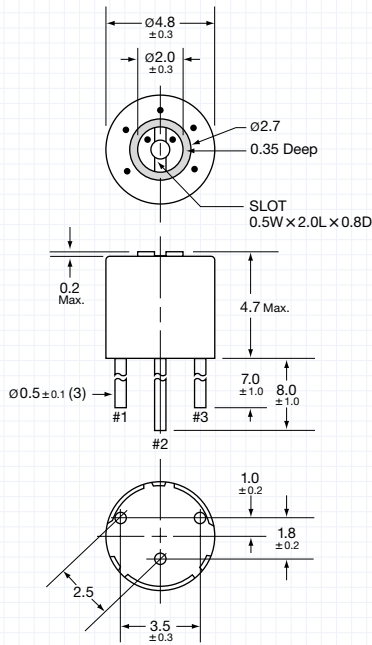
Environmental

Temperature Range	-55°C to $+125^{\circ}\text{C}$
Low Temperature Operation	-55°C , 0.5 watt, 2 hours $\Delta\text{T}/\text{R} \leq \pm 3\%$
High Temperature Exposure	$+125^{\circ}\text{C}$, 250 hours $\Delta\text{T}/\text{R} \leq \pm 2\%$, S.S. $\leq \pm 1\%$
Load Life	$+70^{\circ}\text{C}$, 0.5 watt, 100 hours $\Delta\text{T}/\text{R} \leq \pm 3\%$, S.S. $\leq \pm 2\%$
Thermal Shock	-55°C , $+125^{\circ}\text{C}$, 30 minutes each, 5 cycles $\Delta\text{T}/\text{R} \leq \pm 2\%$, S.S. $\leq \pm 2\%$
Shock	100G, 6ms, 6 directions, 3 times each $\Delta\text{T}/\text{R} \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours $\Delta\text{T}/\text{R} \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Humidity	$+40^{\circ}\text{C}$, 90-95%RH, 0.5 watt, 500 hours $\Delta\text{T}/\text{R} \leq \pm 3\%$, S.S. $\leq \pm 1\%$
Moisture Resistance	-10°C to $+65^{\circ}\text{C}$, 80-98%RH, 0.5 watt, 10 cycles, 240 hours $\Delta\text{T}/\text{R} \leq \pm 3\%$
Soldering Heat Resistance	350 $^{\circ}\text{C}$, 3 seconds $\Delta\text{T}/\text{R} \leq \pm 2\%$
Seal Test	$+85^{\circ}\text{C}$, hot water for 1 minute
Rotational Life	200 cycles without discontinuity $\Delta\text{T}/\text{R} \leq \pm 5\%$

$\Delta\text{T}/\text{R}$ = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

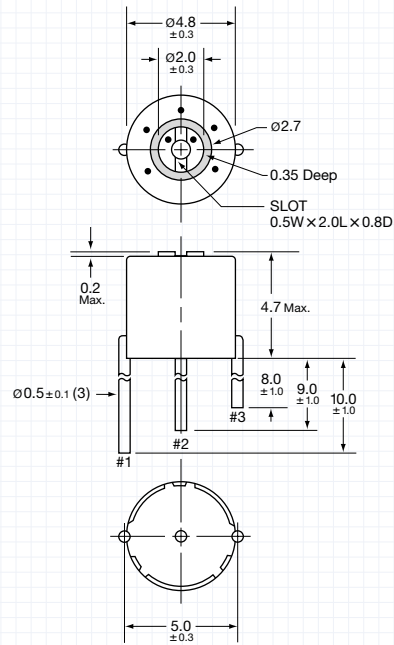
GF04W

W Terminal Style, Single-Slot, Top Adjust



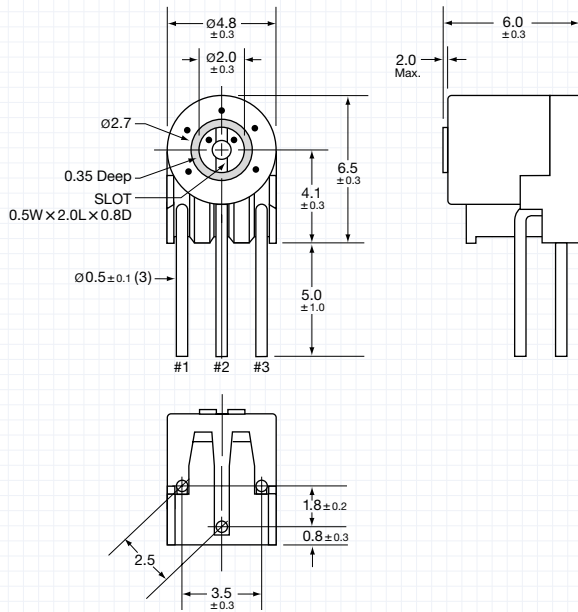
GF04U

U Terminal Style, Single-Slot, Top Adjust



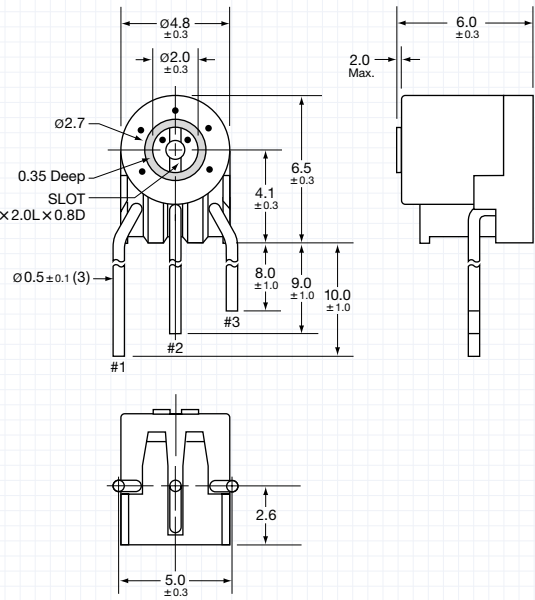
GF04S

S Terminal Style, Single-Slot, Side Adjust



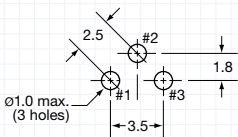
GF04V

V Terminal Style, Single-Slot, Side Adjust

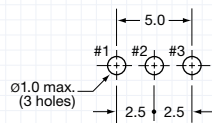


Recommended PCB Layout

W & S Pin-Out

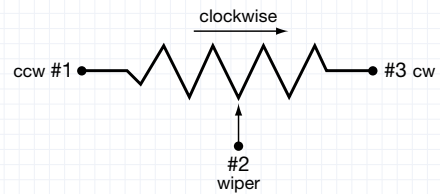


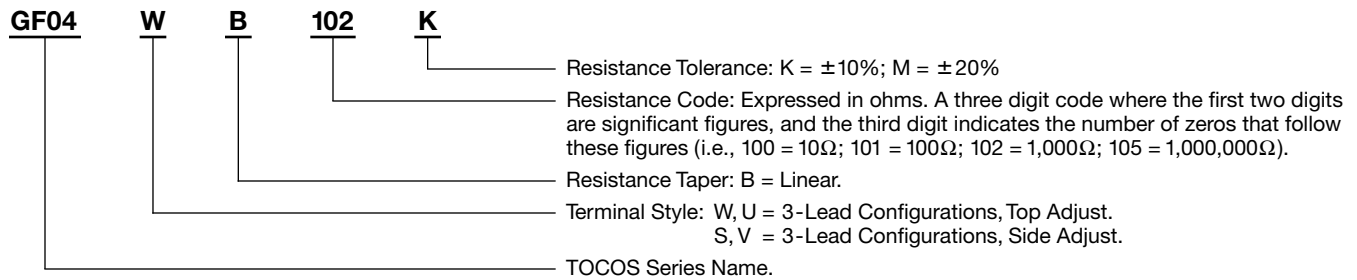
U & V Pin-Out



Unit: mm

Electrical Schematic






Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF04W Through-Hole, W Terminal Style, Single-Slot, Top Adjust

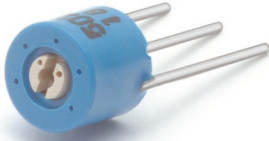
100	101	GF04W B 101 K	GF04W B 101 M
200	201	GF04W B 201 K	GF04W B 201 M
500	501	GF04W B 501 K	GF04W B 501 M
1,000	102	GF04W B 102 K	GF04W B 102 M
2,000	202	GF04W B 202 K	GF04W B 202 M
5,000	502	GF04W B 502 K	GF04W B 502 M
10,000	103	GF04W B 103 K	GF04W B 103 M
20,000	203	GF04W B 203 K	GF04W B 203 M
50,000	503	GF04W B 503 K	GF04W B 503 M
100,000	104	GF04W B 104 K	GF04W B 104 M
200,000	204	GF04W B 204 K	GF04W B 204 M
500,000	504	GF04W B 504 K	GF04W B 504 M
1,000,000	105	GF04W B 105 K	GF04W B 105 M



GF04W

GF04U Through-Hole, U Terminal Style, Single-Slot, Top Adjust


100	101	GF04U B 101 K	GF04U B 101 M
200	201	GF04U B 201 K	GF04U B 201 M
500	501	GF04U B 501 K	GF04U B 501 M
1,000	102	GF04U B 102 K	GF04U B 102 M
2,000	202	GF04U B 202 K	GF04U B 202 M
5,000	502	GF04U B 502 K	GF04U B 502 M
10,000	103	GF04U B 103 K	GF04U B 103 M
20,000	203	GF04U B 203 K	GF04U B 203 M
50,000	503	GF04U B 503 K	GF04U B 503 M
100,000	104	GF04U B 104 K	GF04U B 104 M
200,000	204	GF04U B 204 K	GF04U B 204 M
500,000	504	GF04U B 504 K	GF04U B 504 M
1,000,000	105	GF04U B 105 K	GF04U B 105 M



GF04U

GF04S Through-Hole, S Terminal Style, Single-Slot, Side Adjust

100	101	GF04S B 101 K	GF04S B 101 M
200	201	GF04S B 201 K	GF04S B 201 M
500	501	GF04S B 501 K	GF04S B 501 M
1,000	102	GF04S B 102 K	GF04S B 102 M
2,000	202	GF04S B 202 K	GF04S B 202 M
5,000	502	GF04S B 502 K	GF04S B 502 M
10,000	103	GF04S B 103 K	GF04S B 103 M
20,000	203	GF04S B 203 K	GF04S B 203 M
50,000	503	GF04S B 503 K	GF04S B 503 M
100,000	104	GF04S B 104 K	GF04S B 104 M
200,000	204	GF04S B 204 K	GF04S B 204 M
500,000	504	GF04S B 504 K	GF04S B 504 M
1,000,000	105	GF04S B 105 K	GF04S B 105 M



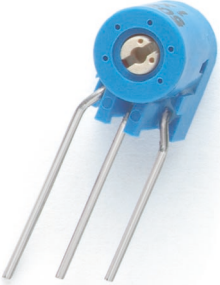
GF04S

GF04 Series

Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF04V Through-Hole, V Terminal Style, Single-Slot, Side Adjust

100	101	GF04V B 101 K	GF04V B 101 M	 <p style="text-align: center;">GF04V</p>
200	201	GF04V B 201 K	GF04V B 201 M	
500	501	GF04V B 501 K	GF04V B 501 M	
1,000	102	GF04V B 102 K	GF04V B 102 M	
2,000	202	GF04V B 202 K	GF04V B 202 M	
5,000	502	GF04V B 502 K	GF04V B 502 M	
10,000	103	GF04V B 103 K	GF04V B 103 M	
20,000	203	GF04V B 203 K	GF04V B 203 M	
50,000	503	GF04V B 503 K	GF04V B 503 M	
100,000	104	GF04V B 104 K	GF04V B 104 M	
200,000	204	GF04V B 204 K	GF04V B 204 M	
500,000	504	GF04V B 504 K	GF04V B 504 M	
1,000,000	105	GF04V B 105 K	GF04V B 105 M	

Packaging

Standard:	Bulk Packaging	Quantity 50 pieces per vinyl bag. 500 pieces per box.
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Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

1/4" Round, Single-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 1/4" round, single-turn, through-hole, sealed cermet trimmers
- Top, side and bottom adjust models
- 10mm diameter housing for bottom adjust model
- High setting stability with precious metal multi-contacts
- Low noise and low TC
- Gold flushed terminals for superior solderability and longer shelf life
- PC board stand-offs
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning

Specifications

Electrical

Standard Resistance Range	10Ω to 1MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 3Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1Ω, whichever is greater
Power Rating	0.5 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	250VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C, 200Ω to 1MΩ ±250ppm/°C, other values
Insulation Resistance	100MΩ minimum at 500VDC
Dielectric Strength	500VAC, 1 minute
Adjustment Travel	240° ± 10°

Mechanical

Mechanical Travel	250° ± 10°
Shaft Torque	200 gf·cm (2.77 oz·in) max.
Stop Strength	500 gf·cm (6.93 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.5g (P, W); 0.6g (S, X); 1.03g (F)
Marking	Resistance code, date code

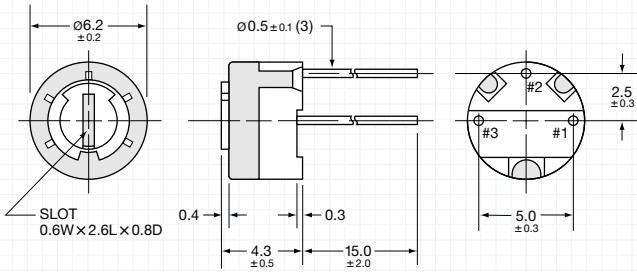
Environmental

Temperature Range	-55°C to +125°C
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Load Life	+70°C, 0.5 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±3%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±2%, S.S. ≤ ±1%
Shock	50G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±2%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95%RH, 0.5 watt, 500 hours ΔT/R ≤ ±5%, S.S. ≤ ±1%
Moisture Resistance	-10°C to +65°C, 80-98%RH, 0.5 watt, 10 cycles, 240 hours ΔT/R ≤ ±3%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	200 cycles without discontinuity ΔT/R ≤ ±10%

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

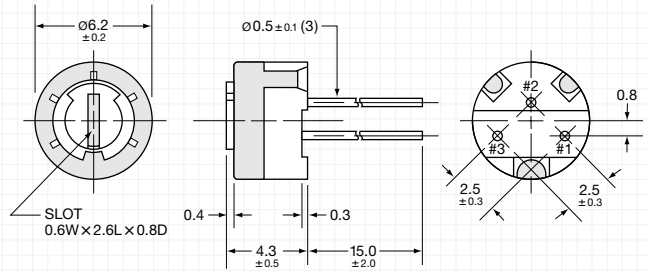
RJC06P

P Terminal Style, Single-Slot, Top Adjust



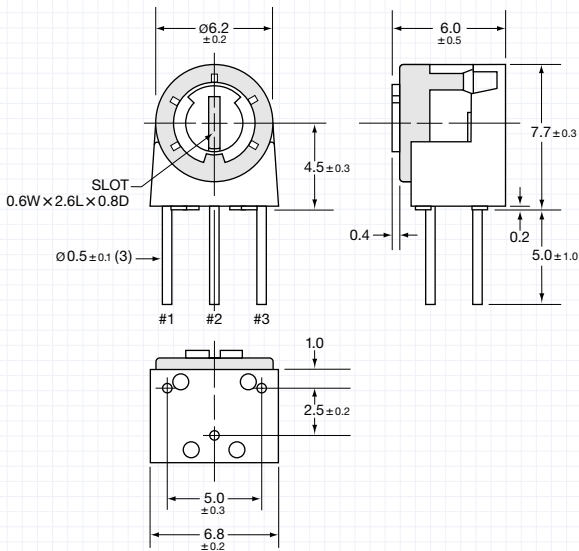
RJC06W

W Terminal Style, Single-Slot, Top Adjust



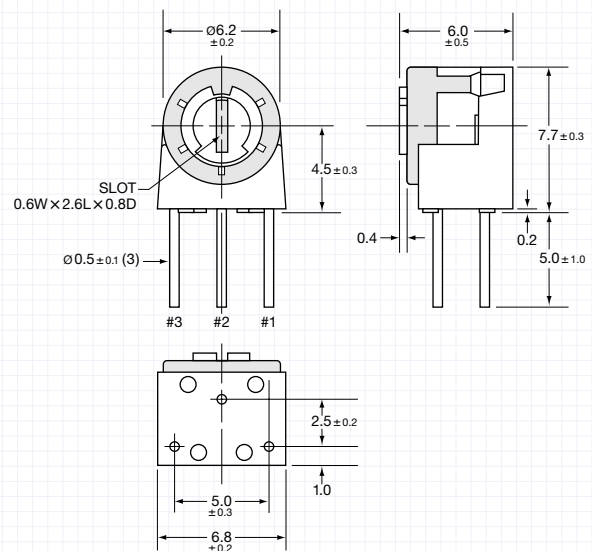
RJC06S

S Terminal Style, Single-Slot, Side Adjust



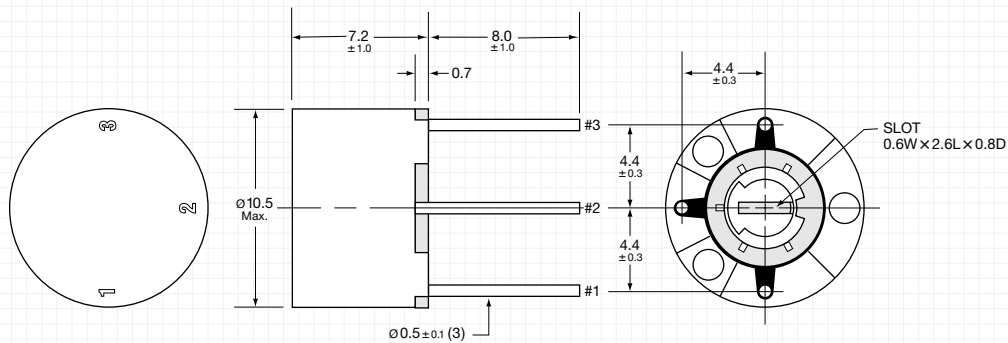
RJC06X

X Terminal Style, Single-Slot, Side Adjust

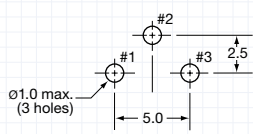


RJC06F

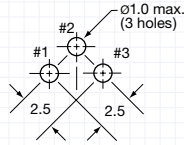
F Terminal Style, Single-Slot, Bottom Adjust



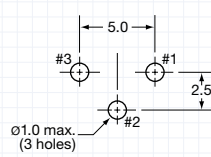
P & S Pin-Out



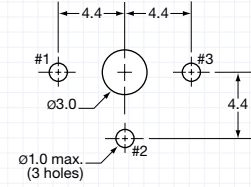
W Pin-Out



X Pin-Out

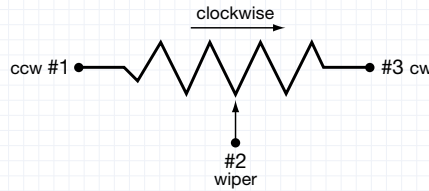


F Pin-Out

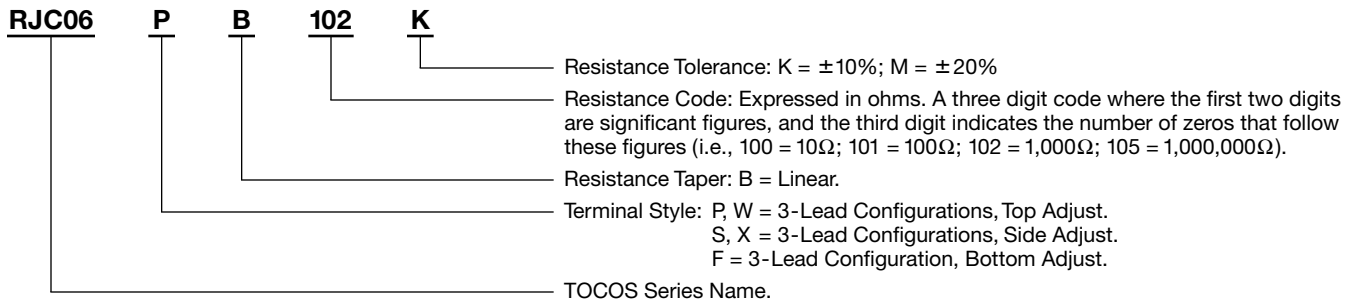


Unit: mm

Electrical Schematic



Part Numbering System



Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

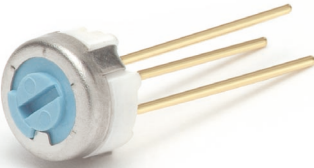
RJC06P Through-Hole, P Terminal Style, Single-Slot, Top Adjust

10	100	RJC06P B 100 K	RJC06P B 100 M
20	200	RJC06P B 200 K	RJC06P B 200 M
50	500	RJC06P B 500 K	RJC06P B 500 M
100	101	RJC06P B 101 K	RJC06P B 101 M
200	201	RJC06P B 201 K	RJC06P B 201 M
500	501	RJC06P B 501 K	RJC06P B 501 M
1,000	102	RJC06P B 102 K	RJC06P B 102 M
2,000	202	RJC06P B 202 K	RJC06P B 202 M
5,000	502	RJC06P B 502 K	RJC06P B 502 M
10,000	103	RJC06P B 103 K	RJC06P B 103 M
20,000	203	RJC06P B 203 K	RJC06P B 203 M
50,000	503	RJC06P B 503 K	RJC06P B 503 M
100,000	104	RJC06P B 104 K	RJC06P B 104 M
200,000	204	RJC06P B 204 K	RJC06P B 204 M
500,000	504	RJC06P B 504 K	RJC06P B 504 M
1,000,000	105	RJC06P B 105 K	RJC06P B 105 M




Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

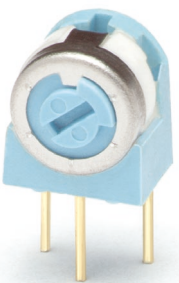
RJC06W Through-Hole, W Terminal Style, Single-Slot, Top Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	Potentiometer Styles
10	100	RJC06W B 100 K	RJC06W B 100 M	 RJC06W
20	200	RJC06W B 200 K	RJC06W B 200 M	
50	500	RJC06W B 500 K	RJC06W B 500 M	
100	101	RJC06W B 101 K	RJC06W B 101 M	
200	201	RJC06W B 201 K	RJC06W B 201 M	
500	501	RJC06W B 501 K	RJC06W B 501 M	
1,000	102	RJC06W B 102 K	RJC06W B 102 M	
2,000	202	RJC06W B 202 K	RJC06W B 202 M	
5,000	502	RJC06W B 502 K	RJC06W B 502 M	
10,000	103	RJC06W B 103 K	RJC06W B 103 M	
20,000	203	RJC06W B 203 K	RJC06W B 203 M	
50,000	503	RJC06W B 503 K	RJC06W B 503 M	
100,000	104	RJC06W B 104 K	RJC06W B 104 M	
200,000	204	RJC06W B 204 K	RJC06W B 204 M	
500,000	504	RJC06W B 504 K	RJC06W B 504 M	
1,000,000	105	RJC06W B 105 K	RJC06W B 105 M	

RJC06S Through-Hole, S Terminal Style, Single-Slot, Side Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	Potentiometer Styles
10	100	RJC06S B 100 K	RJC06S B 100 M	 RJC06S
20	200	RJC06S B 200 K	RJC06S B 200 M	
50	500	RJC06S B 500 K	RJC06S B 500 M	
100	101	RJC06S B 101 K	RJC06S B 101 M	
200	201	RJC06S B 201 K	RJC06S B 201 M	
500	501	RJC06S B 501 K	RJC06S B 501 M	
1,000	102	RJC06S B 102 K	RJC06S B 102 M	
2,000	202	RJC06S B 202 K	RJC06S B 202 M	
5,000	502	RJC06S B 502 K	RJC06S B 502 M	
10,000	103	RJC06S B 103 K	RJC06S B 103 M	
20,000	203	RJC06S B 203 K	RJC06S B 203 M	
50,000	503	RJC06S B 503 K	RJC06S B 503 M	
100,000	104	RJC06S B 104 K	RJC06S B 104 M	
200,000	204	RJC06S B 204 K	RJC06S B 204 M	
500,000	504	RJC06S B 504 K	RJC06S B 504 M	
1,000,000	105	RJC06S B 105 K	RJC06S B 105 M	

RJC06X Through-Hole, X Terminal Style, Single-Slot, Side Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	Potentiometer Styles
10	100	RJC06X B 100 K	RJC06X B 100 M	 RJC06X
20	200	RJC06X B 200 K	RJC06X B 200 M	
50	500	RJC06X B 500 K	RJC06X B 500 M	
100	101	RJC06X B 101 K	RJC06X B 101 M	
200	201	RJC06X B 201 K	RJC06X B 201 M	
500	501	RJC06X B 501 K	RJC06X B 501 M	
1,000	102	RJC06X B 102 K	RJC06X B 102 M	
2,000	202	RJC06X B 202 K	RJC06X B 202 M	
5,000	502	RJC06X B 502 K	RJC06X B 502 M	
10,000	103	RJC06X B 103 K	RJC06X B 103 M	
20,000	203	RJC06X B 203 K	RJC06X B 203 M	
50,000	503	RJC06X B 503 K	RJC06X B 503 M	
100,000	104	RJC06X B 104 K	RJC06X B 104 M	
200,000	204	RJC06X B 204 K	RJC06X B 204 M	
500,000	504	RJC06X B 504 K	RJC06X B 504 M	
1,000,000	105	RJC06X B 105 K	RJC06X B 105 M	

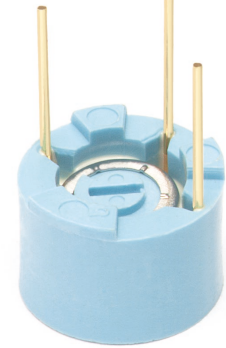
RJC06 Series

Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

RJC06F Through-Hole, F Terminal Style, Single-Slot, Bottom Adjust

10	100	RJC06F B 100 K	RJC06F B 100 M
20	200	RJC06F B 200 K	RJC06F B 200 M
50	500	RJC06F B 500 K	RJC06F B 500 M
100	101	RJC06F B 101 K	RJC06F B 101 M
200	201	RJC06F B 201 K	RJC06F B 201 M
500	501	RJC06F B 501 K	RJC06F B 501 M
1,000	102	RJC06F B 102 K	RJC06F B 102 M
2,000	202	RJC06F B 202 K	RJC06F B 202 M
5,000	502	RJC06F B 502 K	RJC06F B 502 M
10,000	103	RJC06F B 103 K	RJC06F B 103 M
20,000	203	RJC06F B 203 K	RJC06F B 203 M
50,000	503	RJC06F B 503 K	RJC06F B 503 M
100,000	104	RJC06F B 104 K	RJC06F B 104 M
200,000	204	RJC06F B 204 K	RJC06F B 204 M
500,000	504	RJC06F B 504 K	RJC06F B 504 M
1,000,000	105	RJC06F B 105 K	RJC06F B 105 M



RJC06F

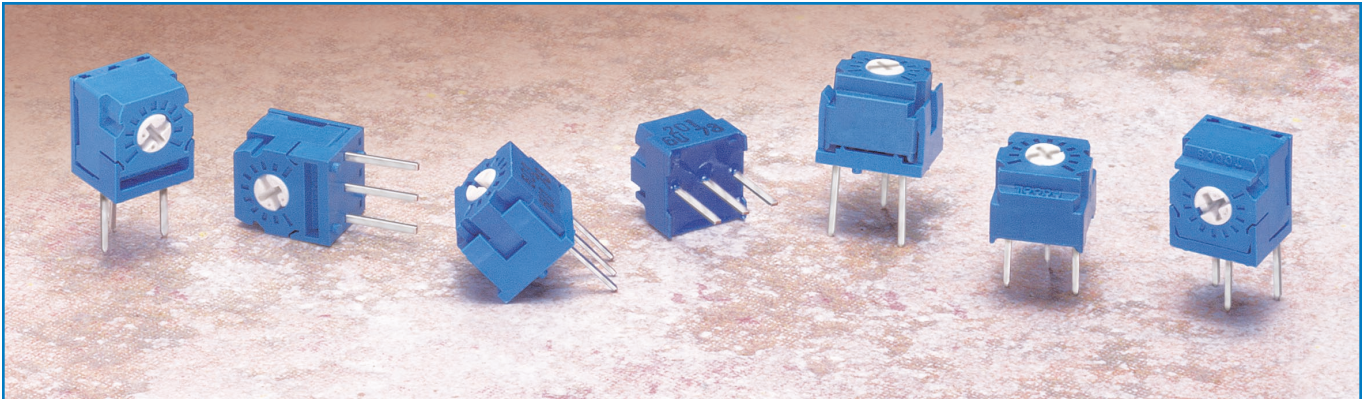
Packaging

Standard: Bulk Packaging **Quantity**
50 pieces per vinyl bag.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

1/4" Square, Single-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 1/4" square, single-turn, through-hole, sealed cermet trimmers
- Top and side adjust styles available
- 14 pin configurations including the popular 3/8" pin styles
- Precious metal multi-contact wiper design
- Zero backlash
- Cross-slot design for automatic machine adjustment
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning
- Taping available, reel or ammo packaging

Specifications

Electrical

Standard Resistance Range	10Ω to 5MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 1Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1Ω, whichever is greater
Power Rating	0.5 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	250VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C
Insulation Resistance	1,000MΩ minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	210° ± 10°

Mechanical

Mechanical Travel	250° ± 10°
Shaft Torque	200 gf·cm (2.77 oz·in) max.
Stop Strength	500 gf·cm (6.93 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.4g (P, P1, W, U) 0.68g (P2, S, S1, X, X1, U1, Y, Y1, V, V1)
Marking	Resistance code, date code, model type

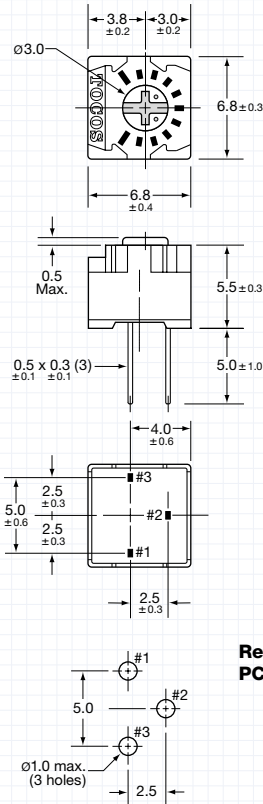
Environmental

Temperature Range	-55°C to +125°C
Low Temperature Operation	-55°C, 0.5 watt, 2 hours ΔT/R ≤ ±2%, S.S. ≤ ±2%
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±2%, S.S. ≤ ±2%
Load Life	+70°C, 0.5 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±1%, S.S. ≤ ±1%
Shock	100G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±1%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95% RH, 0.5 watt, 500 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Moisture Resistance	-10°C to +65°C, 80-98% RH, 0.5 watt, 10 cycles, 240 hours ΔT/R ≤ ±2%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	100 cycles without discontinuity ΔT/R ≤ ±(2Ω+3%)

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

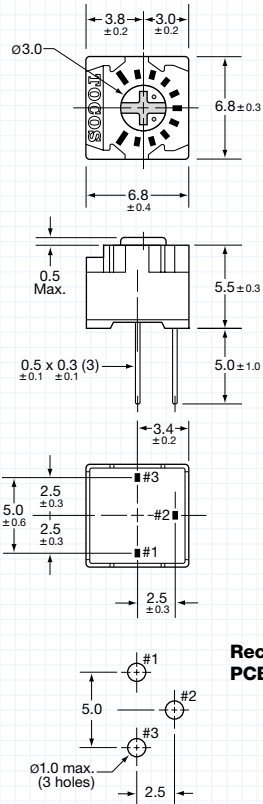
Unit: mm

GF06P Cross-Slot, Top Adjust, P Terminal Style



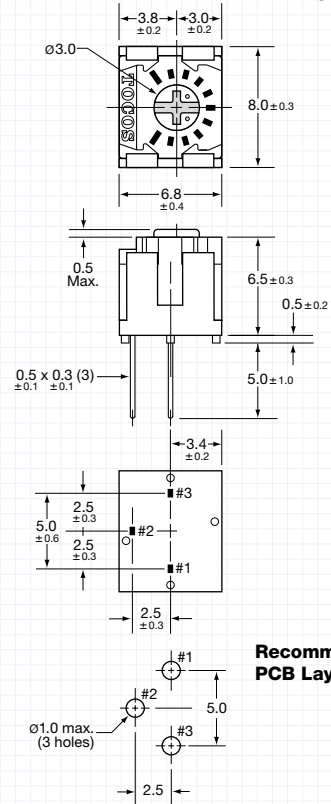
Recommended PCB Layout

GF06P1 Cross-Slot, Top Adjust, P1 Terminal Style



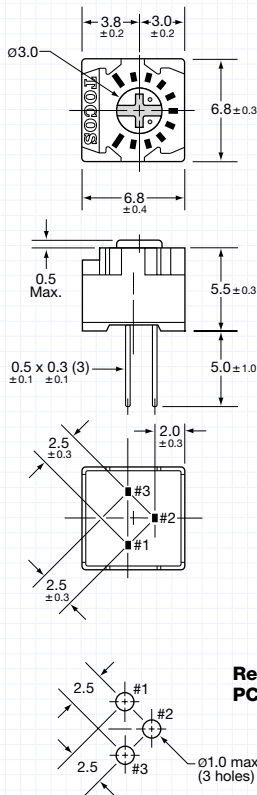
Recommended PCB Layout

GF06P2 Cross-Slot, Top Adjust, P2 Terminal Style



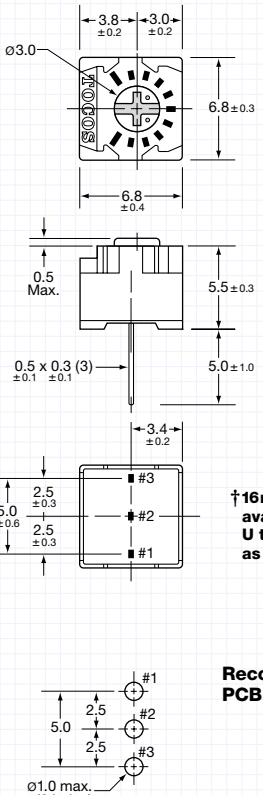
Recommended PCB Layout

GF06W Cross-Slot, Top Adjust, W Terminal Style



Recommended PCB Layout

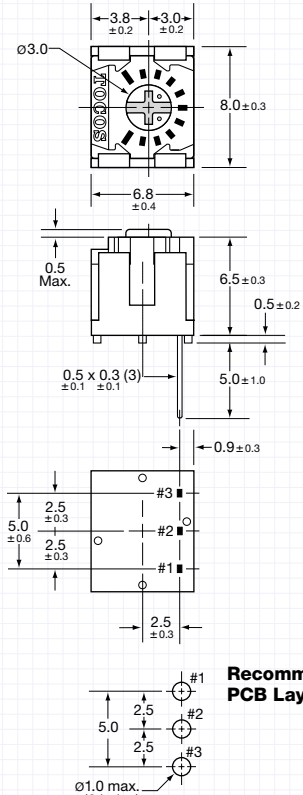
GF06U Cross-Slot, Top Adjust, U† Terminal Style



Recommended PCB Layout

†16mm long lead available for U terminal style as special option.

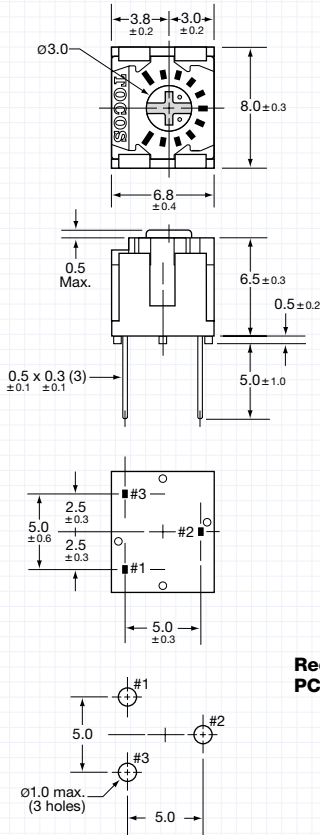
GF06U1 Cross-Slot, Top Adjust, U1 Terminal Style



Recommended PCB Layout

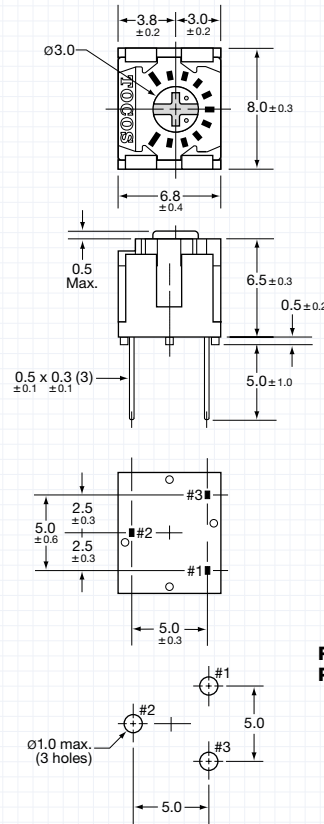
GF06Y

Y Terminal Style, Cross-Slot, Top Adjust



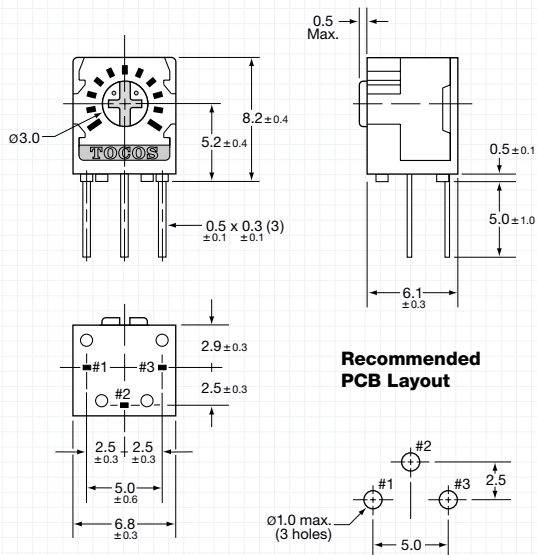
GF06Y1

Y1 Terminal Style, Cross-Slot, Top Adjust



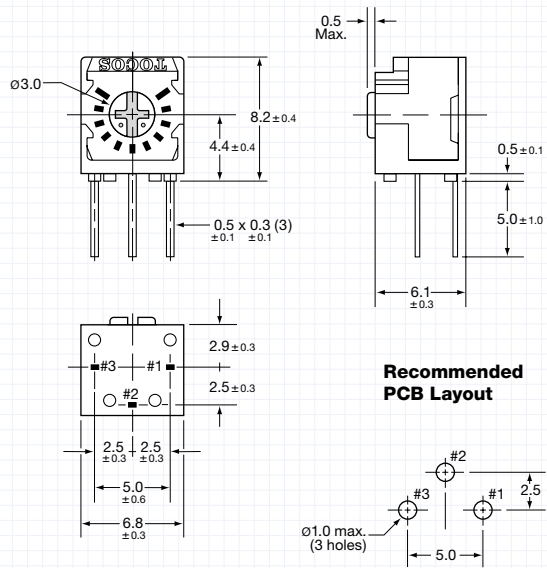
GF06S

S Terminal Style, Cross-Slot, Side Adjust



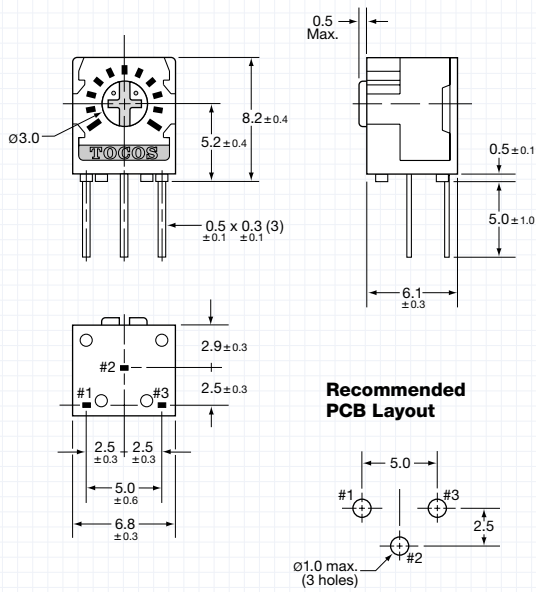
GF06S1

S1 Terminal Style, Cross-Slot, Side Adjust

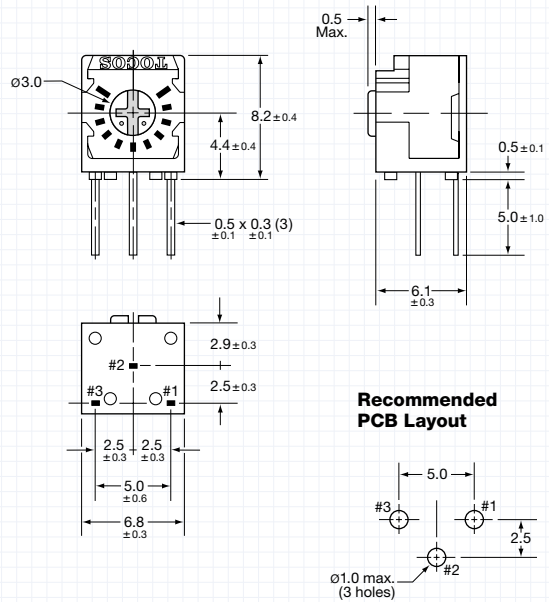


Unit: mm

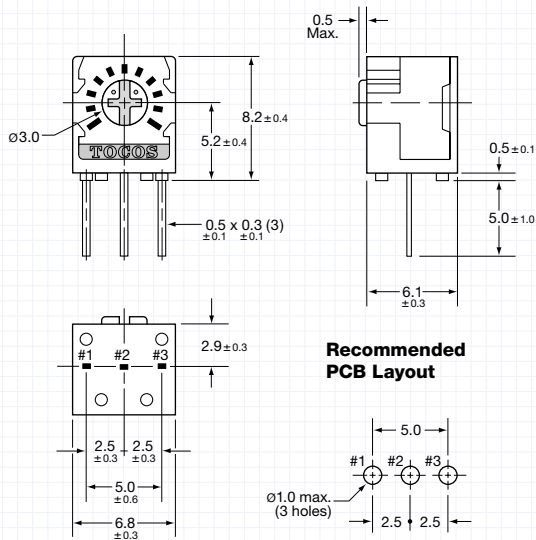
GF06X
X Terminal Style, Cross-Slot, Side Adjust



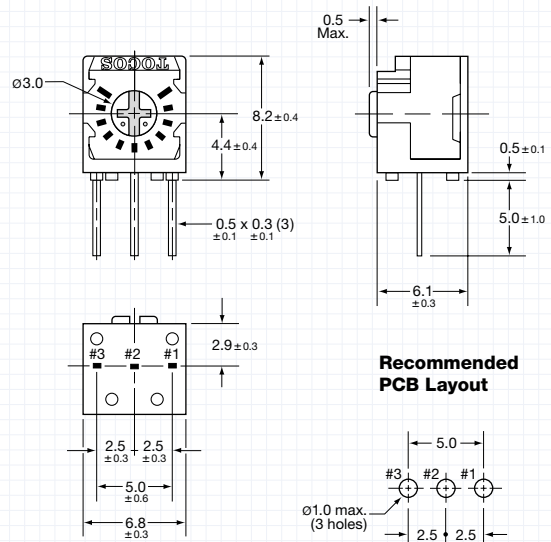
GF06X1
X1 Terminal Style, Cross-Slot, Side Adjust



GF06V
V Terminal Style, Cross-Slot, Side Adjust



GF06V1
V1 Terminal Style, Cross-Slot, Side Adjust

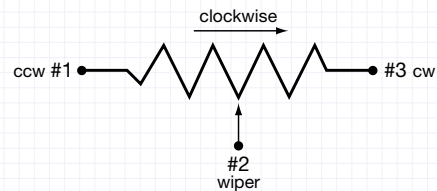
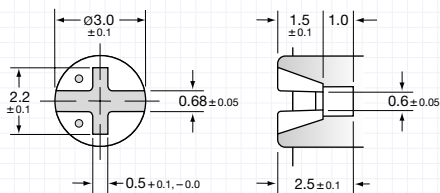


Rotor and Slot Dimensions

Electrical Schematic

All GF06 Models

Unit: mm

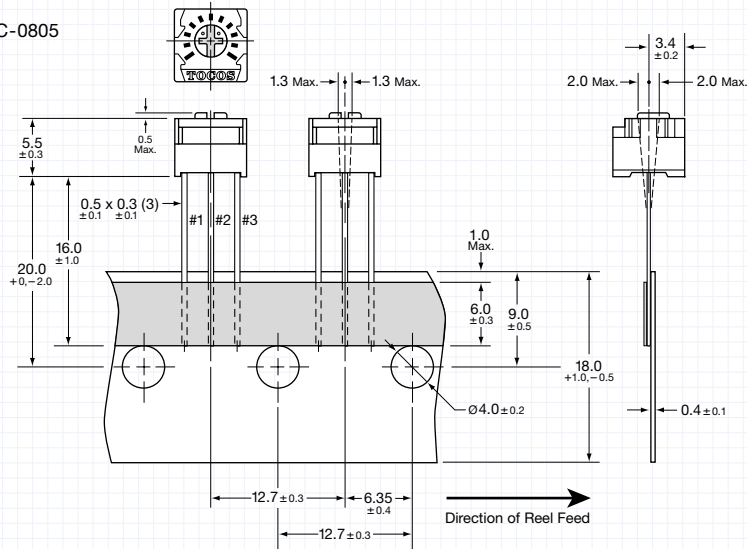


Unit: mm

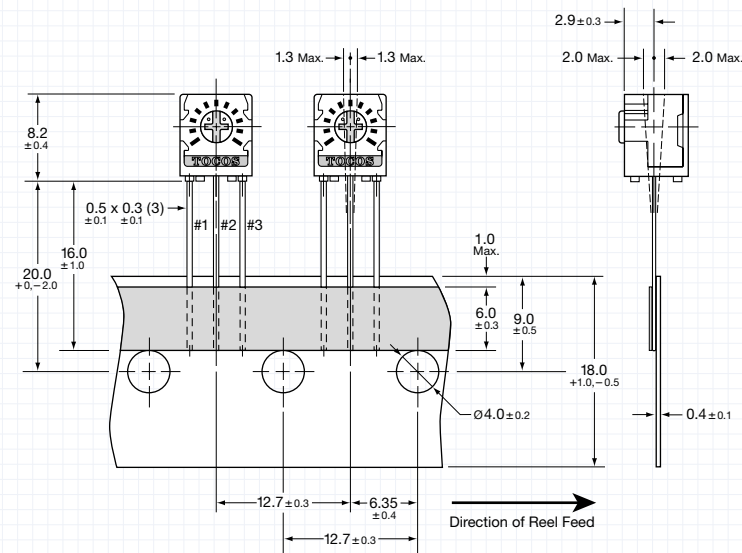
Tape Dimensions

Conforms to EIA-468-B and JIS-C-0805

UT & UT2



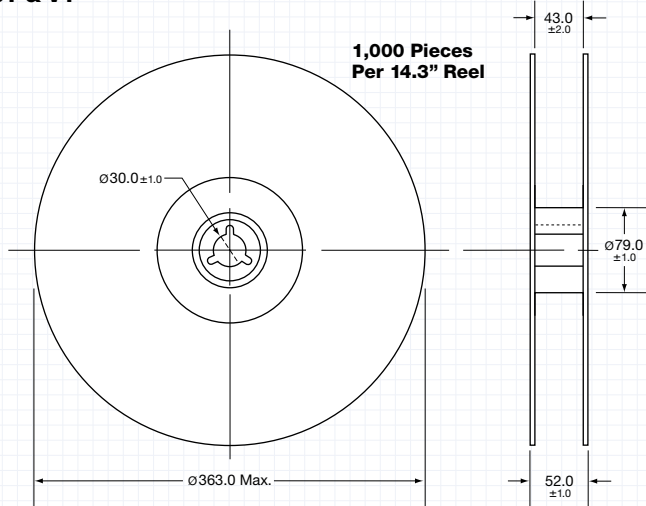
VT & VT2



Reel Dimensions

Conforms to EIA-468-B and JIS-C-0805

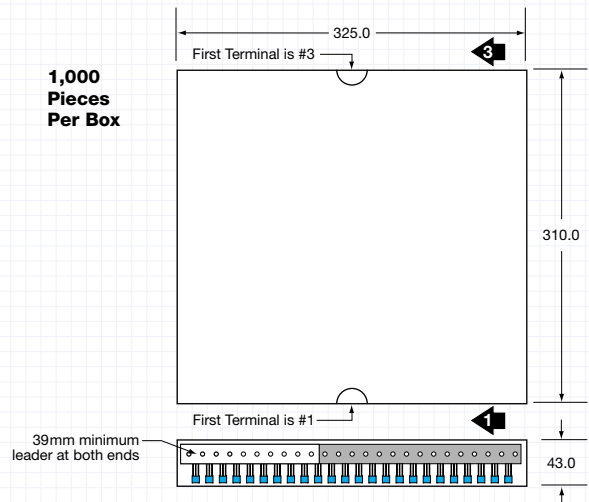
UT & VT

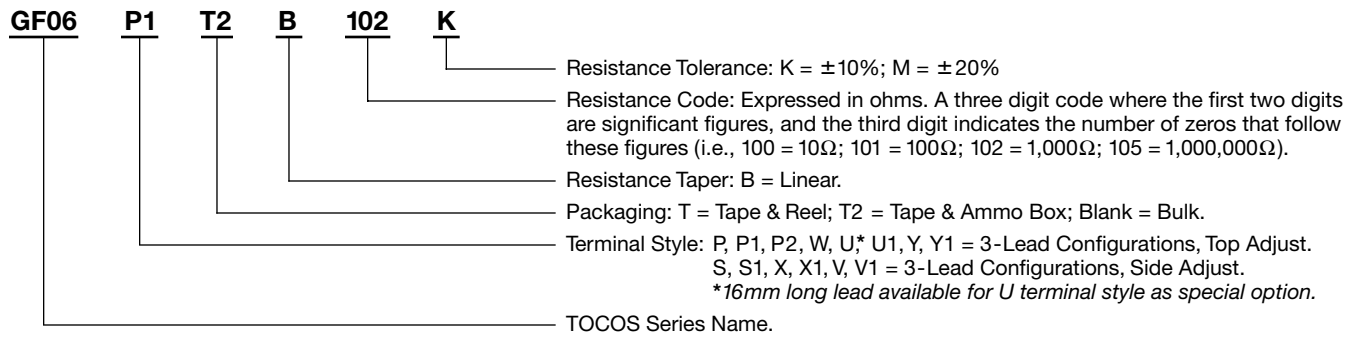


Ammo Box Dimensions

Conforms to EIA-468-B and JIS-C-0805

UT2 & VT2

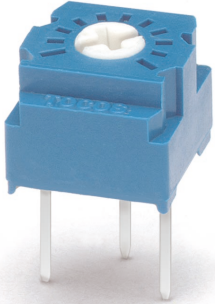




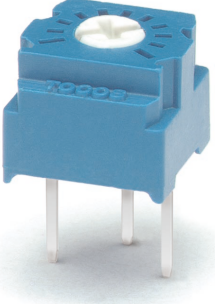
Part Numbers

Nominal Resistance		Resistance Tolerance: K = $\pm 10\%$ (see footnote for M = $\pm 20\%$)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF06P Through-Hole, P Terminal Style, Cross-Slot, Top Adjust

Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	 <p>GF06P</p>
10	100	—	—	GF06P B 100 K	
20	200	—	—	GF06P B 200 K	
50	500	—	—	GF06P B 500 K	
100	101	—	—	GF06P B 101 K	
200	201	—	—	GF06P B 201 K	
500	501	—	—	GF06P B 501 K	
1,000	102	—	—	GF06P B 102 K	
2,000	202	—	—	GF06P B 202 K	
5,000	502	—	—	GF06P B 502 K	
10,000	103	—	—	GF06P B 103 K	
20,000	203	—	—	GF06P B 203 K	
50,000	503	—	—	GF06P B 503 K	
100,000	104	—	—	GF06P B 104 K	
200,000	204	—	—	GF06P B 204 K	
500,000	504	—	—	GF06P B 504 K	
1,000,000	105	—	—	GF06P B 105 K	
2,000,000	205	—	—	GF06P B 205 K	
5,000,000	505	—	—	GF06P B 505 K	

GF06P1 Through-Hole, P1 Terminal Style, Cross-Slot, Top Adjust

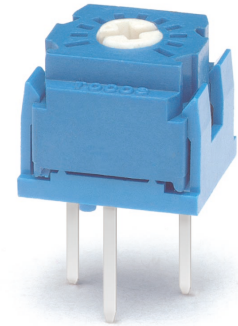
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	 <p>GF06P1</p>
10	100	—	—	GF06P1 B 100 K	
20	200	—	—	GF06P1 B 200 K	
50	500	—	—	GF06P1 B 500 K	
100	101	—	—	GF06P1 B 101 K	
200	201	—	—	GF06P1 B 201 K	
500	501	—	—	GF06P1 B 501 K	
1,000	102	—	—	GF06P1 B 102 K	
2,000	202	—	—	GF06P1 B 202 K	
5,000	502	—	—	GF06P1 B 502 K	
10,000	103	—	—	GF06P1 B 103 K	
20,000	203	—	—	GF06P1 B 203 K	
50,000	503	—	—	GF06P1 B 503 K	
100,000	104	—	—	GF06P1 B 104 K	
200,000	204	—	—	GF06P1 B 204 K	
500,000	504	—	—	GF06P1 B 504 K	
1,000,000	105	—	—	GF06P1 B 105 K	
2,000,000	205	—	—	GF06P1 B 205 K	
5,000,000	505	—	—	GF06P1 B 505 K	

*Substitute code letter M in place of K at end of catalog part number for $\pm 20\%$ resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF06P2 Through-Hole, P2 Terminal Style, Cross-Slot, Top Adjust

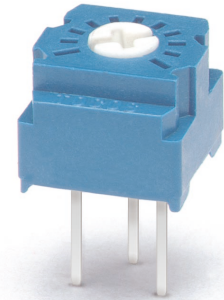
10	100	—	—	GF06P2 B 100 K
20	200	—	—	GF06P2 B 200 K
50	500	—	—	GF06P2 B 500 K
100	101	—	—	GF06P2 B 101 K
200	201	—	—	GF06P2 B 201 K
500	501	—	—	GF06P2 B 501 K
1,000	102	—	—	GF06P2 B 102 K
2,000	202	—	—	GF06P2 B 202 K
5,000	502	—	—	GF06P2 B 502 K
10,000	103	—	—	GF06P2 B 103 K
20,000	203	—	—	GF06P2 B 203 K
50,000	503	—	—	GF06P2 B 503 K
100,000	104	—	—	GF06P2 B 104 K
200,000	204	—	—	GF06P2 B 204 K
500,000	504	—	—	GF06P2 B 504 K
1,000,000	105	—	—	GF06P2 B 105 K
2,000,000	205	—	—	GF06P2 B 205 K
5,000,000	505	—	—	GF06P2 B 505 K



GF06P2

GF06W Through-Hole, W Terminal Style, Cross-Slot, Top Adjust

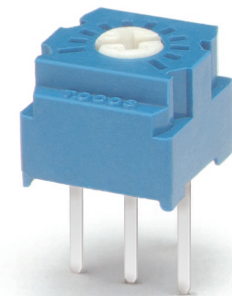
10	100	—	—	GF06W B 100 K
20	200	—	—	GF06W B 200 K
50	500	—	—	GF06W B 500 K
100	101	—	—	GF06W B 101 K
200	201	—	—	GF06W B 201 K
500	501	—	—	GF06W B 501 K
1,000	102	—	—	GF06W B 102 K
2,000	202	—	—	GF06W B 202 K
5,000	502	—	—	GF06W B 502 K
10,000	103	—	—	GF06W B 103 K
20,000	203	—	—	GF06W B 203 K
50,000	503	—	—	GF06W B 503 K
100,000	104	—	—	GF06W B 104 K
200,000	204	—	—	GF06W B 204 K
500,000	504	—	—	GF06W B 504 K
1,000,000	105	—	—	GF06W B 105 K
2,000,000	205	—	—	GF06W B 205 K
5,000,000	505	—	—	GF06W B 505 K



GF06W

GF06U Through-Hole, U Terminal Style, Cross-Slot, Top Adjust

10	100	GF06UT B 100 K	GF06UT2 B 100 K	GF06U B 100 K
20	200	GF06UT B 200 K	GF06UT2 B 200 K	GF06U B 200 K
50	500	GF06UT B 500 K	GF06UT2 B 500 K	GF06U B 500 K
100	101	GF06UT B 101 K	GF06UT2 B 101 K	GF06U B 101 K
200	201	GF06UT B 201 K	GF06UT2 B 201 K	GF06U B 201 K
500	501	GF06UT B 501 K	GF06UT2 B 501 K	GF06U B 501 K
1,000	102	GF06UT B 102 K	GF06UT2 B 102 K	GF06U B 102 K
2,000	202	GF06UT B 202 K	GF06UT2 B 202 K	GF06U B 202 K
5,000	502	GF06UT B 502 K	GF06UT2 B 502 K	GF06U B 502 K
10,000	103	GF06UT B 103 K	GF06UT2 B 103 K	GF06U B 103 K
20,000	203	GF06UT B 203 K	GF06UT2 B 203 K	GF06U B 203 K
50,000	503	GF06UT B 503 K	GF06UT2 B 503 K	GF06U B 503 K
100,000	104	GF06UT B 104 K	GF06UT2 B 104 K	GF06U B 104 K
200,000	204	GF06UT B 204 K	GF06UT2 B 204 K	GF06U B 204 K
500,000	504	GF06UT B 504 K	GF06UT2 B 504 K	GF06U B 504 K
1,000,000	105	GF06UT B 105 K	GF06UT2 B 105 K	GF06U B 105 K
2,000,000	205	GF06UT B 205 K	GF06UT2 B 205 K	GF06U B 205 K
5,000,000	505	GF06UT B 505 K	GF06UT2 B 505 K	GF06U B 505 K



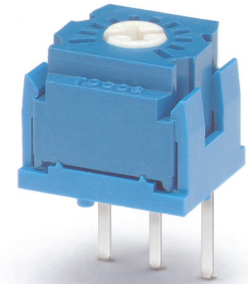
GF06U

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF06U1 Through-Hole, U1 Terminal Style, Cross-Slot, Top Adjust

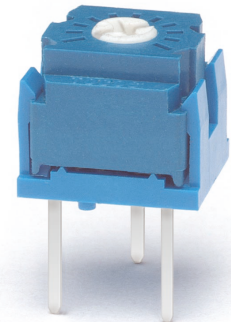
10	100	—	—	GF06U1 B 100 K
20	200	—	—	GF06U1 B 200 K
50	500	—	—	GF06U1 B 500 K
100	101	—	—	GF06U1 B 101 K
200	201	—	—	GF06U1 B 201 K
500	501	—	—	GF06U1 B 501 K
1,000	102	—	—	GF06U1 B 102 K
2,000	202	—	—	GF06U1 B 202 K
5,000	502	—	—	GF06U1 B 502 K
10,000	103	—	—	GF06U1 B 103 K
20,000	203	—	—	GF06U1 B 203 K
50,000	503	—	—	GF06U1 B 503 K
100,000	104	—	—	GF06U1 B 104 K
200,000	204	—	—	GF06U1 B 204 K
500,000	504	—	—	GF06U1 B 504 K
1,000,000	105	—	—	GF06U1 B 105 K
2,000,000	205	—	—	GF06U1 B 205 K
5,000,000	505	—	—	GF06U1 B 505 K



GF06U1

GF06Y Through-Hole, Y Terminal Style, Cross-Slot, Top Adjust

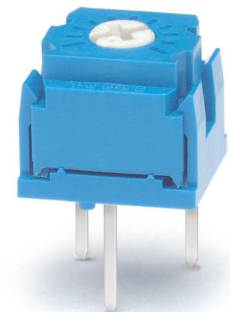
10	100	—	—	GF06Y B 100 K
20	200	—	—	GF06Y B 200 K
50	500	—	—	GF06Y B 500 K
100	101	—	—	GF06Y B 101 K
200	201	—	—	GF06Y B 201 K
500	501	—	—	GF06Y B 501 K
1,000	102	—	—	GF06Y B 102 K
2,000	202	—	—	GF06Y B 202 K
5,000	502	—	—	GF06Y B 502 K
10,000	103	—	—	GF06Y B 103 K
20,000	203	—	—	GF06Y B 203 K
50,000	503	—	—	GF06Y B 503 K
100,000	104	—	—	GF06Y B 104 K
200,000	204	—	—	GF06Y B 204 K
500,000	504	—	—	GF06Y B 504 K
1,000,000	105	—	—	GF06Y B 105 K
2,000,000	205	—	—	GF06Y B 205 K
5,000,000	505	—	—	GF06Y B 505 K



GF06Y

GF06Y1 Through-Hole, Y1 Terminal Style, Cross-Slot, Top Adjust

10	100	—	—	GF06Y1 B 100 K
20	200	—	—	GF06Y1 B 200 K
50	500	—	—	GF06Y1 B 500 K
100	101	—	—	GF06Y1 B 101 K
200	201	—	—	GF06Y1 B 201 K
500	501	—	—	GF06Y1 B 501 K
1,000	102	—	—	GF06Y1 B 102 K
2,000	202	—	—	GF06Y1 B 202 K
5,000	502	—	—	GF06Y1 B 502 K
10,000	103	—	—	GF06Y1 B 103 K
20,000	203	—	—	GF06Y1 B 203 K
50,000	503	—	—	GF06Y1 B 503 K
100,000	104	—	—	GF06Y1 B 104 K
200,000	204	—	—	GF06Y1 B 204 K
500,000	504	—	—	GF06Y1 B 504 K
1,000,000	105	—	—	GF06Y1 B 105 K
2,000,000	205	—	—	GF06Y1 B 205 K
5,000,000	505	—	—	GF06Y1 B 505 K



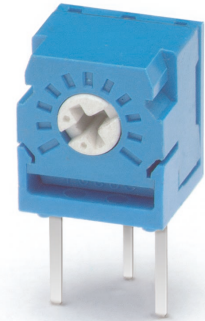
GF06Y1

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF06S Through-Hole, S Terminal Style, Cross-Slot, Side Adjust

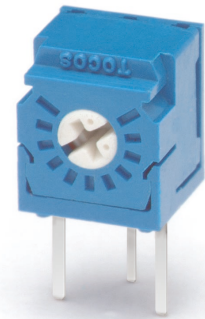
10	100	—	—	GF06S B 100 K
20	200	—	—	GF06S B 200 K
50	500	—	—	GF06S B 500 K
100	101	—	—	GF06S B 101 K
200	201	—	—	GF06S B 201 K
500	501	—	—	GF06S B 501 K
1,000	102	—	—	GF06S B 102 K
2,000	202	—	—	GF06S B 202 K
5,000	502	—	—	GF06S B 502 K
10,000	103	—	—	GF06S B 103 K
20,000	203	—	—	GF06S B 203 K
50,000	503	—	—	GF06S B 503 K
100,000	104	—	—	GF06S B 104 K
200,000	204	—	—	GF06S B 204 K
500,000	504	—	—	GF06S B 504 K
1,000,000	105	—	—	GF06S B 105 K
2,000,000	205	—	—	GF06S B 205 K
5,000,000	505	—	—	GF06S B 505 K



GF06S

GF06S1 Through-Hole, S1 Terminal Style, Cross-Slot, Side Adjust

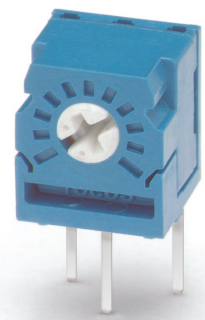
10	100	—	—	GF06S1 B 100 K
20	200	—	—	GF06S1 B 200 K
50	500	—	—	GF06S1 B 500 K
100	101	—	—	GF06S1 B 101 K
200	201	—	—	GF06S1 B 201 K
500	501	—	—	GF06S1 B 501 K
1,000	102	—	—	GF06S1 B 102 K
2,000	202	—	—	GF06S1 B 202 K
5,000	502	—	—	GF06S1 B 502 K
10,000	103	—	—	GF06S1 B 103 K
20,000	203	—	—	GF06S1 B 203 K
50,000	503	—	—	GF06S1 B 503 K
100,000	104	—	—	GF06S1 B 104 K
200,000	204	—	—	GF06S1 B 204 K
500,000	504	—	—	GF06S1 B 504 K
1,000,000	105	—	—	GF06S1 B 105 K
2,000,000	205	—	—	GF06S1 B 205 K
5,000,000	505	—	—	GF06S1 B 505 K



GF06S1

GF06X Through-Hole, X Terminal Style, Cross-Slot, Side Adjust

10	100	—	—	GF06X B 100 K
20	200	—	—	GF06X B 200 K
50	500	—	—	GF06X B 500 K
100	101	—	—	GF06X B 101 K
200	201	—	—	GF06X B 201 K
500	501	—	—	GF06X B 501 K
1,000	102	—	—	GF06X B 102 K
2,000	202	—	—	GF06X B 202 K
5,000	502	—	—	GF06X B 502 K
10,000	103	—	—	GF06X B 103 K
20,000	203	—	—	GF06X B 203 K
50,000	503	—	—	GF06X B 503 K
100,000	104	—	—	GF06X B 104 K
200,000	204	—	—	GF06X B 204 K
500,000	504	—	—	GF06X B 504 K
1,000,000	105	—	—	GF06X B 105 K
2,000,000	205	—	—	GF06X B 205 K
5,000,000	505	—	—	GF06X B 505 K



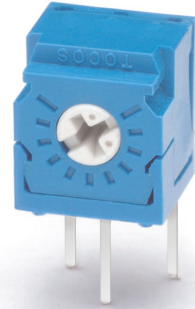
GF06X

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF06X1 Through-Hole, X1 Terminal Style, Cross-Slot, Side Adjust

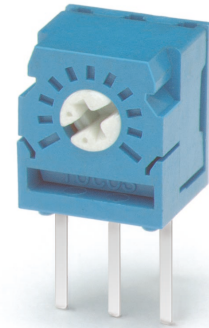
10	100	—	—	GF06X1 B 100 K
20	200	—	—	GF06X1 B 200 K
50	500	—	—	GF06X1 B 500 K
100	101	—	—	GF06X1 B 101 K
200	201	—	—	GF06X1 B 201 K
500	501	—	—	GF06X1 B 501 K
1,000	102	—	—	GF06X1 B 102 K
2,000	202	—	—	GF06X1 B 202 K
5,000	502	—	—	GF06X1 B 502 K
10,000	103	—	—	GF06X1 B 103 K
20,000	203	—	—	GF06X1 B 203 K
50,000	503	—	—	GF06X1 B 503 K
100,000	104	—	—	GF06X1 B 104 K
200,000	204	—	—	GF06X1 B 204 K
500,000	504	—	—	GF06X1 B 504 K
1,000,000	105	—	—	GF06X1 B 105 K
2,000,000	205	—	—	GF06X1 B 205 K
5,000,000	505	—	—	GF06X1 B 505 K



GF06X1

GF06V Through-Hole, V Terminal Style, Cross-Slot, Side Adjust

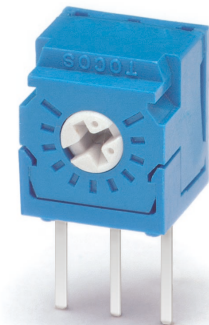
10	100	GF06VT B 100 K	GF06VT2 B 100 K	GF06V B 100 K
20	200	GF06VT B 200 K	GF06VT2 B 200 K	GF06V B 200 K
50	500	GF06VT B 500 K	GF06VT2 B 500 K	GF06V B 500 K
100	101	GF06VT B 101 K	GF06VT2 B 101 K	GF06V B 101 K
200	201	GF06VT B 201 K	GF06VT2 B 201 K	GF06V B 201 K
500	501	GF06VT B 501 K	GF06VT2 B 501 K	GF06V B 501 K
1,000	102	GF06VT B 102 K	GF06VT2 B 102 K	GF06V B 102 K
2,000	202	GF06VT B 202 K	GF06VT2 B 202 K	GF06V B 202 K
5,000	502	GF06VT B 502 K	GF06VT2 B 502 K	GF06V B 502 K
10,000	103	GF06VT B 103 K	GF06VT2 B 103 K	GF06V B 103 K
20,000	203	GF06VT B 203 K	GF06VT2 B 203 K	GF06V B 203 K
50,000	503	GF06VT B 503 K	GF06VT2 B 503 K	GF06V B 503 K
100,000	104	GF06VT B 104 K	GF06VT2 B 104 K	GF06V B 104 K
200,000	204	GF06VT B 204 K	GF06VT2 B 204 K	GF06V B 204 K
500,000	504	GF06VT B 504 K	GF06VT2 B 504 K	GF06V B 504 K
1,000,000	105	GF06VT B 105 K	GF06VT2 B 105 K	GF06V B 105 K
2,000,000	205	GF06VT B 205 K	GF06VT2 B 205 K	GF06V B 205 K
5,000,000	505	GF06T B 505 K	GF06VT2 B 505 K	GF06V B 505 K



GF06V

GF06V1 Through-Hole, V1 Terminal Style, Cross-Slot, Side Adjust

10	100	—	—	GF06V1 B 100 K
20	200	—	—	GF06V1 B 200 K
50	500	—	—	GF06V1 B 500 K
100	101	—	—	GF06V1 B 101 K
200	201	—	—	GF06V1 B 201 K
500	501	—	—	GF06V1 B 501 K
1,000	102	—	—	GF06V1 B 102 K
2,000	202	—	—	GF06V1 B 202 K
5,000	502	—	—	GF06V1 B 502 K
10,000	103	—	—	GF06V1 B 103 K
20,000	203	—	—	GF06V1 B 203 K
50,000	503	—	—	GF06V1 B 503 K
100,000	104	—	—	GF06V1 B 104 K
200,000	204	—	—	GF06V1 B 204 K
500,000	504	—	—	GF06V1 B 504 K
1,000,000	105	—	—	GF06V1 B 105 K
2,000,000	205	—	—	GF06V1 B 205 K
5,000,000	505	—	—	GF06V1 B 505 K



GF06V1

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Standard:**Tape & Reel Packaging****UT & VT**

1,000 pieces per 14.3" reel.

Tape & Ammo Packaging**UT2 & VT2**

1,000 pieces per ammo box.

Bulk Packaging**All GF063 Models**

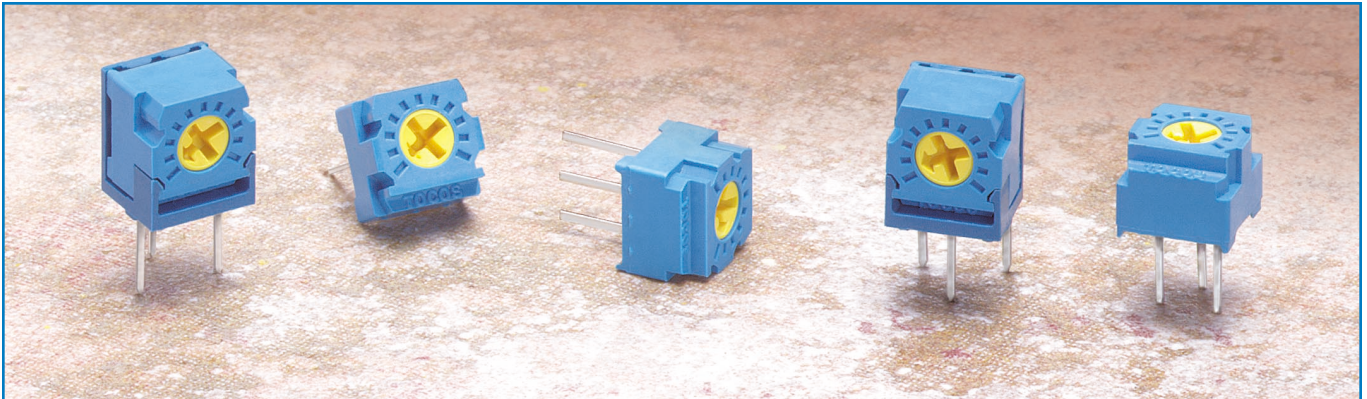
50 pieces per vinyl bag.

500 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

1/4" Square, Single-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 1/4" square, single-turn, through-hole, sealed cermet trimmers
- Top and side adjust styles available
- Larger diameter rotor than GF06 series for easier adjustment
- Precious metal, multi-contact wiper design
- Cross-slot design allows automatic machine adjustment
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning processes
- Taping available, reel or ammo packaging

Specifications

Electrical

Standard Resistance Range	10Ω to 5MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 1Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1Ω, whichever is greater
Power Rating	0.5 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	250VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C
Insulation Resistance	1,000MΩ minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	210° ± 10°

Mechanical

Mechanical Travel	250° ± 10°
Shaft Torque	200 gf·cm (2.77 oz·in) max.
Stop Strength	500 gf·cm (6.93 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.4g (P, P1, W, U) 0.5g (P2, S, S1, X, X1, U1, Y, Y1, V, V1)
Marking	Resistance code, date code, model type

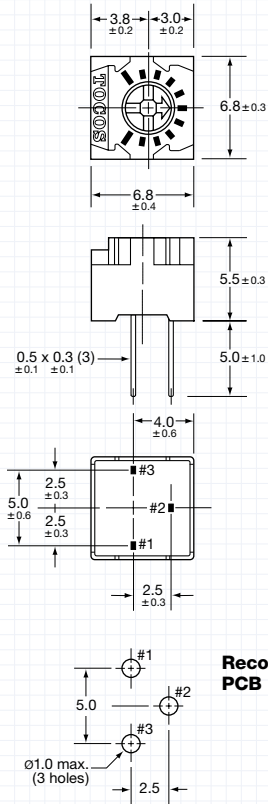
Environmental

Temperature Range	-55°C to +125°C
Low Temperature Operation	-55°C, 0.5 watt, 2 hours ΔT/R ≤ ±2%, S.S. ≤ ±2%
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±2%, S.S. ≤ ±2%
Load Life	+70°C, 0.5 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±1%, S.S. ≤ ±1%
Shock	100G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±1%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95% RH, 0.5 watt, 500 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Moisture Resistance	-10°C to +65°C, 80-98% RH, 0.5 watt, 10 cycles, 240 hours ΔT/R ≤ ±2%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	100 cycles without discontinuity ΔT/R ≤ ±(2Ω+3%)

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

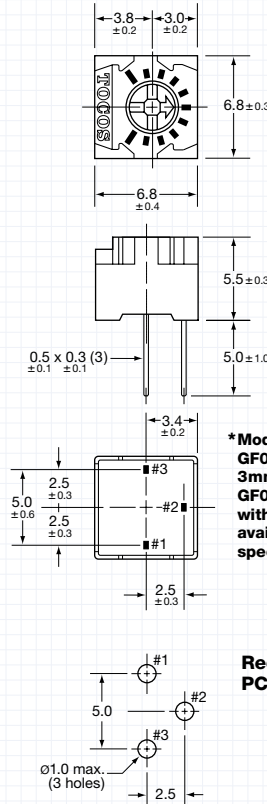
For GF063 models available with a knob, refer to the GF063-K Series on page 64.

GF063P Cross-Slot, Top Adjust, P Terminal Style



Recommended PCB Layout

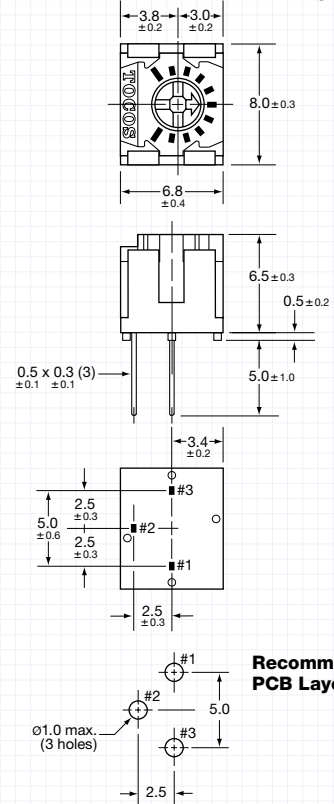
GF063P1 Cross-Slot, Top Adjust, P1, P1-3* & P1-LM* Terminal Styles



Recommended PCB Layout

*Models GF063P1-3 with 3mm leads or GF063P1-LM with 6.5mm leads available as special options.

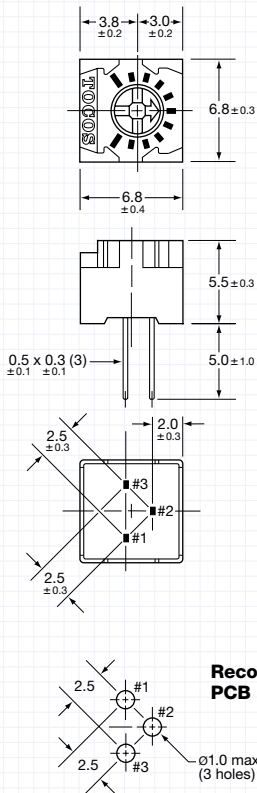
GF063P2 Cross-Slot, Top Adjust, P2 Terminal Style



Recommended PCB Layout

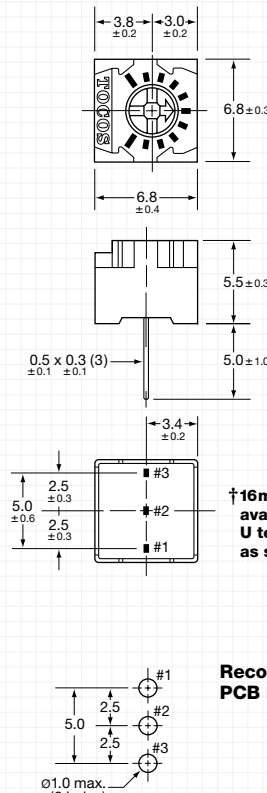
Unit: mm

GF063W Cross-Slot, Top Adjust, W Terminal Style



Recommended PCB Layout

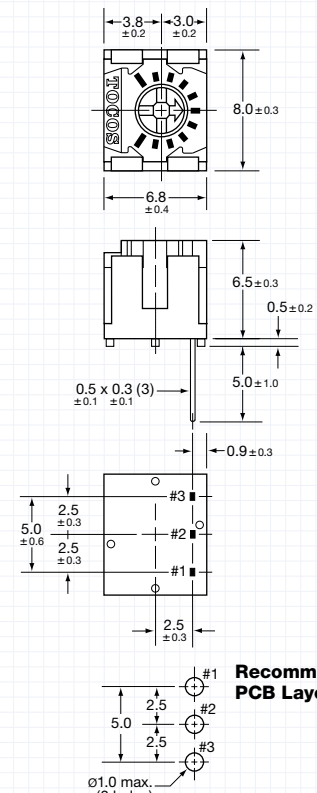
GF063U Cross-Slot, Top Adjust, U† Terminal Style



Recommended PCB Layout

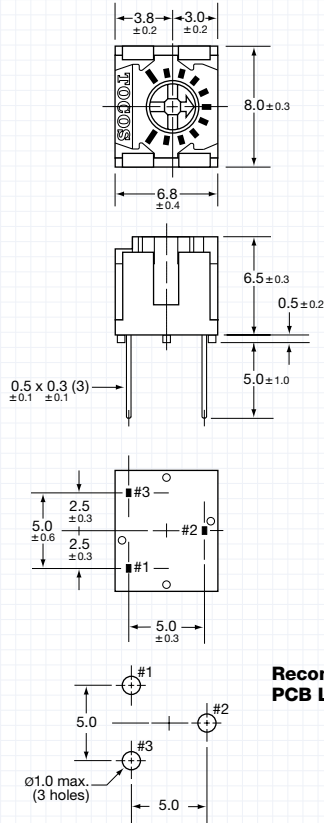
†16mm long lead available for U terminal style as special option.

GF063U1 Cross-Slot, Top Adjust, U1 Terminal Style



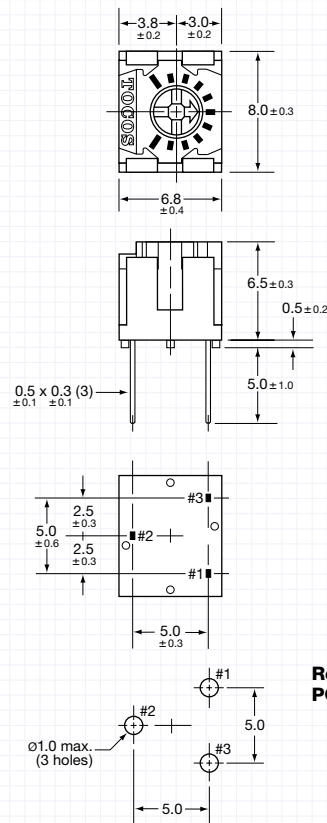
Recommended PCB Layout

GF063Y
Y Terminal Style, Cross-Slot, Top Adjust



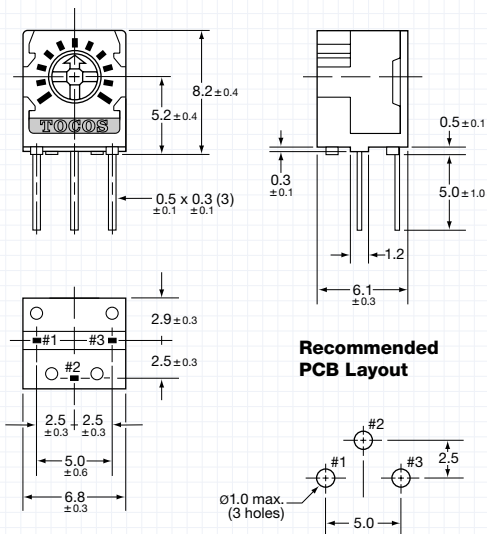
Recommended PCB Layout

GF063Y1
Y1 Terminal Style, Cross-Slot, Top Adjust



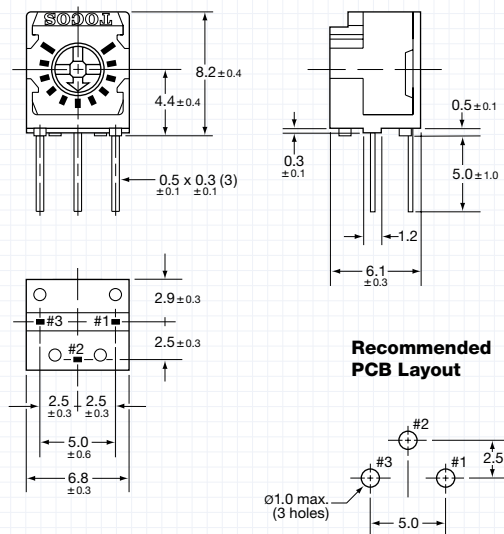
Recommended PCB Layout

GF063S
S Terminal Style, Cross-Slot, Side Adjust



Recommended PCB Layout

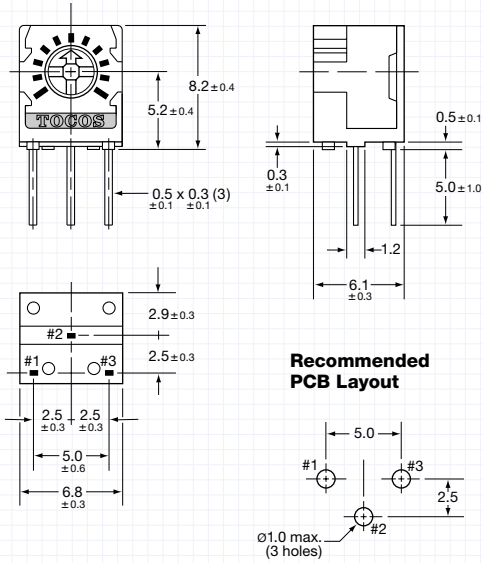
GF063S1
S1 Terminal Style, Cross-Slot, Side Adjust



Recommended PCB Layout

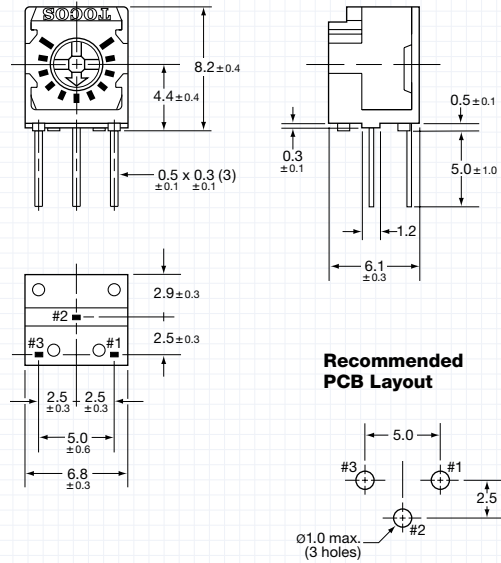
GF063X

X Terminal Style, Cross-Slot, Side Adjust



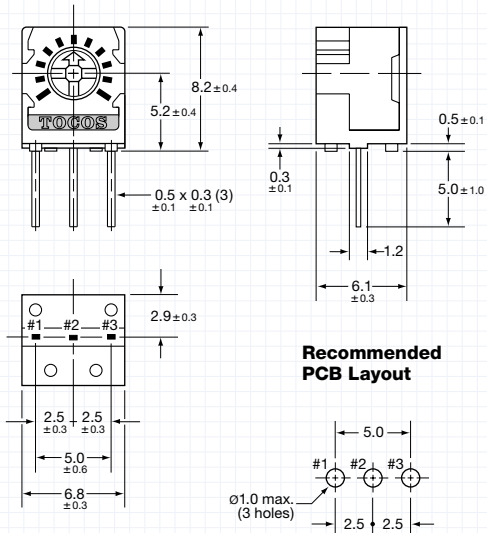
GF063X1

X1 Terminal Style, Cross-Slot, Side Adjust



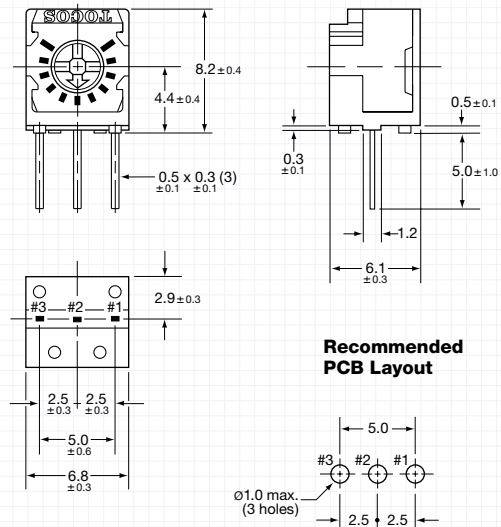
GF063V

V & V-3* Terminal Styles, Cross-Slot, Side Adjust



GF063V1

V1 Terminal Style, Cross-Slot, Side Adjust



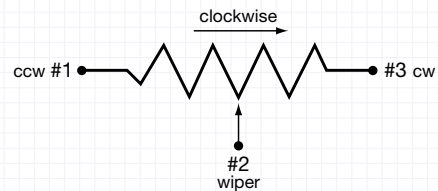
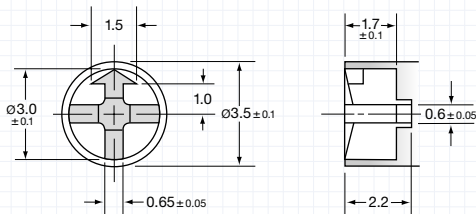
*GF063V-3 with shorter 3mm leads available as special option.

Rotor and Slot Dimensions

Electrical Schematic

All GF063 Models

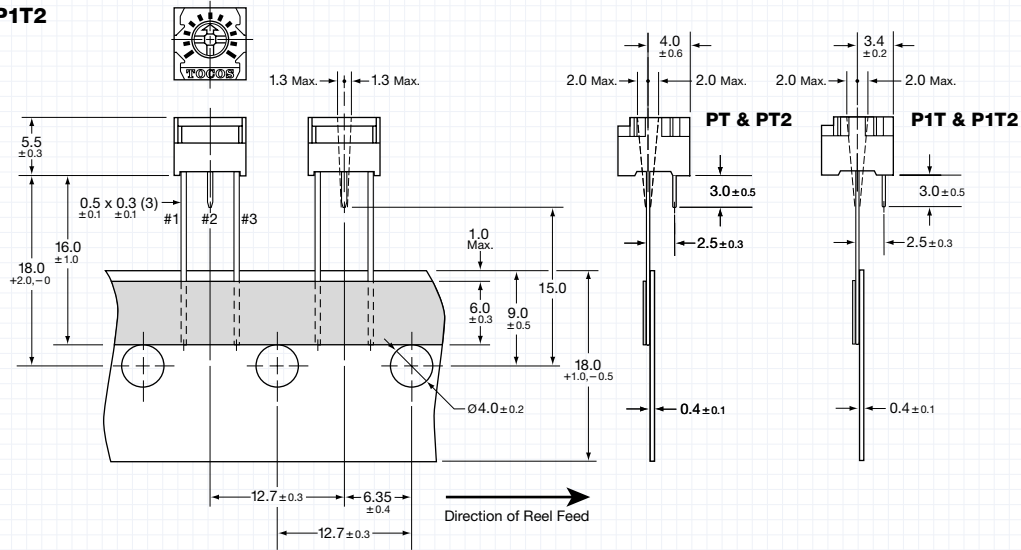
Unit: mm



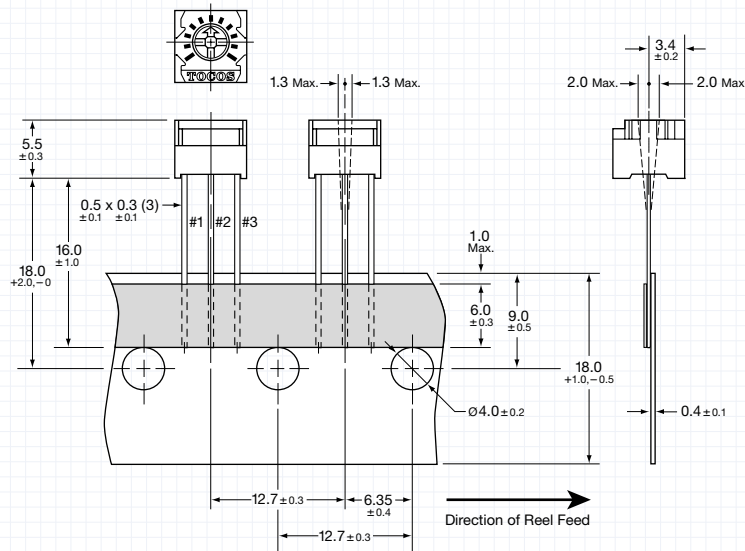
Tape Dimensions

Conforms to EIA-468-B and JIS-C-0805

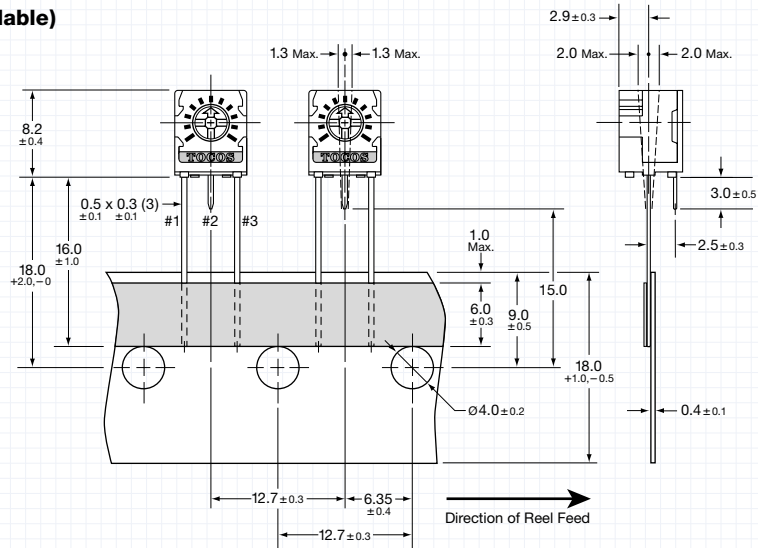
PT, PT2, P1T, P1T2



UT, UT2



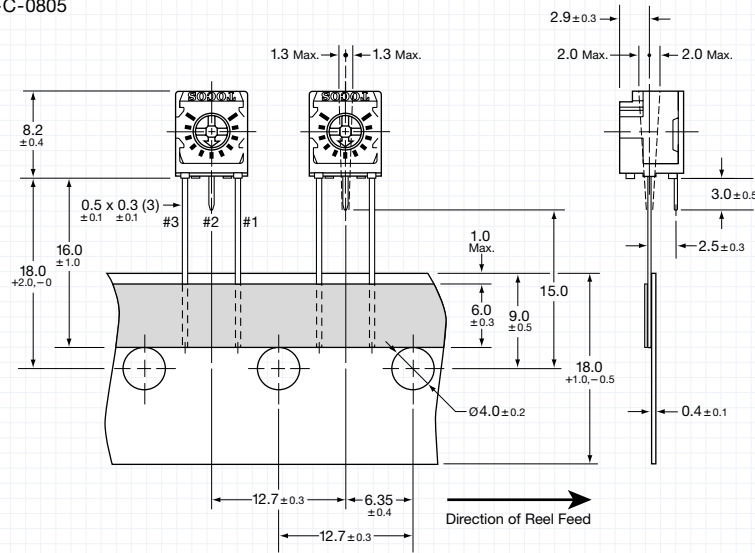
ST, ST2, XT2 (XT not available)



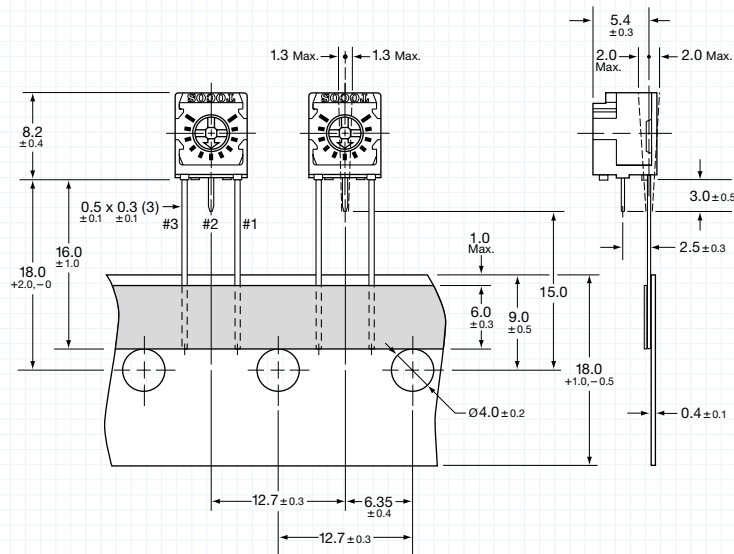
Tape Dimensions

Conforms to EIA-468-B and JIS-C-0805

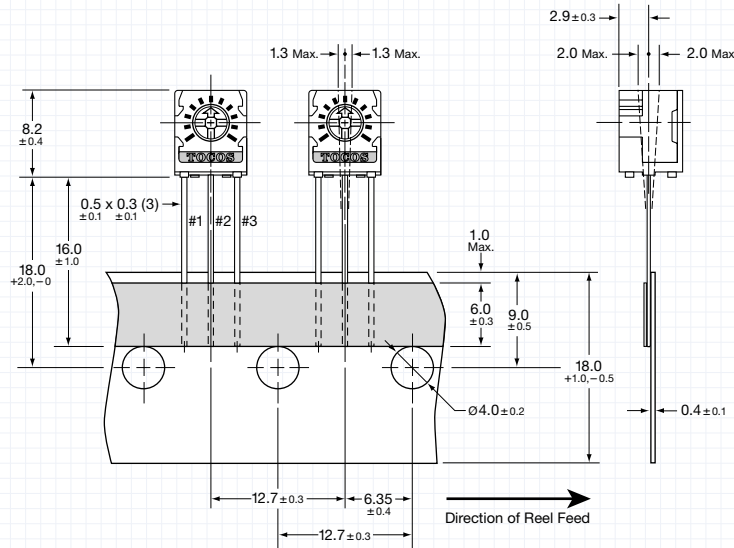
S1T, S1T2



X1T2 (X1T not available)



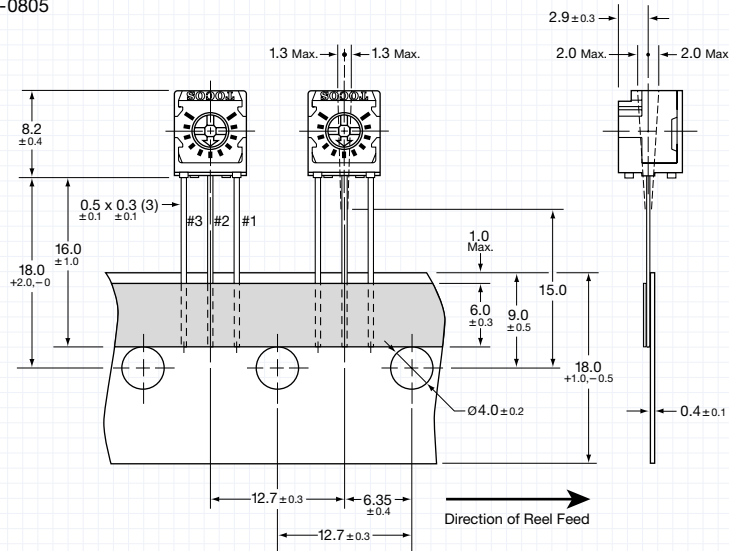
VT, VT2



Tape Dimensions

Conforms to EIA-468-B and JIS-C-0805

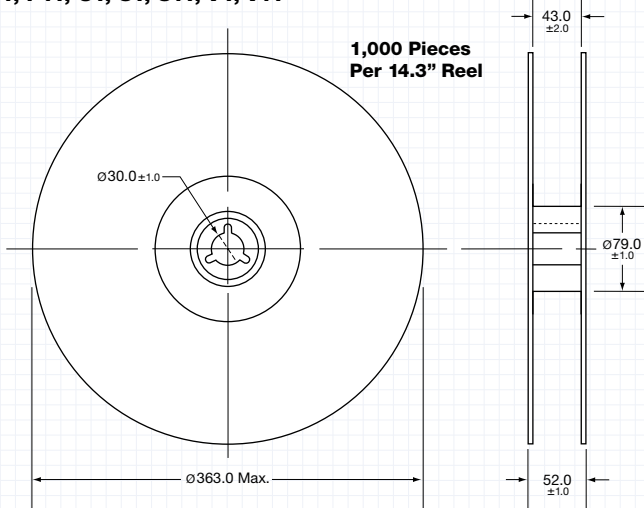
V1T, V1T2



Reel Dimensions

Conforms to EIA-468-B and JIS-C-0805

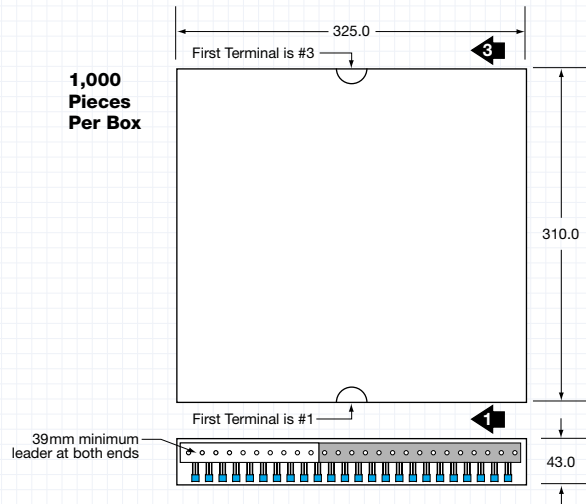
PT, P1T, UT, ST, S1T, VT, V1T



Ammo Box Dimensions

Conforms to EIA-468-B and JIS-C-0805

PT2, P1T2, UT2, ST2, S1T2, XT2, X1T2, VT2, V1T2



Part Numbering System

GF063 P1 T2 B 102 K

- Resistance Tolerance: K = ±10%; M = ±20%
- Resistance Code: Expressed in ohms. A three digit code where the first two digits are significant figures, and the third digit indicates the number of zeros that follow these figures (i.e., 100 = 10Ω; 101 = 100Ω; 102 = 1,000Ω; 105 = 1,000,000Ω).
- Resistance Taper: B = Linear.
- Packaging: T = Tape & Reel; T2 = Tape & Ammo Box; Blank = Bulk.
- Terminal Style: P, P1, P2, W, U*, U1, Y, Y1 = 3-Lead Configurations, Top Adjust.
S, S1, X, X1, V, V1 = 3-Lead Configurations, Side Adjust.
P1-3 = Special Option, 3mm Leads, Top Adjust.
P1-LM = Special Option, 6.5mm Leads, Top Adjust.
V-3 = Special Option, 3mm Leads, Side Adjust.
**16mm long lead available for U terminal style as special option.*
- TOCOS Series Name.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF063P Through-Hole, P Terminal Style, Cross-Slot, Top Adjust

10	100	GF063PT B 100 K	GF063PT2 B 100 K	GF063P B 100 K
20	200	GF063PT B 200 K	GF063PT2 B 200 K	GF063P B 200 K
50	500	GF063PT B 500 K	GF063PT2 B 500 K	GF063P B 500 K
100	101	GF063PT B 101 K	GF063PT2 B 101 K	GF063P B 101 K
200	201	GF063PT B 201 K	GF063PT2 B 201 K	GF063P B 201 K
500	501	GF063PT B 501 K	GF063PT2 B 501 K	GF063P B 501 K
1,000	102	GF063PT B 102 K	GF063PT2 B 102 K	GF063P B 102 K
2,000	202	GF063PT B 202 K	GF063PT2 B 202 K	GF063P B 202 K
5,000	502	GF063PT B 502 K	GF063PT2 B 502 K	GF063P B 502 K
10,000	103	GF063PT B 103 K	GF063PT2 B 103 K	GF063P B 103 K
20,000	203	GF063PT B 203 K	GF063PT2 B 203 K	GF063P B 203 K
50,000	503	GF063PT B 503 K	GF063PT2 B 503 K	GF063P B 503 K
100,000	104	GF063PT B 104 K	GF063PT2 B 104 K	GF063P B 104 K
200,000	204	GF063PT B 204 K	GF063PT2 B 204 K	GF063P B 204 K
500,000	504	GF063PT B 504 K	GF063PT2 B 504 K	GF063P B 504 K
1,000,000	105	GF063PT B 105 K	GF063PT2 B 105 K	GF063P B 105 K
2,000,000	205	GF063PT B 205 K	GF063PT2 B 205 K	GF063P B 205 K
5,000,000	505	GF063PT B 505 K	GF063PT2 B 505 K	GF063P B 505 K



GF063P

GF063P1 Through-Hole, P1 Terminal Style, Cross-Slot, Top Adjust

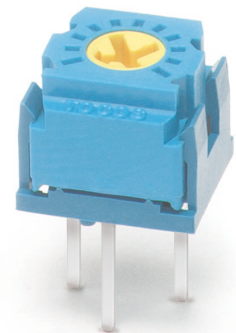
10	100	GF063P1T B 100 K	GF063P1T2 B 100 K	GF063P1 B 100 K
20	200	GF063P1T B 200 K	GF063P1T2 B 200 K	GF063P1 B 200 K
50	500	GF063P1T B 500 K	GF063P1T2 B 500 K	GF063P1 B 500 K
100	101	GF063P1T B 101 K	GF063P1T2 B 101 K	GF063P1 B 101 K
200	201	GF063P1T B 201 K	GF063P1T2 B 201 K	GF063P1 B 201 K
500	501	GF063P1T B 501 K	GF063P1T2 B 501 K	GF063P1 B 501 K
1,000	102	GF063P1T B 102 K	GF063P1T2 B 102 K	GF063P1 B 102 K
2,000	202	GF063P1T B 202 K	GF063P1T2 B 202 K	GF063P1 B 202 K
5,000	502	GF063P1T B 502 K	GF063P1T2 B 502 K	GF063P1 B 502 K
10,000	103	GF063P1T B 103 K	GF063P1T2 B 103 K	GF063P1 B 103 K
20,000	203	GF063P1T B 203 K	GF063P1T2 B 203 K	GF063P1 B 203 K
50,000	503	GF063P1T B 503 K	GF063P1T2 B 503 K	GF063P1 B 503 K
100,000	104	GF063P1T B 104 K	GF063P1T2 B 104 K	GF063P1 B 104 K
200,000	204	GF063P1T B 204 K	GF063P1T2 B 204 K	GF063P1 B 204 K
500,000	504	GF063P1T B 504 K	GF063P1T2 B 504 K	GF063P1 B 504 K
1,000,000	105	GF063P1T B 105 K	GF063P1T2 B 105 K	GF063P1 B 105 K
2,000,000	205	GF063P1T B 205 K	GF063P1T2 B 205 K	GF063P1 B 205 K
5,000,000	505	GF063P1T B 505 K	GF063P1T2 B 505 K	GF063P1 B 505 K



GF063P1

GF063P2 Through-Hole, P2 Terminal Style, Cross-Slot, Top Adjust

10	100	—	—	GF063P2 B 100 K
20	200	—	—	GF063P2 B 200 K
50	500	—	—	GF063P2 B 500 K
100	101	—	—	GF063P2 B 101 K
200	201	—	—	GF063P2 B 201 K
500	501	—	—	GF063P2 B 501 K
1,000	102	—	—	GF063P2 B 102 K
2,000	202	—	—	GF063P2 B 202 K
5,000	502	—	—	GF063P2 B 502 K
10,000	103	—	—	GF063P2 B 103 K
20,000	203	—	—	GF063P2 B 203 K
50,000	503	—	—	GF063P2 B 503 K
100,000	104	—	—	GF063P2 B 104 K
200,000	204	—	—	GF063P2 B 204 K
500,000	504	—	—	GF063P2 B 504 K
1,000,000	105	—	—	GF063P2 B 105 K
2,000,000	205	—	—	GF063P2 B 205 K
5,000,000	505	—	—	GF063P2 B 505 K



GF063P2

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF063W Through-Hole, W Terminal Style, Cross-Slot, Top Adjust

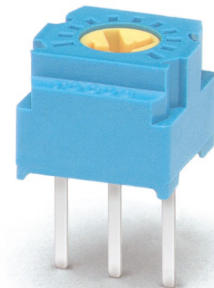
10	100	—	—	GF063W B 100 K
20	200	—	—	GF063W B 200 K
50	500	—	—	GF063W B 500 K
100	101	—	—	GF063W B 101 K
200	201	—	—	GF063W B 201 K
500	501	—	—	GF063W B 501 K
1,000	102	—	—	GF063W B 102 K
2,000	202	—	—	GF063W B 202 K
5,000	502	—	—	GF063W B 502 K
10,000	103	—	—	GF063W B 103 K
20,000	203	—	—	GF063W B 203 K
50,000	503	—	—	GF063W B 503 K
100,000	104	—	—	GF063W B 104 K
200,000	204	—	—	GF063W B 204 K
500,000	504	—	—	GF063W B 504 K
1,000,000	105	—	—	GF063W B 105 K
2,000,000	205	—	—	GF063W B 205 K
5,000,000	505	—	—	GF063W B 505 K



GF063W

GF063U Through-Hole, U Terminal Style, Cross-Slot, Top Adjust

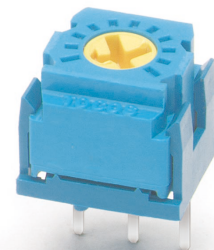
10	100	GF063UT B 100 K	GF063UT2 B 100 K	GF063U B 100 K
20	200	GF063UT B 200 K	GF063UT2 B 200 K	GF063U B 200 K
50	500	GF063UT B 500 K	GF063UT2 B 500 K	GF063U B 500 K
100	101	GF063UT B 101 K	GF063UT2 B 101 K	GF063U B 101 K
200	201	GF063UT B 201 K	GF063UT2 B 201 K	GF063U B 201 K
500	501	GF063UT B 501 K	GF063UT2 B 501 K	GF063U B 501 K
1,000	102	GF063UT B 102 K	GF063UT2 B 102 K	GF063U B 102 K
2,000	202	GF063UT B 202 K	GF063UT2 B 202 K	GF063U B 202 K
5,000	502	GF063UT B 502 K	GF063UT2 B 502 K	GF063U B 502 K
10,000	103	GF063UT B 103 K	GF063UT2 B 103 K	GF063U B 103 K
20,000	203	GF063UT B 203 K	GF063UT2 B 203 K	GF063U B 203 K
50,000	503	GF063UT B 503 K	GF063UT2 B 503 K	GF063U B 503 K
100,000	104	GF063UT B 104 K	GF063UT2 B 104 K	GF063U B 104 K
200,000	204	GF063UT B 204 K	GF063UT2 B 204 K	GF063U B 204 K
500,000	504	GF063UT B 504 K	GF063UT2 B 504 K	GF063U B 504 K
1,000,000	105	GF063UT B 105 K	GF063UT2 B 105 K	GF063U B 105 K
2,000,000	205	GF063UT B 205 K	GF063UT2 B 205 K	GF063U B 205 K
5,000,000	505	GF063UT B 505 K	GF063UT2 B 505 K	GF063U B 505 K



GF063U

GF063U1 Through-Hole, U1 Terminal Style, Cross-Slot, Top Adjust

10	100	—	—	GF063U1 B 100 K
20	200	—	—	GF063U1 B 200 K
50	500	—	—	GF063U1 B 500 K
100	101	—	—	GF063U1 B 101 K
200	201	—	—	GF063U1 B 201 K
500	501	—	—	GF063U1 B 501 K
1,000	102	—	—	GF063U1 B 102 K
2,000	202	—	—	GF063U1 B 202 K
5,000	502	—	—	GF063U1 B 502 K
10,000	103	—	—	GF063U1 B 103 K
20,000	203	—	—	GF063U1 B 203 K
50,000	503	—	—	GF063U1 B 503 K
100,000	104	—	—	GF063U1 B 104 K
200,000	204	—	—	GF063U1 B 204 K
500,000	504	—	—	GF063U1 B 504 K
1,000,000	105	—	—	GF063U1 B 105 K
2,000,000	205	—	—	GF063U1 B 205 K
5,000,000	505	—	—	GF063U1 B 505 K



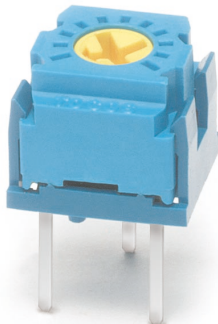
GF063U1

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF063Y Through-Hole, Y Terminal Style, Cross-Slot, Top Adjust

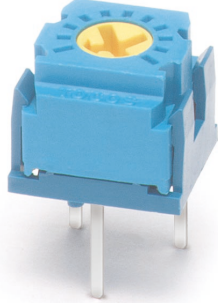
10	100	—	—	GF063Y B 100 K
20	200	—	—	GF063Y B 200 K
50	500	—	—	GF063Y B 500 K
100	101	—	—	GF063Y B 101 K
200	201	—	—	GF063Y B 201 K
500	501	—	—	GF063Y B 501 K
1,000	102	—	—	GF063Y B 102 K
2,000	202	—	—	GF063Y B 202 K
5,000	502	—	—	GF063Y B 502 K
10,000	103	—	—	GF063Y B 103 K
20,000	203	—	—	GF063Y B 203 K
50,000	503	—	—	GF063Y B 503 K
100,000	104	—	—	GF063Y B 104 K
200,000	204	—	—	GF063Y B 204 K
500,000	504	—	—	GF063Y B 504 K
1,000,000	105	—	—	GF063Y B 105 K
2,000,000	205	—	—	GF063Y B 205 K
5,000,000	505	—	—	GF063Y B 505 K



GF063Y

GF063Y1 Through-Hole, Y1 Terminal Style, Cross-Slot, Top Adjust

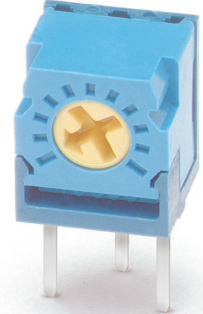
10	100	—	—	GF063Y1 B 100 K
20	200	—	—	GF063Y1 B 200 K
50	500	—	—	GF063Y1 B 500 K
100	101	—	—	GF063Y1 B 101 K
200	201	—	—	GF063Y1 B 201 K
500	501	—	—	GF063Y1 B 501 K
1,000	102	—	—	GF063Y1 B 102 K
2,000	202	—	—	GF063Y1 B 202 K
5,000	502	—	—	GF063Y1 B 502 K
10,000	103	—	—	GF063Y1 B 103 K
20,000	203	—	—	GF063Y1 B 203 K
50,000	503	—	—	GF063Y1 B 503 K
100,000	104	—	—	GF063Y1 B 104 K
200,000	204	—	—	GF063Y1 B 204 K
500,000	504	—	—	GF063Y1 B 504 K
1,000,000	105	—	—	GF063Y1 B 105 K
2,000,000	205	—	—	GF063Y1 B 205 K
5,000,000	505	—	—	GF063Y1 B 505 K



GF063Y1

GF063S Through-Hole, S Terminal Style, Cross-Slot, Side Adjust

10	100	GF063ST B 100 K	GF063ST2 B 100 K	GF063S B 100 K
20	200	GF063ST B 200 K	GF063ST2 B 200 K	GF063S B 200 K
50	500	GF063ST B 500 K	GF063ST2 B 500 K	GF063S B 500 K
100	101	GF063ST B 101 K	GF063ST2 B 101 K	GF063S B 101 K
200	201	GF063ST B 201 K	GF063ST2 B 201 K	GF063S B 201 K
500	501	GF063ST B 501 K	GF063ST2 B 501 K	GF063S B 501 K
1,000	102	GF063ST B 102 K	GF063ST2 B 102 K	GF063S B 102 K
2,000	202	GF063ST B 202 K	GF063ST2 B 202 K	GF063S B 202 K
5,000	502	GF063ST B 502 K	GF063ST2 B 502 K	GF063S B 502 K
10,000	103	GF063ST B 103 K	GF063ST2 B 103 K	GF063S B 103 K
20,000	203	GF063ST B 203 K	GF063ST2 B 203 K	GF063S B 203 K
50,000	503	GF063ST B 503 K	GF063ST2 B 503 K	GF063S B 503 K
100,000	104	GF063ST B 104 K	GF063ST2 B 104 K	GF063S B 104 K
200,000	204	GF063ST B 204 K	GF063ST2 B 204 K	GF063S B 204 K
500,000	504	GF063ST B 504 K	GF063ST2 B 504 K	GF063S B 504 K
1,000,000	105	GF063ST B 105 K	GF063ST2 B 105 K	GF063S B 105 K
2,000,000	205	GF063ST B 205 K	GF063ST2 B 205 K	GF063S B 205 K
5,000,000	505	GF063ST B 505 K	GF063ST2 B 505 K	GF063S B 505 K



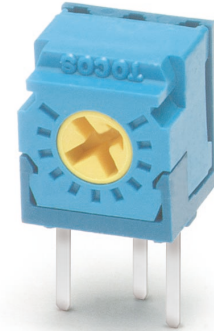
GF063S

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF063S1 Through-Hole, S1 Terminal Style, Cross-Slot, Side Adjust

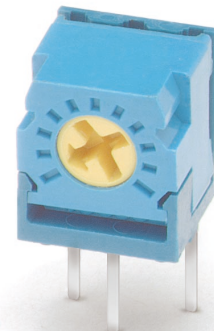
10	100	GF063S1T B 100 K	GF063S1T2 B 100 K	GF063S1 B 100 K
20	200	GF063S1T B 200 K	GF063S1T2 B 200 K	GF063S1 B 200 K
50	500	GF063S1T B 500 K	GF063S1T2 B 500 K	GF063S1 B 500 K
100	101	GF063S1T B 101 K	GF063S1T2 B 101 K	GF063S1 B 101 K
200	201	GF063S1T B 201 K	GF063S1T2 B 201 K	GF063S1 B 201 K
500	501	GF063S1T B 501 K	GF063S1T2 B 501 K	GF063S1 B 501 K
1,000	102	GF063S1T B 102 K	GF063S1T2 B 102 K	GF063S1 B 102 K
2,000	202	GF063S1T B 202 K	GF063S1T2 B 202 K	GF063S1 B 202 K
5,000	502	GF063S1T B 502 K	GF063S1T2 B 502 K	GF063S1 B 502 K
10,000	103	GF063S1T B 103 K	GF063S1T2 B 103 K	GF063S1 B 103 K
20,000	203	GF063S1T B 203 K	GF063S1T2 B 203 K	GF063S1 B 203 K
50,000	503	GF063S1T B 503 K	GF063S1T2 B 503 K	GF063S1 B 503 K
100,000	104	GF063S1T B 104 K	GF063S1T2 B 104 K	GF063S1 B 104 K
200,000	204	GF063S1T B 204 K	GF063S1T2 B 204 K	GF063S1 B 204 K
500,000	504	GF063S1T B 504 K	GF063S1T2 B 504 K	GF063S1 B 504 K
1,000,000	105	GF063S1T B 105 K	GF063S1T2 B 105 K	GF063S1 B 105 K
2,000,000	205	GF063S1T B 205 K	GF063S1T2 B 205 K	GF063S1 B 205 K
5,000,000	505	GF063S1T B 505 K	GF063S1T2 B 505 K	GF063S1 B 505 K



GF063S1

GF063X Through-Hole, X Terminal Style, Cross-Slot, Side Adjust

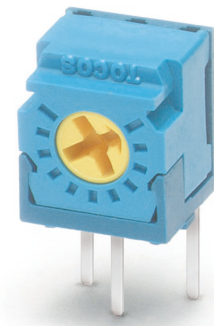
10	100	—	GF063XT2 B 100 K	GF063X B 100 K
20	200	—	GF063XT2 B 200 K	GF063X B 200 K
50	500	—	GF063XT2 B 500 K	GF063X B 500 K
100	101	—	GF063XT2 B 101 K	GF063X B 101 K
200	201	—	GF063XT2 B 201 K	GF063X B 201 K
500	501	—	GF063XT2 B 501 K	GF063X B 501 K
1,000	102	—	GF063XT2 B 102 K	GF063X B 102 K
2,000	202	—	GF063XT2 B 202 K	GF063X B 202 K
5,000	502	—	GF063XT2 B 502 K	GF063X B 502 K
10,000	103	—	GF063XT2 B 103 K	GF063X B 103 K
20,000	203	—	GF063XT2 B 203 K	GF063X B 203 K
50,000	503	—	GF063XT2 B 503 K	GF063X B 503 K
100,000	104	—	GF063XT2 B 104 K	GF063X B 104 K
200,000	204	—	GF063XT2 B 204 K	GF063X B 204 K
500,000	504	—	GF063XT2 B 504 K	GF063X B 504 K
1,000,000	105	—	GF063XT2 B 105 K	GF063X B 105 K
2,000,000	205	—	GF063XT2 B 205 K	GF063X B 205 K
5,000,000	505	—	GF063XT2 B 505 K	GF063X B 505 K



GF063X

GF063X1 Through-Hole, X1 Terminal Style, Cross-Slot, Side Adjust

10	100	—	GF063X1T2 B 100 K	GF063X1 B 100 K
20	200	—	GF063X1T2 B 200 K	GF063X1 B 200 K
50	500	—	GF063X1T2 B 500 K	GF063X1 B 500 K
100	101	—	GF063X1T2 B 101 K	GF063X1 B 101 K
200	201	—	GF063X1T2 B 201 K	GF063X1 B 201 K
500	501	—	GF063X1T2 B 501 K	GF063X1 B 501 K
1,000	102	—	GF063X1T2 B 102 K	GF063X1 B 102 K
2,000	202	—	GF063X1T2 B 202 K	GF063X1 B 202 K
5,000	502	—	GF063X1T2 B 502 K	GF063X1 B 502 K
10,000	103	—	GF063X1T2 B 103 K	GF063X1 B 103 K
20,000	203	—	GF063X1T2 B 203 K	GF063X1 B 203 K
50,000	503	—	GF063X1T2 B 503 K	GF063X1 B 503 K
100,000	104	—	GF063X1T2 B 104 K	GF063X1 B 104 K
200,000	204	—	GF063X1T2 B 204 K	GF063X1 B 204 K
500,000	504	—	GF063X1T2 B 504 K	GF063X1 B 504 K
1,000,000	105	—	GF063X1T2 B 105 K	GF063X1 B 105 K
2,000,000	205	—	GF063X1T2 B 205 K	GF063X1 B 205 K
5,000,000	505	—	GF063X1T2 B 505 K	GF063X1 B 505 K



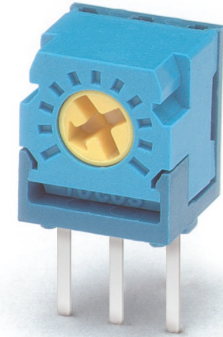
GF063X1

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Nominal Resistance		Resistance Tolerance: K = ±10% (see footnote for M = ±20%)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GF063V Through-Hole, V Terminal Style, Cross-Slot, Side Adjust

10	100	GF063VT B 100 K	GF063VT2 B 100 K	GF063V B 100 K
20	200	GF063VT B 200 K	GF063VT2 B 200 K	GF063V B 200 K
50	500	GF063VT B 500 K	GF063VT2 B 500 K	GF063V B 500 K
100	101	GF063VT B 101 K	GF063VT2 B 101 K	GF063V B 101 K
200	201	GF063VT B 201 K	GF063VT2 B 201 K	GF063V B 201 K
500	501	GF063VT B 501 K	GF063VT2 B 501 K	GF063V B 501 K
1,000	102	GF063VT B 102 K	GF063VT2 B 102 K	GF063V B 102 K
2,000	202	GF063VT B 202 K	GF063VT2 B 202 K	GF063V B 202 K
5,000	502	GF063VT B 502 K	GF063VT2 B 502 K	GF063V B 502 K
10,000	103	GF063VT B 103 K	GF063VT2 B 103 K	GF063V B 103 K
20,000	203	GF063VT B 203 K	GF063VT2 B 203 K	GF063V B 203 K
50,000	503	GF063VT B 503 K	GF063VT2 B 503 K	GF063V B 503 K
100,000	104	GF063VT B 104 K	GF063VT2 B 104 K	GF063V B 104 K
200,000	204	GF063VT B 204 K	GF063VT2 B 204 K	GF063V B 204 K
500,000	504	GF063VT B 504 K	GF063VT2 B 504 K	GF063V B 504 K
1,000,000	105	GF063VT B 105 K	GF063VT2 B 105 K	GF063V B 105 K
2,000,000	205	GF063VT B 205 K	GF063VT2 B 205 K	GF063V B 205 K
5,000,000	505	GF063VT B 505 K	GF063VT2 B 505 K	GF063V B 505 K



GF063V

GF063V1 Through-Hole, V1 Terminal Style, Cross-Slot, Side Adjust

10	100	GF063V1T B 100 K	GF063V1T2 B 100 K	GF063V1 B 100 K
20	200	GF063V1T B 200 K	GF063V1T2 B 200 K	GF063V1 B 200 K
50	500	GF063V1T B 500 K	GF063V1T2 B 500 K	GF063V1 B 500 K
100	101	GF063V1T B 101 K	GF063V1T2 B 101 K	GF063V1 B 101 K
200	201	GF063V1T B 201 K	GF063V1T2 B 201 K	GF063V1 B 201 K
500	501	GF063V1T B 501 K	GF063V1T2 B 501 K	GF063V1 B 501 K
1,000	102	GF063V1T B 102 K	GF063V1T2 B 102 K	GF063V1 B 102 K
2,000	202	GF063V1T B 202 K	GF063V1T2 B 202 K	GF063V1 B 202 K
5,000	502	GF063V1T B 502 K	GF063V1T2 B 502 K	GF063V1 B 502 K
10,000	103	GF063V1T B 103 K	GF063V1T2 B 103 K	GF063V1 B 103 K
20,000	203	GF063V1T B 203 K	GF063V1T2 B 203 K	GF063V1 B 203 K
50,000	503	GF063V1T B 503 K	GF063V1T2 B 503 K	GF063V1 B 503 K
100,000	104	GF063V1T B 104 K	GF063V1T2 B 104 K	GF063V1 B 104 K
200,000	204	GF063V1T B 204 K	GF063V1T2 B 204 K	GF063V1 B 204 K
500,000	504	GF063V1T B 504 K	GF063V1T2 B 504 K	GF063V1 B 504 K
1,000,000	105	GF063V1T B 105 K	GF063V1T2 B 105 K	GF063V1 B 105 K
2,000,000	205	GF063V1T B 205 K	GF063V1T2 B 205 K	GF063V1 B 205 K
5,000,000	505	GF063V1T B 505 K	GF063V1T2 B 505 K	GF063V1 B 505 K



GF063V1

*Substitute code letter M in place of K at end of catalog part number for ±20% resistance tolerance.

Packaging

Standard:

Tape & Reel Packaging

PT, P1T, UT, ST, S1T, VT, V1T
1,000 pieces per 14.3" reel.

Tape & Ammo Packaging

PT2, P1T2, UT2, ST2, S1T2, XT2, X1T2, VT2, V1T2
1,000 pieces per ammo box.

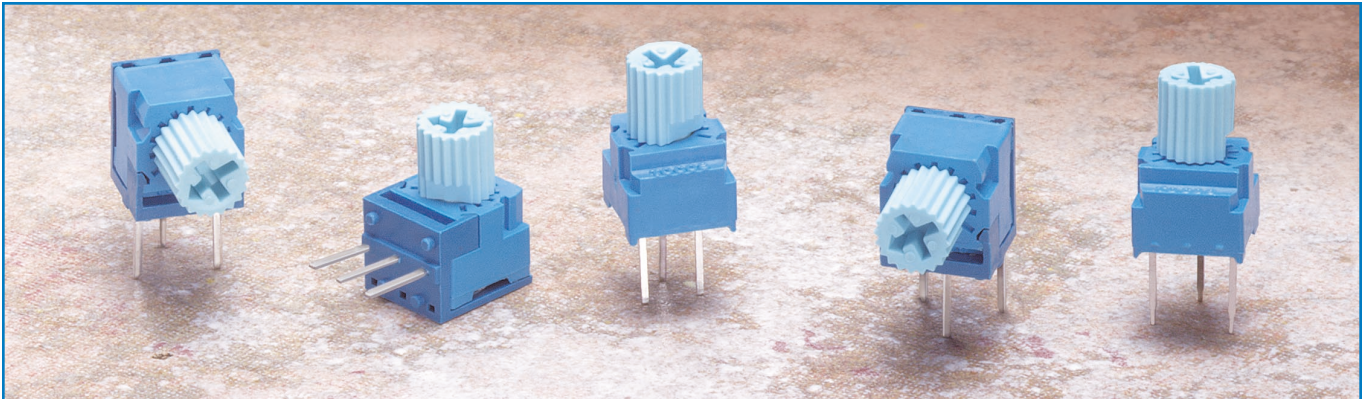
Bulk Packaging

All GF063 Models
50 pieces per vinyl bag.
500 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

1/4" Square, Single-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 1/4" square, single-turn, through-hole, sealed cermet trimmers
- Top and side adjust styles available
- Knob on all models for convenient fingertip adjustment
- Same design and housing sizes as GF063 series
- Precious metal, multi-contact wiper design
- Meets UL 94V-0 flammability requirements
- Sealed to withstand immersion cleaning processes
- Tape and ammo box available for PK, P1K and UK models

Specifications

Electrical

Standard Resistance Range	10Ω to 5MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 1Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1Ω, whichever is greater
Power Rating	0.5 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	250VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C
Insulation Resistance	1,000MΩ minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	210° ± 10°

Mechanical

Mechanical Travel	250° ± 10°
Shaft Torque	200 gf·cm (2.77 oz·in) max.
Stop Strength	500 gf·cm (6.93 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.54g (PK, P1K, WK, UK) 0.64g (SK, S1K, XK, X1K, VK, V1K)
Marking	Resistance code, date code, model type

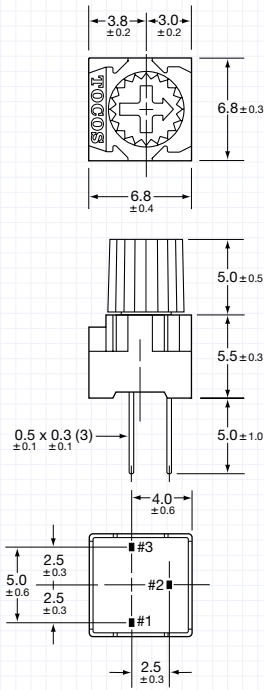
Environmental

Temperature Range	-55°C to +125°C
Low Temperature Operation	-55°C, 0.5 watt, 2 hours ΔT/R ≤ ±2%, S.S. ≤ ±2%
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±2%, S.S. ≤ ±2%
Load Life	+70°C, 0.5 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±1%, S.S. ≤ ±1%
Shock	100G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±1%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95% RH, 0.5 watt, 500 hours ΔT/R ≤ ±3%, S.S. ≤ ±2%
Moisture Resistance	-10°C to +65°C, 80-98% RH, 0.5 watt, 10 cycles, 240 hours ΔT/R ≤ ±2%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	100 cycles without discontinuity ΔT/R ≤ ±(2Ω+3%)

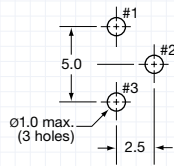
ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

All GF063-K models are available without knobs.
Refer to GF063 Series on page 52.

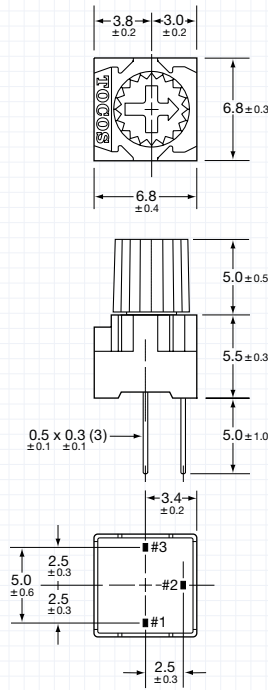
GF063PK
P Terminal Style, Top Adjust Knob



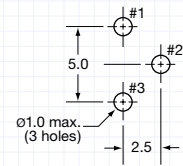
Recommended PCB Layout



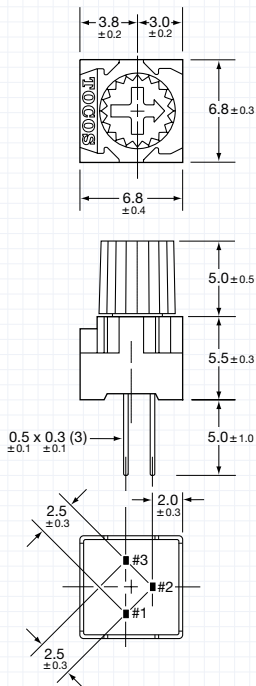
GF063P1K
P1 Terminal Style, Top Adjust Knob



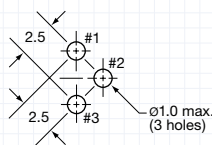
Recommended PCB Layout



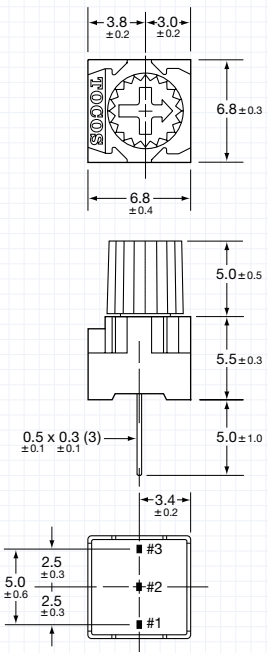
GF063WK
W Terminal Style, Top Adjust Knob



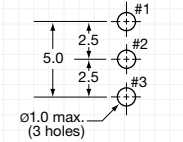
Recommended PCB Layout



GF063UK
U Terminal Style, Top Adjust Knob

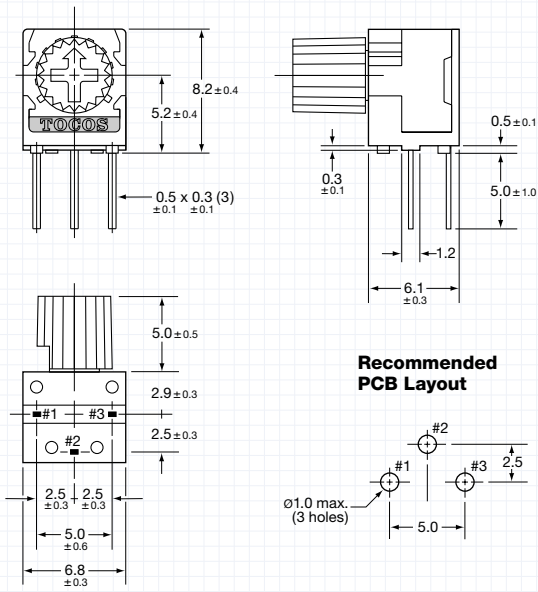


Recommended PCB Layout



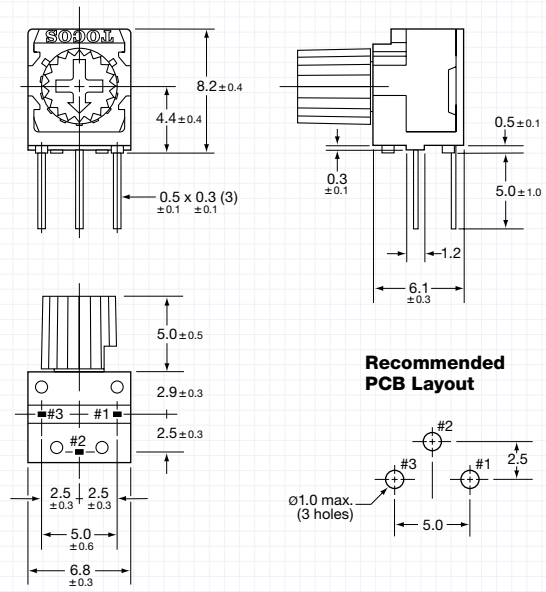
GF063SK

S Terminal Style, Side Adjust Knob



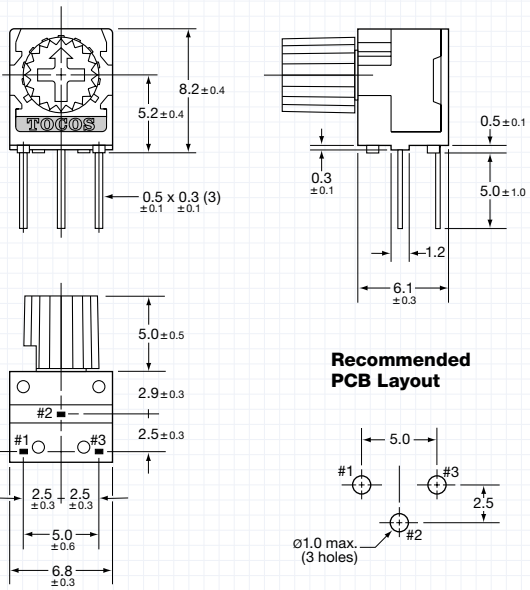
GF063S1K

S1 Terminal Style, Side Adjust Knob



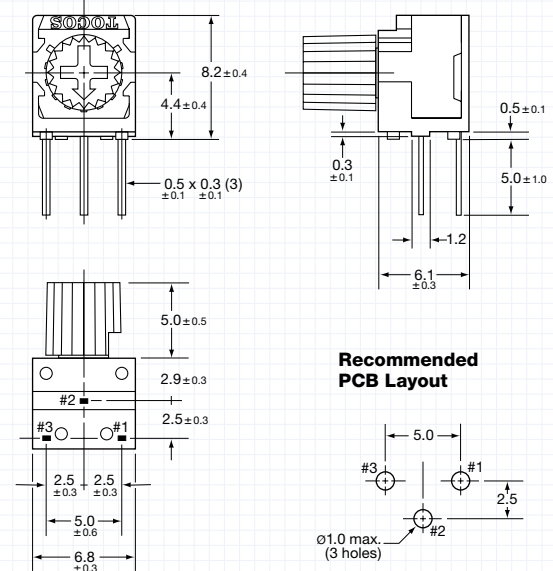
GF063XK

X Terminal Style, Side Adjust Knob



GF063X1K

X1 Terminal Style, Side Adjust Knob



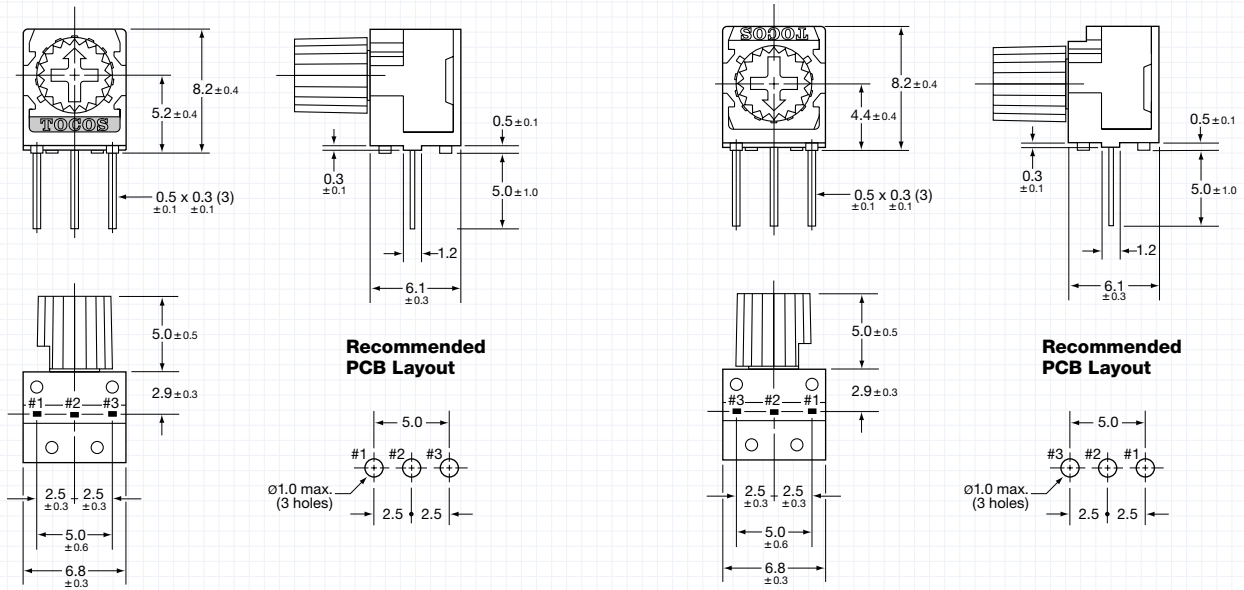
GF063VK

V Terminal Style, Side Adjust Knob

GF063V1K

V1 Terminal Style, Side Adjust Knob

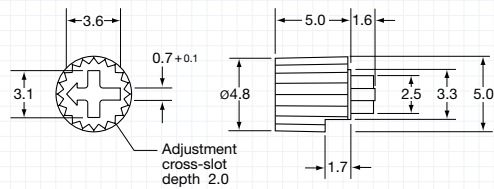
Unit: mm



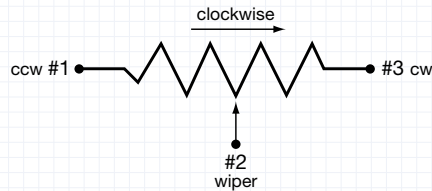
Knob Dimensions

All GF063-K Models

Unit: mm



Electrical Schematic

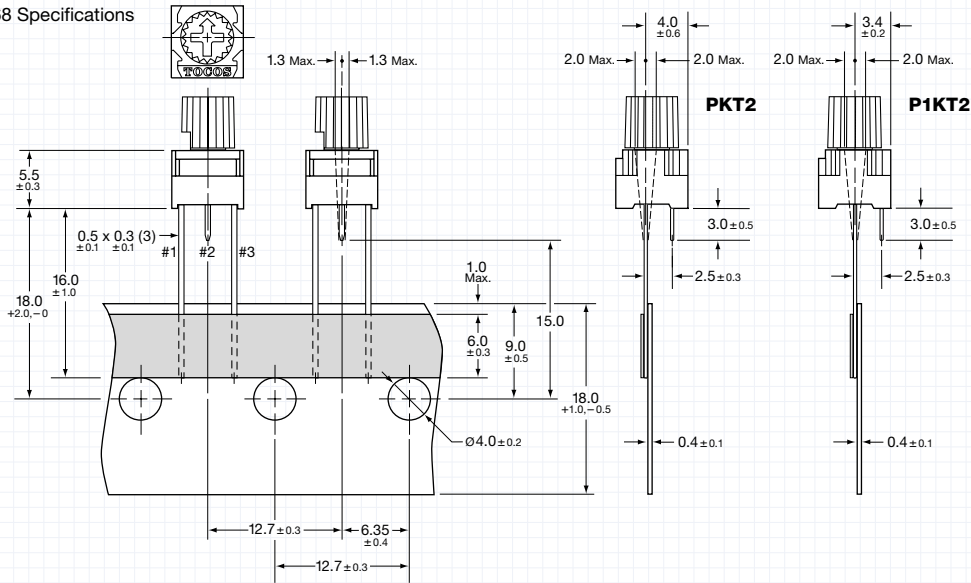


Unit: mm

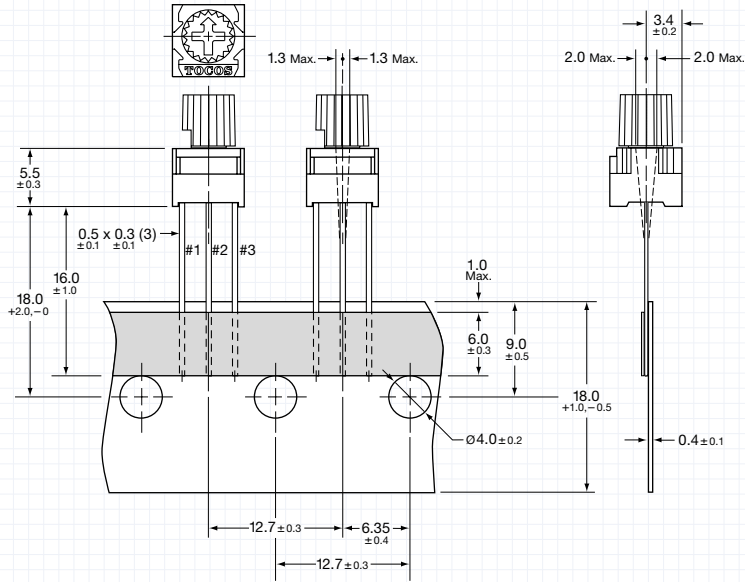
Tape Dimensions

Conforms to EIA-468 Specifications

PKT2, P1KT2



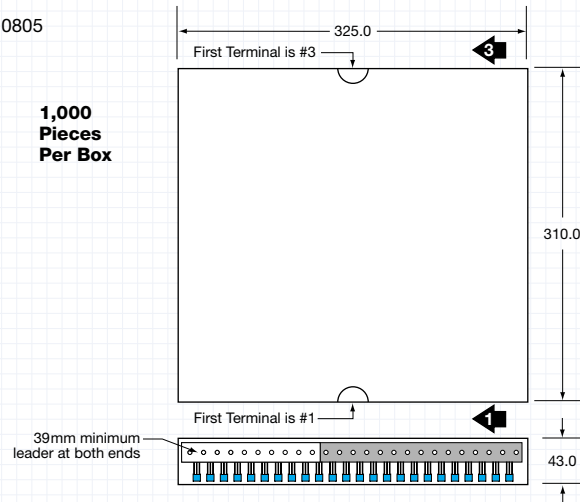
UKT2

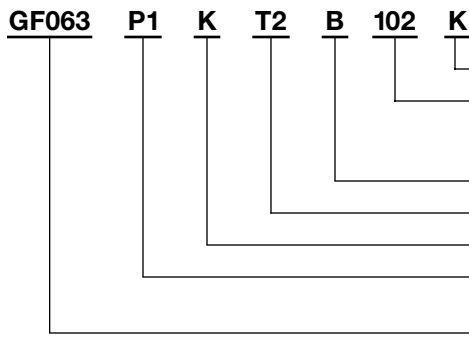


Ammo Box Dimensions

Conforms to EIA-468-B and JIS-C-0805

PKT2, P1KT2, UKT2





Resistance Tolerance: K = $\pm 10\%$; M = $\pm 20\%$
 Resistance Code: Expressed in ohms. A three digit code where the first two digits are significant figures, and the third digit indicates the number of zeros that follow these figures (i.e., 100 = 10 Ω ; 101 = 100 Ω ; 102 = 1,000 Ω ; 105 = 1,000,000 Ω).
 Resistance Taper: B = Linear.
 Packaging: T2 = Tape and Ammo Box, PK, P1K and UK Top Adjust Models.
 Adjustment Knob: K = Knob.
 Terminal Style: P, P1, W, U = 3-Lead Configurations, Top Adjust.
 S, S1, X, X1, V, V1 = 3-Lead Configurations, Side Adjust.
 TOCOS Series Name.

Part Numbers

Nominal Resistance		Resistance Tolerance $\pm 10\%$		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Ammo Box	Catalog No. Bulk	Catalog No. Tape & Ammo Box	Catalog No. Bulk	

GF063PK Through-Hole, P Terminal Style, Top Adjust Knob

10	100	GF063PKT2 B 100 K	GF063PK B 100 K	GF063PKT2 B 100 M	GF063PK B 100 M
20	200	GF063PKT2 B 200 K	GF063PK B 200 K	GF063PKT2 B 200 M	GF063PK B 200 M
50	500	GF063PKT2 B 500 K	GF063PK B 500 K	GF063PKT2 B 500 M	GF063PK B 500 M
100	101	GF063PKT2 B 101 K	GF063PK B 101 K	GF063PKT2 B 101 M	GF063PK B 101 M
200	201	GF063PKT2 B 201 K	GF063PK B 201 K	GF063PKT2 B 201 M	GF063PK B 201 M
500	501	GF063PKT2 B 501 K	GF063PK B 501 K	GF063PKT2 B 501 M	GF063PK B 501 M
1,000	102	GF063PKT2 B 102 K	GF063PK B 102 K	GF063PKT2 B 102 M	GF063PK B 102 M
2,000	202	GF063PKT2 B 202 K	GF063PK B 202 K	GF063PKT2 B 202 M	GF063PK B 202 M
5,000	502	GF063PKT2 B 502 K	GF063PK B 502 K	GF063PKT2 B 502 M	GF063PK B 502 M
10,000	103	GF063PKT2 B 103 K	GF063PK B 103 K	GF063PKT2 B 103 M	GF063PK B 103 M
20,000	203	GF063PKT2 B 203 K	GF063PK B 203 K	GF063PKT2 B 203 M	GF063PK B 203 M
50,000	503	GF063PKT2 B 503 K	GF063PK B 503 K	GF063PKT2 B 503 M	GF063PK B 503 M
100,000	104	GF063PKT2 B 104 K	GF063PK B 104 K	GF063PKT2 B 104 M	GF063PK B 104 M
200,000	204	GF063PKT2 B 204 K	GF063PK B 204 K	GF063PKT2 B 204 M	GF063PK B 204 M
500,000	504	GF063PKT2 B 504 K	GF063PK B 504 K	GF063PKT2 B 504 M	GF063PK B 504 M
1,000,000	105	GF063PKT2 B 105 K	GF063PK B 105 K	GF063PKT2 B 105 M	GF063PK B 105 M
2,000,000	205	GF063PKT2 B 205 K	GF063PK B 205 K	GF063PKT2 B 205 M	GF063PK B 205 M
5,000,000	505	GF063PKT2 B 505 K	GF063PK B 505 K	GF063PKT2 B 505 M	GF063PK B 505 M



GF063P1K Through-Hole, P1 Terminal Style, Top Adjust Knob

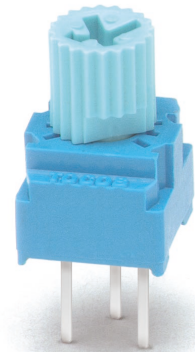
10	100	GF063P1KT2 B 100 K	GF063P1K B 100 K	GF063P1KT2 B 100 M	GF063P1K B 100 M
20	200	GF063P1KT2 B 200 K	GF063P1K B 200 K	GF063P1KT2 B 200 M	GF063P1K B 200 M
50	500	GF063P1KT2 B 500 K	GF063P1K B 500 K	GF063P1KT2 B 500 M	GF063P1K B 500 M
100	101	GF063P1KT2 B 101 K	GF063P1K B 101 K	GF063P1KT2 B 101 M	GF063P1K B 101 M
200	201	GF063P1KT2 B 201 K	GF063P1K B 201 K	GF063P1KT2 B 201 M	GF063P1K B 201 M
500	501	GF063P1KT2 B 501 K	GF063P1K B 501 K	GF063P1KT2 B 501 M	GF063P1K B 501 M
1,000	102	GF063P1KT2 B 102 K	GF063P1K B 102 K	GF063P1KT2 B 102 M	GF063P1K B 102 M
2,000	202	GF063P1KT2 B 202 K	GF063P1K B 202 K	GF063P1KT2 B 202 M	GF063P1K B 202 M
5,000	502	GF063P1KT2 B 502 K	GF063P1K B 502 K	GF063P1KT2 B 502 M	GF063P1K B 502 M
10,000	103	GF063P1KT2 B 103 K	GF063P1K B 103 K	GF063P1KT2 B 103 M	GF063P1K B 103 M
20,000	203	GF063P1KT2 B 203 K	GF063P1K B 203 K	GF063P1KT2 B 203 M	GF063P1K B 203 M
50,000	503	GF063P1KT2 B 503 K	GF063P1K B 503 K	GF063P1KT2 B 503 M	GF063P1K B 503 M
100,000	104	GF063P1KT2 B 104 K	GF063P1K B 104 K	GF063P1KT2 B 104 M	GF063P1K B 104 M
200,000	204	GF063P1KT2 B 204 K	GF063P1K B 204 K	GF063P1KT2 B 204 M	GF063P1K B 204 M
500,000	504	GF063P1KT2 B 504 K	GF063P1K B 504 K	GF063P1KT2 B 504 M	GF063P1K B 504 M
1,000,000	105	GF063P1KT2 B 105 K	GF063P1K B 105 K	GF063P1KT2 B 105 M	GF063P1K B 105 M
2,000,000	205	GF063P1KT2 B 205 K	GF063P1K B 205 K	GF063P1KT2 B 205 M	GF063P1K B 205 M
5,000,000	505	GF063P1KT2 B 505 K	GF063P1K B 505 K	GF063P1KT2 B 505 M	GF063P1K B 505 M



Nominal Resistance		Resistance Tolerance $\pm 10\%$		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Ammo Box	Catalog No. Bulk	Catalog No. Tape & Ammo Box	Catalog No. Bulk	

GF063WK Through-Hole, W Terminal Style, Top Adjust Knob

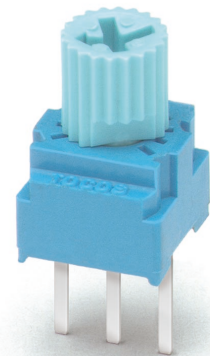
10	100	—	GF063WK B 100 K	—	GF063WK B 100 M
20	200	—	GF063WK B 200 K	—	GF063WK B 200 M
50	500	—	GF063WK B 500 K	—	GF063WK B 500 M
100	101	—	GF063WK B 101 K	—	GF063WK B 101 M
200	201	—	GF063WK B 201 K	—	GF063WK B 201 M
500	501	—	GF063WK B 501 K	—	GF063WK B 501 M
1,000	102	—	GF063WK B 102 K	—	GF063WK B 102 M
2,000	202	—	GF063WK B 202 K	—	GF063WK B 202 M
5,000	502	—	GF063WK B 502 K	—	GF063WK B 502 M
10,000	103	—	GF063WK B 103 K	—	GF063WK B 103 M
20,000	203	—	GF063WK B 203 K	—	GF063WK B 203 M
50,000	503	—	GF063WK B 503 K	—	GF063WK B 503 M
100,000	104	—	GF063WK B 104 K	—	GF063WK B 104 M
200,000	204	—	GF063WK B 204 K	—	GF063WK B 204 M
500,000	504	—	GF063WK B 504 K	—	GF063WK B 504 M
1,000,000	105	—	GF063WK B 105 K	—	GF063WK B 105 M
2,000,000	205	—	GF063WK B 205 K	—	GF063WK B 205 M
5,000,000	505	—	GF063WK B 505 K	—	GF063WK B 505 M



GF063WK

GF063UK Through-Hole, U Terminal Style, Top Adjust Knob

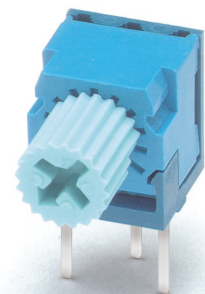
10	100	GF063UKT2 B 100 K	GF063UK B 100 K	GF063UKT2 B 100 M	GF063UK B 100 M
20	200	GF063UKT2 B 200 K	GF063UK B 200 K	GF063UKT2 B 200 M	GF063UK B 200 M
50	500	GF063UKT2 B 500 K	GF063UK B 500 K	GF063UKT2 B 500 M	GF063UK B 500 M
100	101	GF063UKT2 B 101 K	GF063UK B 101 K	GF063UKT2 B 101 M	GF063UK B 101 M
200	201	GF063UKT2 B 201 K	GF063UK B 201 K	GF063UKT2 B 201 M	GF063UK B 201 M
500	501	GF063UKT2 B 501 K	GF063UK B 501 K	GF063UKT2 B 501 M	GF063UK B 501 M
1,000	102	GF063UKT2 B 102 K	GF063UK B 102 K	GF063UKT2 B 102 M	GF063UK B 102 M
2,000	202	GF063UKT2 B 202 K	GF063UK B 202 K	GF063UKT2 B 202 M	GF063UK B 202 M
5,000	502	GF063UKT2 B 502 K	GF063UK B 502 K	GF063UKT2 B 502 M	GF063UK B 502 M
10,000	103	GF063UKT2 B 103 K	GF063UK B 103 K	GF063UKT2 B 103 M	GF063UK B 103 M
20,000	203	GF063UKT2 B 203 K	GF063UK B 203 K	GF063UKT2 B 203 M	GF063UK B 203 M
50,000	503	GF063UKT2 B 503 K	GF063UK B 503 K	GF063UKT2 B 503 M	GF063UK B 503 M
100,000	104	GF063UKT2 B 104 K	GF063UK B 104 K	GF063UKT2 B 104 M	GF063UK B 104 M
200,000	204	GF063UKT2 B 204 K	GF063UK B 204 K	GF063UKT2 B 204 M	GF063UK B 204 M
500,000	504	GF063UKT2 B 504 K	GF063UK B 504 K	GF063UKT2 B 504 M	GF063UK B 504 M
1,000,000	105	GF063UKT2 B 105 K	GF063UK B 105 K	GF063UKT2 B 105 M	GF063UK B 105 M
2,000,000	205	GF063UKT2 B 205 K	GF063UK B 205 K	GF063UKT2 B 205 M	GF063UK B 205 M
5,000,000	505	GF063UKT2 B 505 K	GF063UK B 505 K	GF063UKT2 B 505 M	GF063UK B 505 M



GF063UK

GF063SK Through-Hole, S Terminal Style, Side Adjust Knob

10	100	—	GF063SK B 100 K	—	GF063SK B 100 M
20	200	—	GF063SK B 200 K	—	GF063SK B 200 M
50	500	—	GF063SK B 500 K	—	GF063SK B 500 M
100	101	—	GF063SK B 101 K	—	GF063SK B 101 M
200	201	—	GF063SK B 201 K	—	GF063SK B 201 M
500	501	—	GF063SK B 501 K	—	GF063SK B 501 M
1,000	102	—	GF063SK B 102 K	—	GF063SK B 102 M
2,000	202	—	GF063SK B 202 K	—	GF063SK B 202 M
5,000	502	—	GF063SK B 502 K	—	GF063SK B 502 M
10,000	103	—	GF063SK B 103 K	—	GF063SK B 103 M
20,000	203	—	GF063SK B 203 K	—	GF063SK B 203 M
50,000	503	—	GF063SK B 503 K	—	GF063SK B 503 M
100,000	104	—	GF063SK B 104 K	—	GF063SK B 104 M
200,000	204	—	GF063SK B 204 K	—	GF063SK B 204 M
500,000	504	—	GF063SK B 504 K	—	GF063SK B 504 M
1,000,000	105	—	GF063SK B 105 K	—	GF063SK B 105 M
2,000,000	205	—	GF063SK B 205 K	—	GF063SK B 205 M
5,000,000	505	—	GF063SK B 505 K	—	GF063SK B 505 M



GF063SK

Nominal Resistance		Resistance Tolerance $\pm 10\%$		Resistance Tolerance $\pm 20\%$		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Ammo Box	Catalog No. Bulk	Catalog No. Tape & Ammo Box	Catalog No. Bulk	

GF063S1K Through-Hole, S1 Terminal Style, Side Adjust Knob

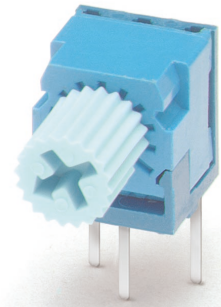
10	100	—	GF063S1K B 100 K	—	GF063S1K B 100 M
20	200	—	GF063S1K B 200 K	—	GF063S1K B 200 M
50	500	—	GF063S1K B 500 K	—	GF063S1K B 500 M
100	101	—	GF063S1K B 101 K	—	GF063S1K B 101 M
200	201	—	GF063S1K B 201 K	—	GF063S1K B 201 M
500	501	—	GF063S1K B 501 K	—	GF063S1K B 501 M
1,000	102	—	GF063S1K B 102 K	—	GF063S1K B 102 M
2,000	202	—	GF063S1K B 202 K	—	GF063S1K B 202 M
5,000	502	—	GF063S1K B 502 K	—	GF063S1K B 502 M
10,000	103	—	GF063S1K B 103 K	—	GF063S1K B 103 M
20,000	203	—	GF063S1K B 203 K	—	GF063S1K B 203 M
50,000	503	—	GF063S1K B 503 K	—	GF063S1K B 503 M
100,000	104	—	GF063S1K B 104 K	—	GF063S1K B 104 M
200,000	204	—	GF063S1K B 204 K	—	GF063S1K B 204 M
500,000	504	—	GF063S1K B 504 K	—	GF063S1K B 504 M
1,000,000	105	—	GF063S1K B 105 K	—	GF063S1K B 105 M
2,000,000	205	—	GF063S1K B 205 K	—	GF063S1K B 205 M
5,000,000	505	—	GF063S1K B 505 K	—	GF063S1K B 505 M



GF063S1K

GF063XK Through-Hole, X Terminal Style, Side Adjust Knob

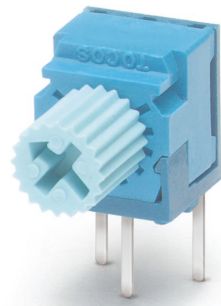
10	100	—	GF063XK B 100 K	—	GF063XK B 100 M
20	200	—	GF063XK B 200 K	—	GF063XK B 200 M
50	500	—	GF063XK B 500 K	—	GF063XK B 500 M
100	101	—	GF063XK B 101 K	—	GF063XK B 101 M
200	201	—	GF063XK B 201 K	—	GF063XK B 201 M
500	501	—	GF063XK B 501 K	—	GF063XK B 501 M
1,000	102	—	GF063XK B 102 K	—	GF063XK B 102 M
2,000	202	—	GF063XK B 202 K	—	GF063XK B 202 M
5,000	502	—	GF063XK B 502 K	—	GF063XK B 502 M
10,000	103	—	GF063XK B 103 K	—	GF063XK B 103 M
20,000	203	—	GF063XK B 203 K	—	GF063XK B 203 M
50,000	503	—	GF063XK B 503 K	—	GF063XK B 503 M
100,000	104	—	GF063XK B 104 K	—	GF063XK B 104 M
200,000	204	—	GF063XK B 204 K	—	GF063XK B 204 M
500,000	504	—	GF063XK B 504 K	—	GF063XK B 504 M
1,000,000	105	—	GF063XK B 105 K	—	GF063XK B 105 M
2,000,000	205	—	GF063XK B 205 K	—	GF063XK B 205 M
5,000,000	505	—	GF063XK B 505 K	—	GF063XK B 505 M



GF063XK

GF063X1K Through-Hole, X1 Terminal Style, Side Adjust Knob

10	100	—	GF063X1K B 100 K	—	GF063X1K B 100 M
20	200	—	GF063X1K B 200 K	—	GF063X1K B 200 M
50	500	—	GF063X1K B 500 K	—	GF063X1K B 500 M
100	101	—	GF063X1K B 101 K	—	GF063X1K B 101 M
200	201	—	GF063X1K B 201 K	—	GF063X1K B 201 M
500	501	—	GF063X1K B 501 K	—	GF063X1K B 501 M
1,000	102	—	GF063X1K B 102 K	—	GF063X1K B 102 M
2,000	202	—	GF063X1K B 202 K	—	GF063X1K B 202 M
5,000	502	—	GF063X1K B 502 K	—	GF063X1K B 502 M
10,000	103	—	GF063X1K B 103 K	—	GF063X1K B 103 M
20,000	203	—	GF063X1K B 203 K	—	GF063X1K B 203 M
50,000	503	—	GF063X1K B 503 K	—	GF063X1K B 503 M
100,000	104	—	GF063X1K B 104 K	—	GF063X1K B 104 M
200,000	204	—	GF063X1K B 204 K	—	GF063X1K B 204 M
500,000	504	—	GF063X1K B 504 K	—	GF063X1K B 504 M
1,000,000	105	—	GF063X1K B 105 K	—	GF063X1K B 105 M
2,000,000	205	—	GF063X1K B 205 K	—	GF063X1K B 205 M
5,000,000	505	—	GF063X1K B 505 K	—	GF063X1K B 505 M

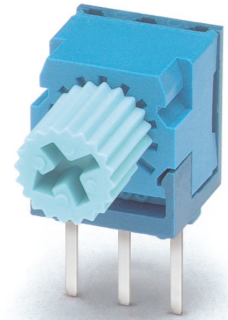


GF063X1K

Nominal Resistance		Resistance Tolerance ±10%		Resistance Tolerance ±20%		Potentiometer Styles
Value (Ω)	Code	Catalog No. Tape & Ammo Box	Catalog No. Bulk	Catalog No. Tape & Ammo Box	Catalog No. Bulk	

GF063VK Through-Hole, V Terminal Style, Side Adjust Knob

10	100	—	GF063VK B 100 K	—	GF063VK B 100 M
20	200	—	GF063VK B 200 K	—	GF063VK B 200 M
50	500	—	GF063VK B 500 K	—	GF063VK B 500 M
100	101	—	GF063VK B 101 K	—	GF063VK B 101 M
200	201	—	GF063VK B 201 K	—	GF063VK B 201 M
500	501	—	GF063VK B 501 K	—	GF063VK B 501 M
1,000	102	—	GF063VK B 102 K	—	GF063VK B 102 M
2,000	202	—	GF063VK B 202 K	—	GF063VK B 202 M
5,000	502	—	GF063VK B 502 K	—	GF063VK B 502 M
10,000	103	—	GF063VK B 103 K	—	GF063VK B 103 M
20,000	203	—	GF063VK B 203 K	—	GF063VK B 203 M
50,000	503	—	GF063VK B 503 K	—	GF063VK B 503 M
100,000	104	—	GF063VK B 104 K	—	GF063VK B 104 M
200,000	204	—	GF063VK B 204 K	—	GF063VK B 204 M
500,000	504	—	GF063VK B 504 K	—	GF063VK B 504 M
1,000,000	105	—	GF063VK B 105 K	—	GF063VK B 105 M
2,000,000	205	—	GF063VK B 205 K	—	GF063VK B 205 M
5,000,000	505	—	GF063VK B 505 K	—	GF063VK B 505 M



GF063VK

GF063V1K Through-Hole, V1 Terminal Style, Side Adjust Knob

10	100	—	GF063V1K B 100 K	—	GF063V1K B 100 M
20	200	—	GF063V1K B 200 K	—	GF063V1K B 200 M
50	500	—	GF063V1K B 500 K	—	GF063V1K B 500 M
100	101	—	GF063V1K B 101 K	—	GF063V1K B 101 M
200	201	—	GF063V1K B 201 K	—	GF063V1K B 201 M
500	501	—	GF063V1K B 501 K	—	GF063V1K B 501 M
1,000	102	—	GF063V1K B 102 K	—	GF063V1K B 102 M
2,000	202	—	GF063V1K B 202 K	—	GF063V1K B 202 M
5,000	502	—	GF063V1K B 502 K	—	GF063V1K B 502 M
10,000	103	—	GF063V1K B 103 K	—	GF063V1K B 103 M
20,000	203	—	GF063V1K B 203 K	—	GF063V1K B 203 M
50,000	503	—	GF063V1K B 503 K	—	GF063V1K B 503 M
100,000	104	—	GF063V1K B 104 K	—	GF063V1K B 104 M
200,000	204	—	GF063V1K B 204 K	—	GF063V1K B 204 M
500,000	504	—	GF063V1K B 504 K	—	GF063V1K B 504 M
1,000,000	105	—	GF063V1K B 105 K	—	GF063V1K B 105 M
2,000,000	205	—	GF063V1K B 205 K	—	GF063V1K B 205 M
5,000,000	505	—	GF063V1K B 505 K	—	GF063V1K B 505 M



GF063V1K

Packaging

Standard:

Tape & Ammo Packaging

PKT2, P1KT2 & UT2
1,000 pieces per ammo box.

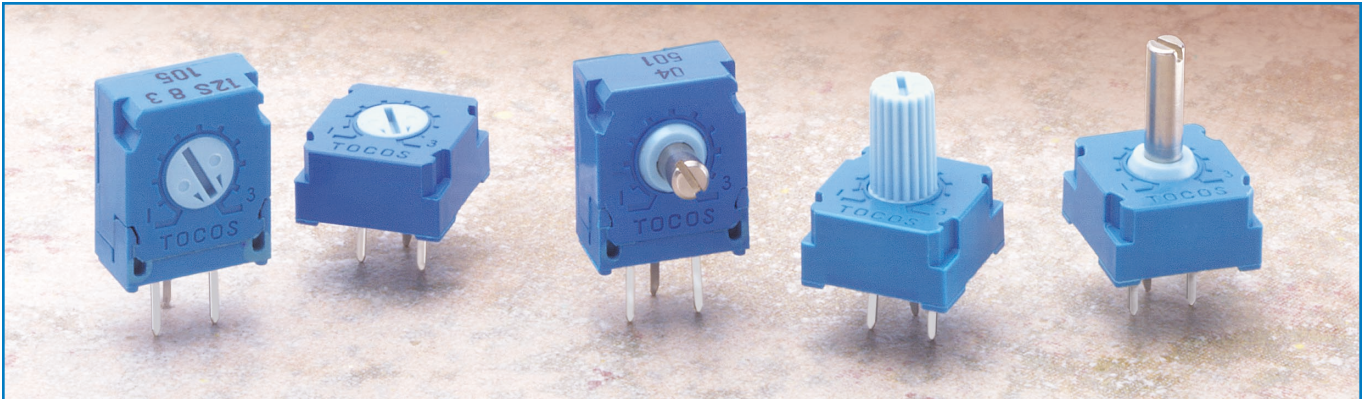
Bulk Packaging

All GF063-K Models
50 pieces per vinyl bag.
500 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

12mm Square, Single-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 12mm square, single-turn, through-hole, sealed cermet trimmers
- Stable, infinite resolution cermet element
- Unique 5,000 cycle rotational life
- Meets UL 94V-0 flammability requirements
- Top and side adjust models
- 4 standard styles, single-slot flush rotor, 5mm or 10mm single-slot metal shaft, or 8.2mm knurled plastic shaft
- Sealed to withstand wave soldering and immersion cleaning
- Optional 15, 20, 22, 25 or 30mm metal shafts available

Specifications

Electrical

Standard Resistance Range	10Ω to 1MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 3Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	2% or 3Ω, whichever is greater
Power Rating	0.75 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	300VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C, 200Ω to 500kΩ ±250ppm/°C, other values
Insulation Resistance	100MΩ minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	270° ±10°

Mechanical

Mechanical Travel	300° ±10°
Shaft Torque	300 gf·cm (4.16 oz·in) max.
Stop Strength	1 kgf·cm (12.86 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	1.4g (P); 1.8g (S, X, R) no shaft 1.8g (P); 2.2g (S, X, R) 5mm metal shaft 2.1g (P); 2.5g (S, X, R) 10mm metal shaft 1.7g (P); 2.1g (S, X, R) with knurled plastic shaft
Marking	Resistance code, date code, model type

Environmental

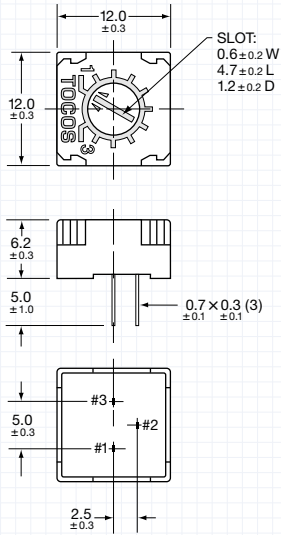
Temperature Range	-55°C to +125°C
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Load Life	+70°C, 0.75 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±2%, S.S. ≤ ±1%
Shock	50G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±1%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95% RH, 0.75 watt, 500 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Moisture Resistance	-10°C to +65°C, 80-98% RH, 0.75 watt, 10 cycles, 240 hours ΔT/R ≤ ±3%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	5,000 cycles without discontinuity ΔT/R ≤ ±5%

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

Unit: mm

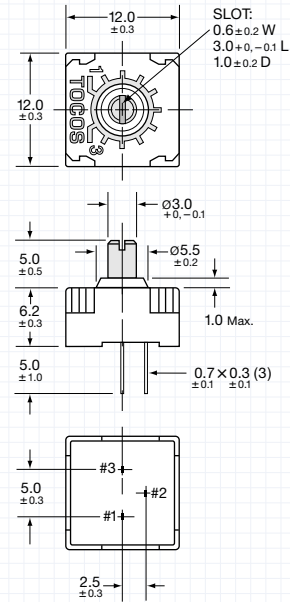
GF12P0S

No Shaft, Flush Single-Slot, Top Adjust
P Terminal Style



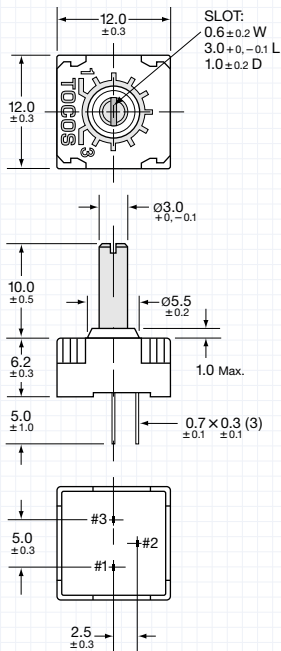
GF12P5S

5mm Metal Shaft, Single-Slot, Top Adjust
P Terminal Style



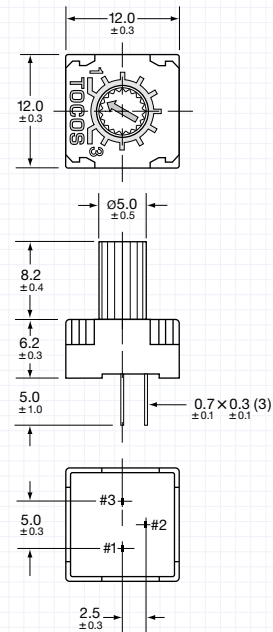
GF12P10S

10mm Metal Shaft, Single-Slot, Top Adjust
P Terminal Style



GF12P8.2SK

8.2mm Knurled Plastic Shaft, Top Adjust
P Terminal Style

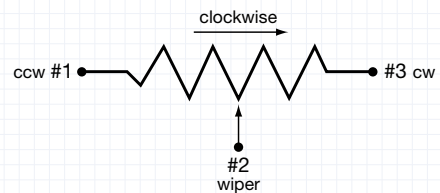
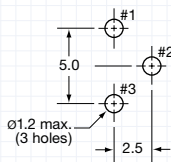


Recommended PCB Layout

Electrical Schematic for P Models

P Pin-Out

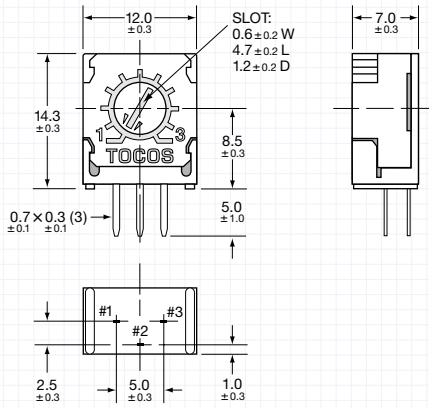
Unit: mm



Unit: mm

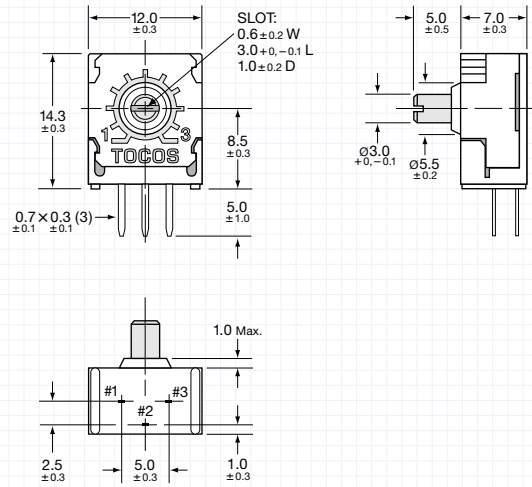
GF12S0S

No Shaft, Flush Single-Slot, Side Adjust
S Terminal Style



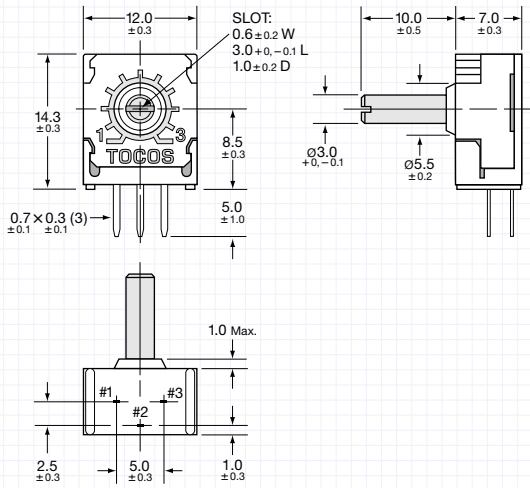
GF12S5S

5mm Metal Shaft, Single-Slot, Side Adjust
S Terminal Style



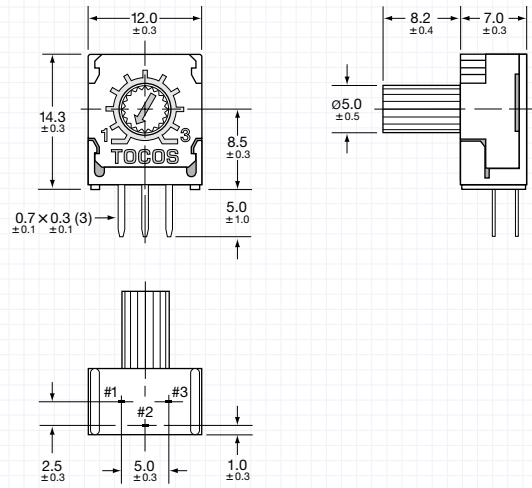
GF12S10S

10mm Metal Shaft, Single-Slot, Side Adjust
S Terminal Style



GF12S8.2SK

8.2mm Knurled Plastic Shaft, Side Adjust
S Terminal Style

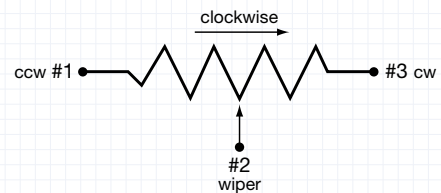
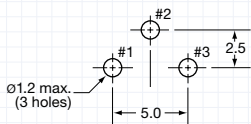


Recommended PCB Layout

Electrical Schematic for S Models

S Pin-Out

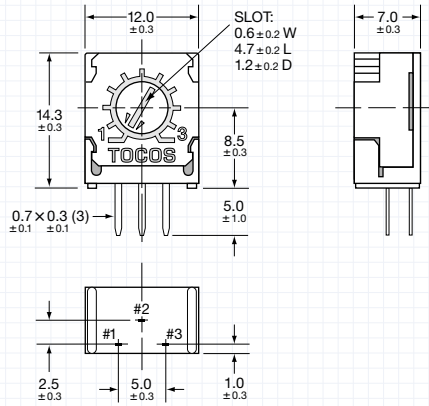
Unit: mm



Unit: mm

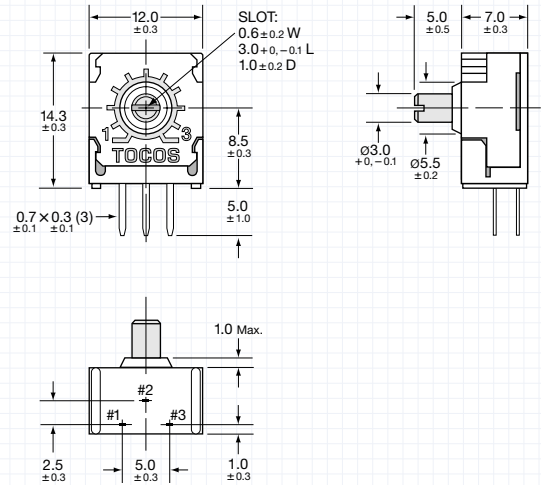
GF12X0S

**No Shaft, Flush Single-Slot, Side Adjust
X Terminal Style**



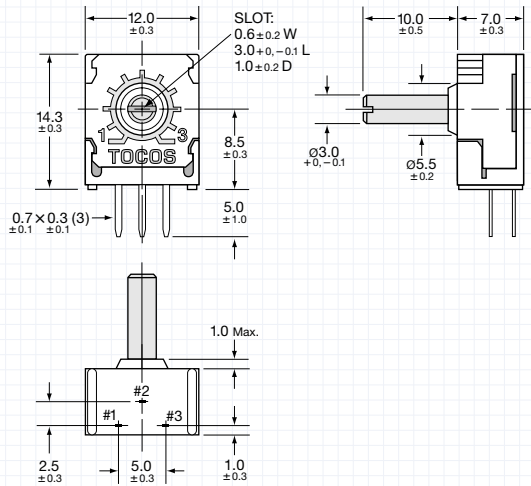
GF12X5S

**5mm Metal Shaft, Single-Slot, Side Adjust
X Terminal Style**



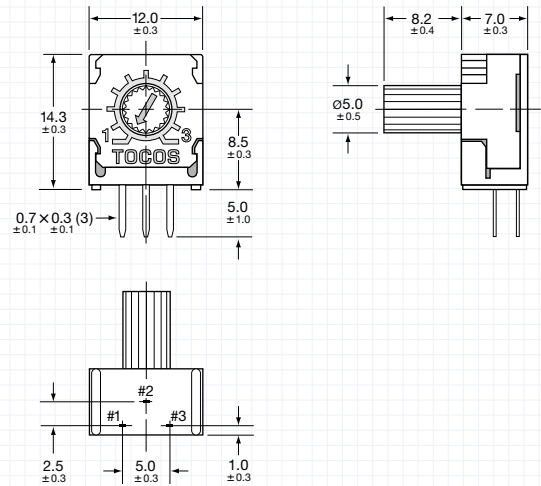
GF12X10S

**10mm Metal Shaft, Single-Slot, Side Adjust
X Terminal Style**



GF12X8.2SK

**8.2mm Knurled Plastic Shaft, Side Adjust
X Terminal Style**

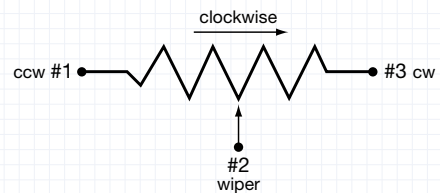
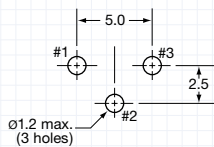


Recommended PCB Layout

Electrical Schematic for X Models

X Pin-Out

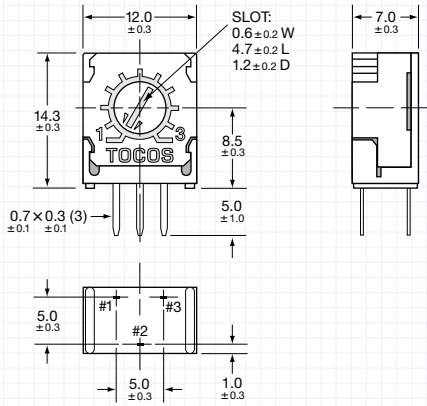
Unit: mm



Unit: mm

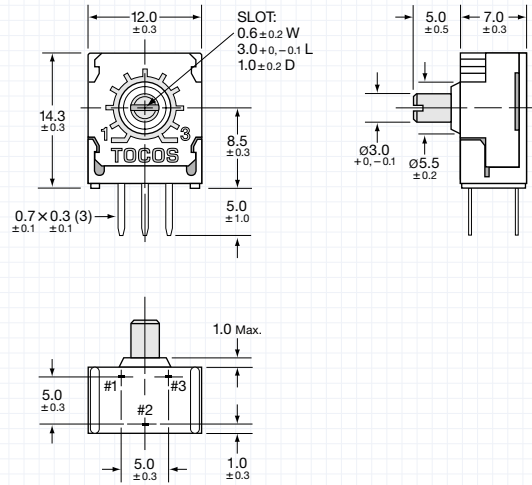
GF12R0S

**No Shaft, Flush Single-Slot, Side Adjust
R Terminal Style**



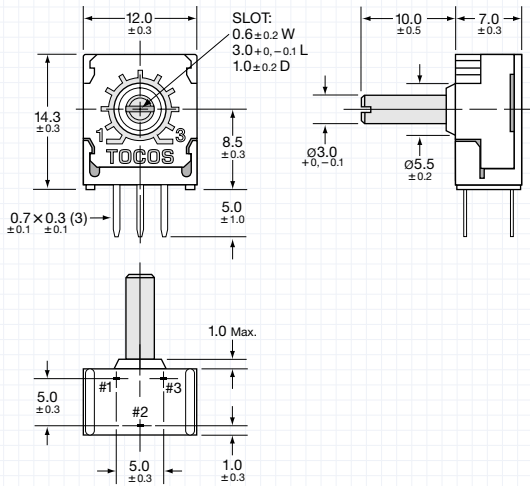
GF12R5S

**5mm Metal Shaft, Single-Slot, Side Adjust
R Terminal Style**



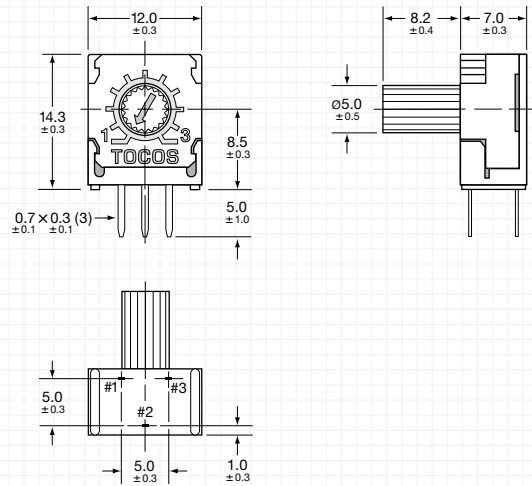
GF12R10S

**10mm Metal Shaft, Single-Slot, Side Adjust
R Terminal Style**



GF12R8.2SK

**8.2mm Knurled Plastic Shaft, Side Adjust
R Terminal Style**

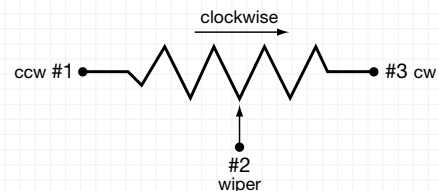
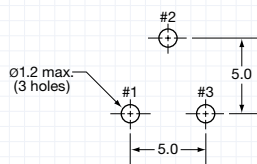


Recommended PCB Layout

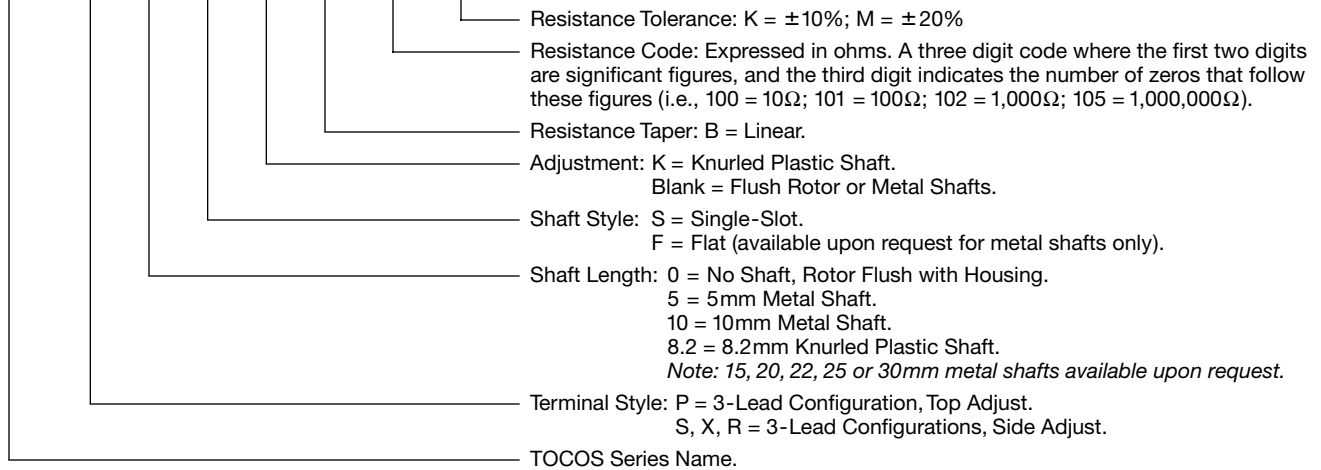
Electrical Schematic for R Models

R Pin-Out

Unit: mm



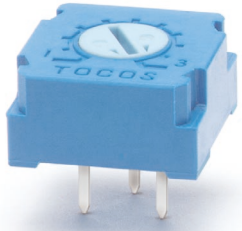
GF12 P 0 S K B 102 K



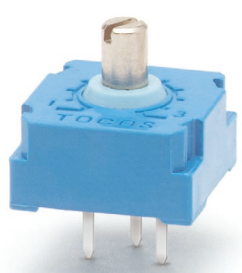
Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF12P 0S Through-Hole, P Terminal Style, No Shaft, Flush Single-Slot, Top Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	 GF12P 0S
10	100	GF12P 0S B 100 K	GF12P 0S B 100 M	
20	200	GF12P 0S B 200 K	GF12P 0S B 200 M	
50	500	GF12P 0S B 500 K	GF12P 0S B 500 M	
100	101	GF12P 0S B 101 K	GF12P 0S B 101 M	
200	201	GF12P 0S B 201 K	GF12P 0S B 201 M	
500	501	GF12P 0S B 501 K	GF12P 0S B 501 M	
1,000	102	GF12P 0S B 102 K	GF12P 0S B 102 M	
2,000	202	GF12P 0S B 202 K	GF12P 0S B 202 M	
5,000	502	GF12P 0S B 502 K	GF12P 0S B 502 M	
10,000	103	GF12P 0S B 103 K	GF12P 0S B 103 M	
20,000	203	GF12P 0S B 203 K	GF12P 0S B 203 M	
50,000	503	GF12P 0S B 503 K	GF12P 0S B 503 M	
100,000	104	GF12P 0S B 104 K	GF12P 0S B 104 M	
200,000	204	GF12P 0S B 204 K	GF12P 0S B 204 M	
500,000	504	GF12P 0S B 504 K	GF12P 0S B 504 M	
1,000,000	105	GF12P 0S B 105 K	GF12P 0S B 105 M	

GF12P 5S Through-Hole, P Terminal Style, 5mm Metal Shaft, Single-Slot, Top Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	 GF12P 5S
10	100	GF12P 5S B 100 K	GF12P 5S B 100 M	
20	200	GF12P 5S B 200 K	GF12P 5S B 200 M	
50	500	GF12P 5S B 500 K	GF12P 5S B 500 M	
100	101	GF12P 5S B 101 K	GF12P 5S B 101 M	
200	201	GF12P 5S B 201 K	GF12P 5S B 201 M	
500	501	GF12P 5S B 501 K	GF12P 5S B 501 M	
1,000	102	GF12P 5S B 102 K	GF12P 5S B 102 M	
2,000	202	GF12P 5S B 202 K	GF12P 5S B 202 M	
5,000	502	GF12P 5S B 502 K	GF12P 5S B 502 M	
10,000	103	GF12P 5S B 103 K	GF12P 5S B 103 M	
20,000	203	GF12P 5S B 203 K	GF12P 5S B 203 M	
50,000	503	GF12P 5S B 503 K	GF12P 5S B 503 M	
100,000	104	GF12P 5S B 104 K	GF12P 5S B 104 M	
200,000	204	GF12P 5S B 204 K	GF12P 5S B 204 M	
500,000	504	GF12P 5S B 504 K	GF12P 5S B 504 M	
1,000,000	105	GF12P 5S B 105 K	GF12P 5S B 105 M	

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF12P 10S Through-Hole, P Terminal Style, 10mm Metal Shaft, Single-Slot, Top Adjust

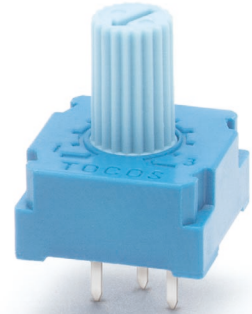
10	100	GF12P 10S B 100 K	GF12P 10S B 100 M
20	200	GF12P 10S B 200 K	GF12P 10S B 200 M
50	500	GF12P 10S B 500 K	GF12P 10S B 500 M
100	101	GF12P 10S B 101 K	GF12P 10S B 101 M
200	201	GF12P 10S B 201 K	GF12P 10S B 201 M
500	501	GF12P 10S B 501 K	GF12P 10S B 501 M
1,000	102	GF12P 10S B 102 K	GF12P 10S B 102 M
2,000	202	GF12P 10S B 202 K	GF12P 10S B 202 M
5,000	502	GF12P 10S B 502 K	GF12P 10S B 502 M
10,000	103	GF12P 10S B 103 K	GF12P 10S B 103 M
20,000	203	GF12P 10S B 203 K	GF12P 10S B 203 M
50,000	503	GF12P 10S B 503 K	GF12P 10S B 503 M
100,000	104	GF12P 10S B 104 K	GF12P 10S B 104 M
200,000	204	GF12P 10S B 204 K	GF12P 10S B 204 M
500,000	504	GF12P 10S B 504 K	GF12P 10S B 504 M
1,000,000	105	GF12P 10S B 105 K	GF12P 10S B 105 M



GF12P 10S

GF12P 8.2SK Through-Hole, P Terminal Style, 8.2mm Knurled Plastic Shaft, Top Adjust

10	100	GF12P 8.2SK B 100 K	GF12P 8.2SK B 100 M
20	200	GF12P 8.2SK B 200 K	GF12P 8.2SK B 200 M
50	500	GF12P 8.2SK B 500 K	GF12P 8.2SK B 500 M
100	101	GF12P 8.2SK B 101 K	GF12P 8.2SK B 101 M
200	201	GF12P 8.2SK B 201 K	GF12P 8.2SK B 201 M
500	501	GF12P 8.2SK B 501 K	GF12P 8.2SK B 501 M
1,000	102	GF12P 8.2SK B 102 K	GF12P 8.2SK B 102 M
2,000	202	GF12P 8.2SK B 202 K	GF12P 8.2SK B 202 M
5,000	502	GF12P 8.2SK B 502 K	GF12P 8.2SK B 502 M
10,000	103	GF12P 8.2SK B 103 K	GF12P 8.2SK B 103 M
20,000	203	GF12P 8.2SK B 203 K	GF12P 8.2SK B 203 M
50,000	503	GF12P 8.2SK B 503 K	GF12P 8.2SK B 503 M
100,000	104	GF12P 8.2SK B 104 K	GF12P 8.2SK B 104 M
200,000	204	GF12P 8.2SK B 204 K	GF12P 8.2SK B 204 M
500,000	504	GF12P 8.2SK B 504 K	GF12P 8.2SK B 504 M
1,000,000	105	GF12P 8.2SK B 105 K	GF12P 8.2SK B 105 M



GF12P 8.2SK

GF12S 0S Through-Hole, S Terminal Style, No Shaft, Flush Single-Slot, Side Adjust

10	100	GF12S 0S B 100 K	GF12S 0S B 100 M
20	200	GF12S 0S B 200 K	GF12S 0S B 200 M
50	500	GF12S 0S B 500 K	GF12S 0S B 500 M
100	101	GF12S 0S B 101 K	GF12S 0S B 101 M
200	201	GF12S 0S B 201 K	GF12S 0S B 201 M
500	501	GF12S 0S B 501 K	GF12S 0S B 501 M
1,000	102	GF12S 0S B 102 K	GF12S 0S B 102 M
2,000	202	GF12S 0S B 202 K	GF12S 0S B 202 M
5,000	502	GF12S 0S B 502 K	GF12S 0S B 502 M
10,000	103	GF12S 0S B 103 K	GF12S 0S B 103 M
20,000	203	GF12S 0S B 203 K	GF12S 0S B 203 M
50,000	503	GF12S 0S B 503 K	GF12S 0S B 503 M
100,000	104	GF12S 0S B 104 K	GF12S 0S B 104 M
200,000	204	GF12S 0S B 204 K	GF12S 0S B 204 M
500,000	504	GF12S 0S B 504 K	GF12S 0S B 504 M
1,000,000	105	GF12S 0S B 105 K	GF12S 0S B 105 M



GF12S 0S

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF12S 5S Through-Hole, S Terminal Style, 5mm Metal Shaft, Single-Slot, Side Adjust

10	100	GF12S 5S B 100 K	GF12S 5S B 100 M
20	200	GF12S 5S B 200 K	GF12S 5S B 200 M
50	500	GF12S 5S B 500 K	GF12S 5S B 500 M
100	101	GF12S 5S B 101 K	GF12S 5S B 101 M
200	201	GF12S 5S B 201 K	GF12S 5S B 201 M
500	501	GF12S 5S B 501 K	GF12S 5S B 501 M
1,000	102	GF12S 5S B 102 K	GF12S 5S B 102 M
2,000	202	GF12S 5S B 202 K	GF12S 5S B 202 M
5,000	502	GF12S 5S B 502 K	GF12S 5S B 502 M
10,000	103	GF12S 5S B 103 K	GF12S 5S B 103 M
20,000	203	GF12S 5S B 203 K	GF12S 5S B 203 M
50,000	503	GF12S 5S B 503 K	GF12S 5S B 503 M
100,000	104	GF12S 5S B 104 K	GF12S 5S B 104 M
200,000	204	GF12S 5S B 204 K	GF12S 5S B 204 M
500,000	504	GF12S 5S B 504 K	GF12S 5S B 504 M
1,000,000	105	GF12S 5S B 105 K	GF12S 5S B 105 M



GF12S 5S

GF12S 10S Through-Hole, S Terminal Style, 10mm Metal Shaft, Single-Slot, Side Adjust

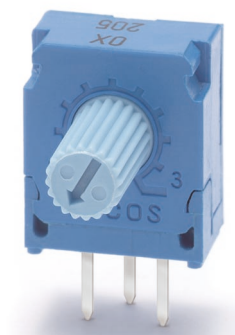
10	100	GF12S 10S B 100 K	GF12S 10S B 100 M
20	200	GF12S 10S B 200 K	GF12S 10S B 200 M
50	500	GF12S 10S B 500 K	GF12S 10S B 500 M
100	101	GF12S 10S B 101 K	GF12S 10S B 101 M
200	201	GF12S 10S B 201 K	GF12S 10S B 201 M
500	501	GF12S 10S B 501 K	GF12S 10S B 501 M
1,000	102	GF12S 10S B 102 K	GF12S 10S B 102 M
2,000	202	GF12S 10S B 202 K	GF12S 10S B 202 M
5,000	502	GF12S 10S B 502 K	GF12S 10S B 502 M
10,000	103	GF12S 10S B 103 K	GF12S 10S B 103 M
20,000	203	GF12S 10S B 203 K	GF12S 10S B 203 M
50,000	503	GF12S 10S B 503 K	GF12S 10S B 503 M
100,000	104	GF12S 10S B 104 K	GF12S 10S B 104 M
200,000	204	GF12S 10S B 204 K	GF12S 10S B 204 M
500,000	504	GF12S 10S B 504 K	GF12S 10S B 504 M
1,000,000	105	GF12S 10S B 105 K	GF12S 10S B 105 M



GF12S 10S

GF12S 8.2SK Through-Hole, S Terminal Style, 8.2mm Knurled Plastic Shaft, Side Adjust

10	100	GF12S 8.2SK B 100 K	GF12S 8.2SK B 100 M
20	200	GF12S 8.2SK B 200 K	GF12S 8.2SK B 200 M
50	500	GF12S 8.2SK B 500 K	GF12S 8.2SK B 500 M
100	101	GF12S 8.2SK B 101 K	GF12S 8.2SK B 101 M
200	201	GF12S 8.2SK B 201 K	GF12S 8.2SK B 201 M
500	501	GF12S 8.2SK B 501 K	GF12S 8.2SK B 501 M
1,000	102	GF12S 8.2SK B 102 K	GF12S 8.2SK B 102 M
2,000	202	GF12S 8.2SK B 202 K	GF12S 8.2SK B 202 M
5,000	502	GF12S 8.2SK B 502 K	GF12S 8.2SK B 502 M
10,000	103	GF12S 8.2SK B 103 K	GF12S 8.2SK B 103 M
20,000	203	GF12S 8.2SK B 203 K	GF12S 8.2SK B 203 M
50,000	503	GF12S 8.2SK B 503 K	GF12S 8.2SK B 503 M
100,000	104	GF12S 8.2SK B 104 K	GF12S 8.2SK B 104 M
200,000	204	GF12S 8.2SK B 204 K	GF12S 8.2SK B 204 M
500,000	504	GF12S 8.2SK B 504 K	GF12S 8.2SK B 504 M
1,000,000	105	GF12S 8.2SK B 105 K	GF12S 8.2SK B 105 M



GF12S 8.2SK

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF12X 0S Through-Hole, X Terminal Style, No Shaft, Flush Single-Slot, Side Adjust

10	100	GF12X 0S B 100 K	GF12X 0S B 100 M
20	200	GF12X 0S B 200 K	GF12X 0S B 200 M
50	500	GF12X 0S B 500 K	GF12X 0S B 500 M
100	101	GF12X 0S B 101 K	GF12X 0S B 101 M
200	201	GF12X 0S B 201 K	GF12X 0S B 201 M
500	501	GF12X 0S B 501 K	GF12X 0S B 501 M
1,000	102	GF12X 0S B 102 K	GF12X 0S B 102 M
2,000	202	GF12X 0S B 202 K	GF12X 0S B 202 M
5,000	502	GF12X 0S B 502 K	GF12X 0S B 502 M
10,000	103	GF12X 0S B 103 K	GF12X 0S B 103 M
20,000	203	GF12X 0S B 203 K	GF12X 0S B 203 M
50,000	503	GF12X 0S B 503 K	GF12X 0S B 503 M
100,000	104	GF12X 0S B 104 K	GF12X 0S B 104 M
200,000	204	GF12X 0S B 204 K	GF12X 0S B 204 M
500,000	504	GF12X 0S B 504 K	GF12X 0S B 504 M
1,000,000	105	GF12X 0S B 105 K	GF12X 0S B 105 M



GF12X 0S

GF12X 5S Through-Hole, X Terminal Style, 5mm Metal Shaft, Single-Slot, Side Adjust

10	100	GF12X 5S B 100 K	GF12X 5S B 100 M
20	200	GF12X 5S B 200 K	GF12X 5S B 200 M
50	500	GF12X 5S B 500 K	GF12X 5S B 500 M
100	101	GF12X 5S B 101 K	GF12X 5S B 101 M
200	201	GF12X 5S B 201 K	GF12X 5S B 201 M
500	501	GF12X 5S B 501 K	GF12X 5S B 501 M
1,000	102	GF12X 5S B 102 K	GF12X 5S B 102 M
2,000	202	GF12X 5S B 202 K	GF12X 5S B 202 M
5,000	502	GF12X 5S B 502 K	GF12X 5S B 502 M
10,000	103	GF12X 5S B 103 K	GF12X 5S B 103 M
20,000	203	GF12X 5S B 203 K	GF12X 5S B 203 M
50,000	503	GF12X 5S B 503 K	GF12X 5S B 503 M
100,000	104	GF12X 5S B 104 K	GF12X 5S B 104 M
200,000	204	GF12X 5S B 204 K	GF12X 5S B 204 M
500,000	504	GF12X 5S B 504 K	GF12X 5S B 504 M
1,000,000	105	GF12X 5S B 105 K	GF12X 5S B 105 M



GF12X 5S

GF12X 10S Through-Hole, X Terminal Style, 10mm Metal Shaft, Single-Slot, Side Adjust

10	100	GF12X 10S B 100 K	GF12X 10S B 100 M
20	200	GF12X 10S B 200 K	GF12X 10S B 200 M
50	500	GF12X 10S B 500 K	GF12X 10S B 500 M
100	101	GF12X 10S B 101 K	GF12X 10S B 101 M
200	201	GF12X 10S B 201 K	GF12X 10S B 201 M
500	501	GF12X 10S B 501 K	GF12X 10S B 501 M
1,000	102	GF12X 10S B 102 K	GF12X 10S B 102 M
2,000	202	GF12X 10S B 202 K	GF12X 10S B 202 M
5,000	502	GF12X 10S B 502 K	GF12X 10S B 502 M
10,000	103	GF12X 10S B 103 K	GF12X 10S B 103 M
20,000	203	GF12X 10S B 203 K	GF12X 10S B 203 M
50,000	503	GF12X 10S B 503 K	GF12X 10S B 503 M
100,000	104	GF12X 10S B 104 K	GF12X 10S B 104 M
200,000	204	GF12X 10S B 204 K	GF12X 10S B 204 M
500,000	504	GF12X 10S B 504 K	GF12X 10S B 504 M
1,000,000	105	GF12X 10S B 105 K	GF12X 10S B 105 M



GF12X 10S

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF12X 8.2SK Through-Hole, X Terminal Style, 8.2mm Knurled Plastic Shaft, Side Adjust

10	100	GF12X 8.2SK B 100 K	GF12X 8.2SK B 100M
20	200	GF12X 8.2SK B 200 K	GF12X 8.2SK B 200M
50	500	GF12X 8.2SK B 500 K	GF12X 8.2SK B 500M
100	101	GF12X 8.2SK B 101 K	GF12X 8.2SK B 101M
200	201	GF12X 8.2SK B 201 K	GF12X 8.2SK B 201M
500	501	GF12X 8.2SK B 501 K	GF12X 8.2SK B 501M
1,000	102	GF12X 8.2SK B 102 K	GF12X 8.2SK B 102M
2,000	202	GF12X 8.2SK B 202 K	GF12X 8.2SK B 202M
5,000	502	GF12X 8.2SK B 502 K	GF12X 8.2SK B 502M
10,000	103	GF12X 8.2SK B 103 K	GF12X 8.2SK B 103M
20,000	203	GF12X 8.2SK B 203 K	GF12X 8.2SK B 203M
50,000	503	GF12X 8.2SK B 503 K	GF12X 8.2SK B 503M
100,000	104	GF12X 8.2SK B 104 K	GF12X 8.2SK B 104M
200,000	204	GF12X 8.2SK B 204 K	GF12X 8.2SK B 204M
500,000	504	GF12X 8.2SK B 504 K	GF12X 8.2SK B 504M
1,000,000	105	GF12X 8.2SK B 105 K	GF12X 8.2SK B 105M



GF12X 8.2SK

GF12R 0S Through-Hole, R Terminal Style, No Shaft, Flush Single-Slot, Side Adjust

10	100	GF12R 0S B 100 K	GF12R 0S B 100 M
20	200	GF12R 0S B 200 K	GF12R 0S B 200 M
50	500	GF12R 0S B 500 K	GF12R 0S B 500 M
100	101	GF12R 0S B 101 K	GF12R 0S B 101 M
200	201	GF12R 0S B 201 K	GF12R 0S B 201 M
500	501	GF12R 0S B 501 K	GF12R 0S B 501 M
1,000	102	GF12R 0S B 102 K	GF12R 0S B 102 M
2,000	202	GF12R 0S B 202 K	GF12R 0S B 202 M
5,000	502	GF12R 0S B 502 K	GF12R 0S B 502 M
10,000	103	GF12R 0S B 103 K	GF12R 0S B 103 M
20,000	203	GF12R 0S B 203 K	GF12R 0S B 203 M
50,000	503	GF12R 0S B 503 K	GF12R 0S B 503 M
100,000	104	GF12R 0S B 104 K	GF12R 0S B 104 M
200,000	204	GF12R 0S B 204 K	GF12R 0S B 204 M
500,000	504	GF12R 0S B 504 K	GF12R 0S B 504 M
1,000,000	105	GF12R 0S B 105 K	GF12R 0S B 105 M



GF12R 0S

GF12R 5S Through-Hole, R Terminal Style, 5mm Metal Shaft, Single-Slot, Side Adjust

10	100	GF12R 5S B 100 K	GF12R 5S B 100 M
20	200	GF12R 5S B 200 K	GF12R 5S B 200 M
50	500	GF12R 5S B 500 K	GF12R 5S B 500 M
100	101	GF12R 5S B 101 K	GF12R 5S B 101 M
200	201	GF12R 5S B 201 K	GF12R 5S B 201 M
500	501	GF12R 5S B 501 K	GF12R 5S B 501 M
1,000	102	GF12R 5S B 102 K	GF12R 5S B 102 M
2,000	202	GF12R 5S B 202 K	GF12R 5S B 202 M
5,000	502	GF12R 5S B 502 K	GF12R 5S B 502 M
10,000	103	GF12R 5S B 103 K	GF12R 5S B 103 M
20,000	203	GF12R 5S B 203 K	GF12R 5S B 203 M
50,000	503	GF12R 5S B 503 K	GF12R 5S B 503 M
100,000	104	GF12R 5S B 104 K	GF12R 5S B 104 M
200,000	204	GF12R 5S B 204 K	GF12R 5S B 204 M
500,000	504	GF12R 5S B 504 K	GF12R 5S B 504 M
1,000,000	105	GF12R 5S B 105 K	GF12R 5S B 105 M



GF12R 5S

GF12 Series

Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

GF12R 10S Through-Hole, R Terminal Style, 10mm Metal Shaft, Single-Slot, Side Adjust

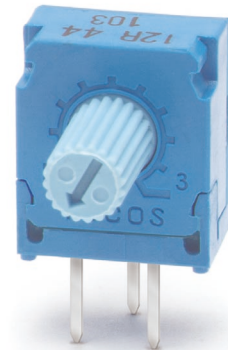
10	100	GF12R 10S B 100 K	GF12R 10S B 100 M
20	200	GF12R 10S B 200 K	GF12R 10S B 200 M
50	500	GF12R 10S B 500 K	GF12R 10S B 500 M
100	101	GF12R 10S B 101 K	GF12R 10S B 101 M
200	201	GF12R 10S B 201 K	GF12R 10S B 201 M
500	501	GF12R 10S B 501 K	GF12R 10S B 501 M
1,000	102	GF12R 10S B 102 K	GF12R 10S B 102 M
2,000	202	GF12R 10S B 202 K	GF12R 10S B 202 M
5,000	502	GF12R 10S B 502 K	GF12R 10S B 502 M
10,000	103	GF12R 10S B 103 K	GF12R 10S B 103 M
20,000	203	GF12R 10S B 203 K	GF12R 10S B 203 M
50,000	503	GF12R 10S B 503 K	GF12R 10S B 503 M
100,000	104	GF12R 10S B 104 K	GF12R 10S B 104 M
200,000	204	GF12R 10S B 204 K	GF12R 10S B 204 M
500,000	504	GF12R 10S B 504 K	GF12R 10S B 504 M
1,000,000	105	GF12R 10S B 105 K	GF12R 10S B 105 M



GF12R 10S

GF12R 8.2SK Through-Hole, R Terminal Style, 8.2mm Knurled Plastic Shaft, Side Adjust

10	100	GF12R 8.2SK B 100 K	GF12R 8.2SK B 100 M
20	200	GF12R 8.2SK B 200 K	GF12R 8.2SK B 200 M
50	500	GF12R 8.2SK B 500 K	GF12R 8.2SK B 500 M
100	101	GF12R 8.2SK B 101 K	GF12R 8.2SK B 101 M
200	201	GF12R 8.2SK B 201 K	GF12R 8.2SK B 201 M
500	501	GF12R 8.2SK B 501 K	GF12R 8.2SK B 501 M
1,000	102	GF12R 8.2SK B 102 K	GF12R 8.2SK B 102 M
2,000	202	GF12R 8.2SK B 202 K	GF12R 8.2SK B 202 M
5,000	502	GF12R 8.2SK B 502 K	GF12R 8.2SK B 502 M
10,000	103	GF12R 8.2SK B 103 K	GF12R 8.2SK B 103 M
20,000	203	GF12R 8.2SK B 203 K	GF12R 8.2SK B 203 M
50,000	503	GF12R 8.2SK B 503 K	GF12R 8.2SK B 503 M
100,000	104	GF12R 8.2SK B 104 K	GF12R 8.2SK B 104 M
200,000	204	GF12R 8.2SK B 204 K	GF12R 8.2SK B 204 M
500,000	504	GF12R 8.2SK B 504 K	GF12R 8.2SK B 504 M
1,000,000	105	GF12R 8.2SK B 105 K	GF12R 8.2SK B 105 M



GF12R 8.2SK

Packaging

Standard:

Bulk Packaging

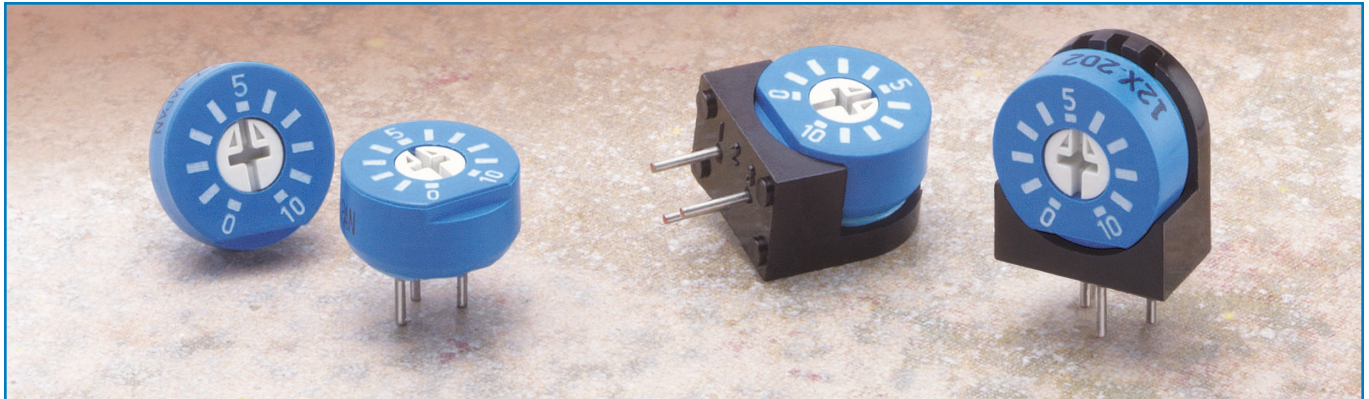
Quantity

50 pieces per vinyl bag.
200 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

1/2" Round, Single-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 1/2" round, single-turn, through-hole, sealed cermet trimmers
- Dial markings for quick adjustment
- 3 standard models, top and side adjust
- Cross-slot adjustment flush with housing
- PC board stand-offs
- 1.0 watt power rating
- Low noise and low TC
- Wide temperature range of -55°C to +125°C
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning processes

Specifications

Electrical

Standard Resistance Range	10Ω to 1MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 3Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1Ω, whichever is greater
Power Rating	1.0 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	300VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C, 200Ω to 500kΩ ±250ppm/°C, other values
Insulation Resistance	1,000MΩ minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	270° ±10°

Mechanical

Mechanical Travel	300° ±10°
Shaft Torque	350 gf·cm (4.85 oz·in) max.
Stop Strength	2 kgf·cm (27.73 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	1.5g (P); 2.4g (S, X)
Marking	Resistance code, date code, model type, terminal identification (side adjust only)

Environmental

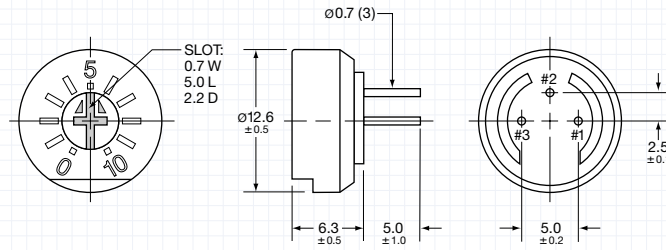
Temperature Range	-55°C to +125°C
Low Temperature Exposure	-55°C, 2 hours ΔT/R ≤ ±1%
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±2%, S.S. ≤ ±1%
Load Life	+70°C, 1.0 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±1%, S.S. ≤ ±1%
Shock	50G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±2%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95% RH, 1.0 watt, 500 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Moisture Resistance	-10°C to +65°C, 80-98% RH, 1.0 watt, 10 cycles, 240 hours ΔT/R ≤ ±3%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	100 cycles without discontinuity ΔT/R ≤ ±2%

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

G12P

P Terminal Style, Cross-Slot, Top Adjust

Unit: mm

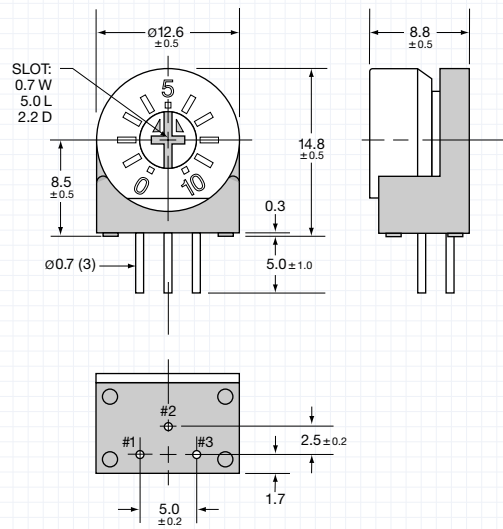
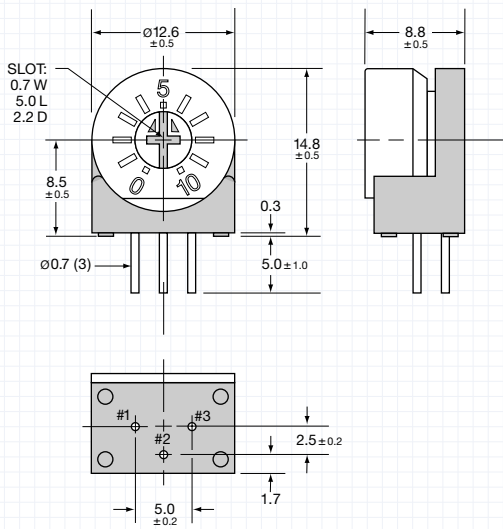


G12S

S Terminal Style, Cross-Slot, Side Adjust

G12X

X Terminal Style, Cross-Slot, Side Adjust

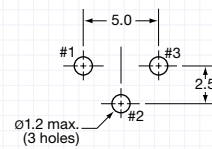
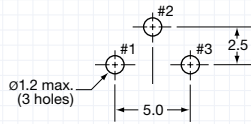


Recommended PCB Layouts

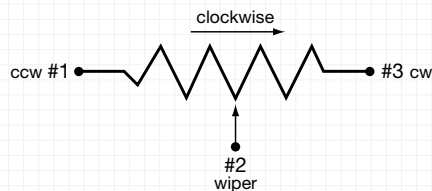
P & S Pin-Out

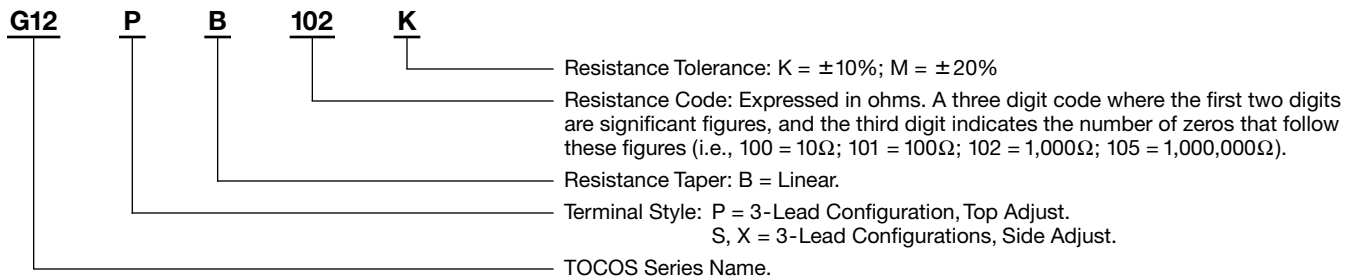
X Pin-Out

Unit: mm



Electrical Schematic






Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

G12P Through-Hole, P Terminal Style, Cross-Slot, Top Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	 G12P
10	100	G12P B 100 K	G12P B 100 M	
20	200	G12P B 200 K	G12P B 200 M	
50	500	G12P B 500 K	G12P B 500 M	
100	101	G12P B 101 K	G12P B 101 M	
200	201	G12P B 201 K	G12P B 201 M	
500	501	G12P B 501 K	G12P B 501 M	
1,000	102	G12P B 102 K	G12P B 102 M	
2,000	202	G12P B 202 K	G12P B 202 M	
5,000	502	G12P B 502 K	G12P B 502 M	
10,000	103	G12P B 103 K	G12P B 103 M	
20,000	203	G12P B 203 K	G12P B 203 M	
50,000	503	G12P B 503 K	G12P B 503 M	
100,000	104	G12P B 104 K	G12P B 104 M	
200,000	204	G12P B 204 K	G12P B 204 M	
500,000	504	G12P B 504 K	G12P B 504 M	
1,000,000	105	G12P B 105 K	G12P B 105 M	

G12S Through-Hole, S Terminal Style, Cross-Slot, Side Adjust

Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	 G12S
10	100	G12S B 100 K	G12S B 100 M	
20	200	G12S B 200 K	G12S B 200 M	
50	500	G12S B 500 K	G12S B 500 M	
100	101	G12S B 101 K	G12S B 101 M	
200	201	G12S B 201 K	G12S B 201 M	
500	501	G12S B 501 K	G12S B 501 M	
1,000	102	G12S B 102 K	G12S B 102 M	
2,000	202	G12S B 202 K	G12S B 202 M	
5,000	502	G12S B 502 K	G12S B 502 M	
10,000	103	G12S B 103 K	G12S B 103 M	
20,000	203	G12S B 203 K	G12S B 203 M	
50,000	503	G12S B 503 K	G12S B 503 M	
100,000	104	G12S B 104 K	G12S B 104 M	
200,000	204	G12S B 204 K	G12S B 204 M	
500,000	504	G12S B 504 K	G12S B 504 M	
1,000,000	105	G12S B 105 K	G12S B 105 M	

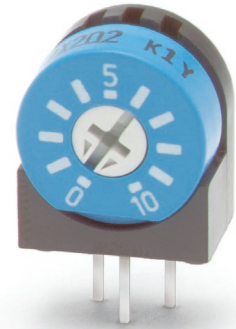
G12 Series

Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

G12X Through-Hole, X Terminal Style, Cross-Slot, Side Adjust

10	100	G12X B 100 K	G12X B 100 M
20	200	G12X B 200 K	G12X B 200 M
50	500	G12X B 500 K	G12X B 500 M
100	101	G12X B 101 K	G12X B 101 M
200	201	G12X B 201 K	G12X B 201 M
500	501	G12X B 501 K	G12X B 501 M
1,000	102	G12X B 102 K	G12X B 102 M
2,000	202	G12X B 202 K	G12X B 202 M
5,000	502	G12X B 502 K	G12X B 502 M
10,000	103	G12X B 103 K	G12X B 103 M
20,000	203	G12X B 203 K	G12X B 203 M
50,000	503	G12X B 503 K	G12X B 503 M
100,000	104	G12X B 104 K	G12X B 104 M
200,000	204	G12X B 204 K	G12X B 204 M
500,000	504	G12X B 504 K	G12X B 504 M
1,000,000	105	G12X B 105 K	G12X B 105 M



G12X

Packaging

Standard:	Bulk Packaging	Quantity 10 pieces per vinyl bag. 200 pieces per box.
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Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

12mm Round, Single-Turn, Through-Hole Sealed Wirewound Trimmers



Features

- 12mm round, single-turn, through-hole, sealed wirewound trimmers
- Top and side adjust styles available
- Low equivalent noise resistance
- High setting stability
- Low temperature coefficient
- Long rotational life
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning processes

Specifications

Electrical

Standard Resistance Range	10Ω to 20kΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% standard
End Resistance	0.2% or 1Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	0.5% or 2Ω, whichever is greater
Power Rating	0.5 watt at +70°C, 0 watt at +125°C
Temperature Coefficient	±50ppm/°C
Insulation Resistance	1,000MΩ minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	270° ± 10°

Mechanical

Mechanical Travel	300° ± 10°
Shaft Torque	30 to 300 gf·cm (0.42 to 4.16 oz·in)
Stop Strength	1 kgf·cm (13.86 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	1.5g (P); 2.4g (S, X)
Marking	Resistance code, date code, model type, terminal identification

Environmental

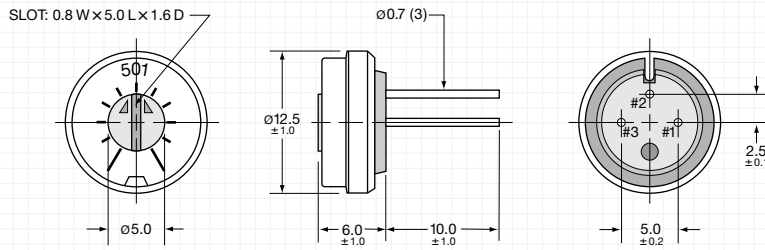
Temperature Range	-55°C to +125°C
Low Temperature Exposure	-55°C, 1 hours $\Delta T/R \leq \pm 1\% + 0.05\Omega$
High Temperature Exposure	+125°C, 250 hours $\Delta T/R \leq \pm 1\% + 0.05\Omega$
Load Life	+70°C, 0.5 watt, 1,000 hours $\Delta T/R \leq \pm 2\%$
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles $\Delta T/R \leq \pm 1\% + 0.05\Omega$
Humidity	+40°C, 90-95% RH, 0.5 watt, 500 hours $\Delta T/R \leq \pm 2\%$
Soldering Heat Resistance	350°C, 5 seconds $\Delta T/R \leq \pm 1\% + 0.05\Omega$
Seal Test	+85°C, hot water for 1 minute
Rotational Life	200 cycles without discontinuity $\Delta T/R \leq \pm 2\%$

$\Delta T/R$ = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

RA12P

P Terminal Style, Single-Slot, Top Adjust

Unit: mm

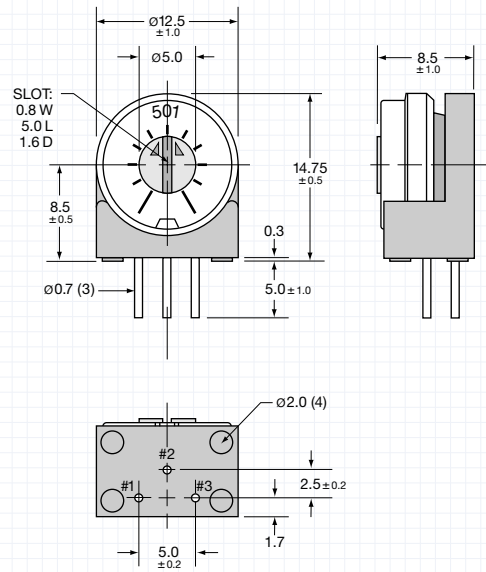
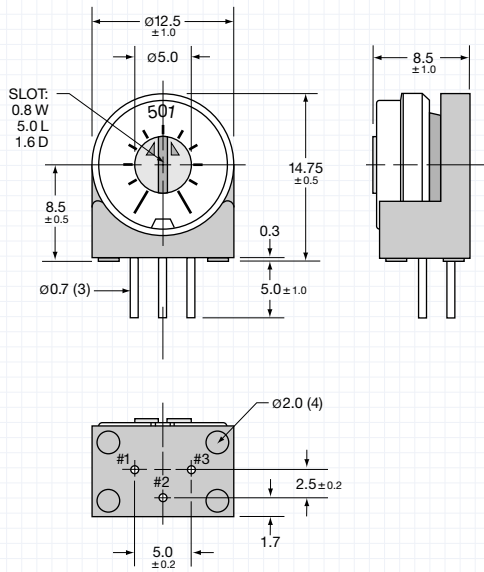


RA12S

S Terminal Style, Single-Slot, Side Adjust

RA12X

X Terminal Style, Single-Slot, Side Adjust

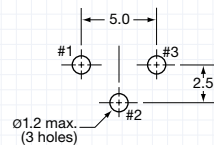
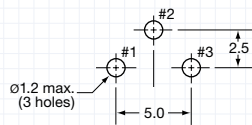


Recommended PCB Layouts

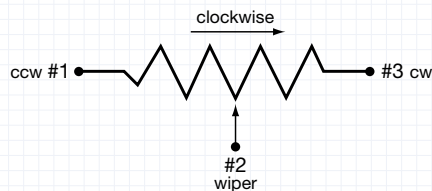
P & S Pin-Out

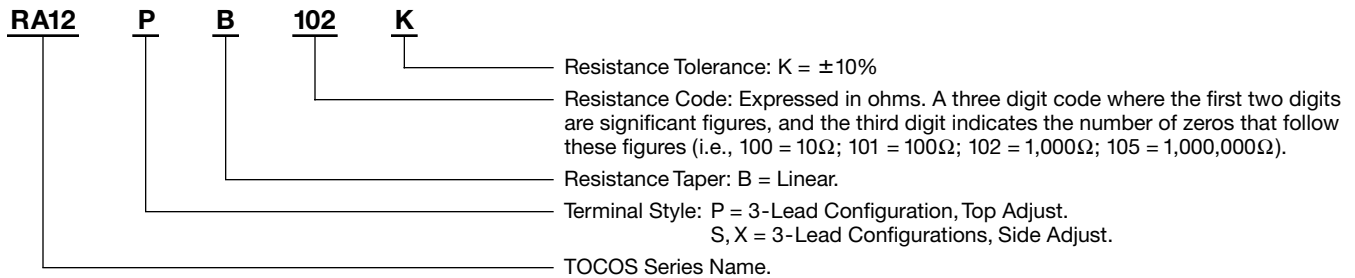
X Pin-Out

Unit: mm



Electrical Schematic







Part Numbers

Nominal Resistance		Catalog No. Bulk	Resolution		Potentiometer Styles
Value (Ω)	Code		Ohms (Ω)	Percent (%)	


RA12P Through-Hole, P Terminal Style, Single-Slot, Top Adjust

Value (Ω)	Code	Catalog No. Bulk	Ohms (Ω)	Percent (%)	 RA12P
10	100	RA12P B 100 K	0.11	1.13	
20	200	RA12P B 200 K	0.18	0.90	
50	500	RA12P B 500 K	0.34	0.69	
100	101	RA12P B 101 K	0.51	0.51	
200	201	RA12P B 201 K	0.81	0.41	
500	501	RA12P B 501 K	2.20	0.44	
1,000	102	RA12P B 102 K	3.90	0.39	
2,000	202	RA12P B 202 K	6.04	0.30	
5,000	502	RA12P B 502 K	10.4	0.20	
10,000	103	RA12P B 103 K	18.9	0.19	
20,000	203	RA12P B 203 K	27.6	0.14	

RA12S Through-Hole, S Terminal Style, Single-Slot, Side Adjust

Value (Ω)	Code	Catalog No. Bulk	Ohms (Ω)	Percent (%)	 RA12S
10	100	RA12S B 100 K	0.11	1.13	
20	200	RA12S B 200 K	0.18	0.90	
50	500	RA12S B 500 K	0.34	0.69	
100	101	RA12S B 101 K	0.51	0.51	
200	201	RA12S B 201 K	0.81	0.41	
500	501	RA12S B 501 K	2.20	0.44	
1,000	102	RA12S B 102 K	3.90	0.39	
2,000	202	RA12S B 202 K	6.04	0.30	
5,000	502	RA12S B 502 K	10.4	0.20	
10,000	103	RA12S B 103 K	18.9	0.19	
20,000	203	RA12S B 203 K	27.6	0.14	

RA12X Through-Hole, X Terminal Style, Single-Slot, Side Adjust

Value (Ω)	Code	Catalog No. Bulk	Ohms (Ω)	Percent (%)	 RA12X
10	100	RA12X B 100 K	0.11	1.13	
20	200	RA12X B 200 K	0.18	0.90	
50	500	RA12X B 500 K	0.34	0.69	
100	101	RA12X B 101 K	0.51	0.51	
200	201	RA12X B 201 K	0.81	0.41	
500	501	RA12X B 501 K	2.20	0.44	
1,000	102	RA12X B 102 K	3.90	0.39	
2,000	202	RA12X B 202 K	6.04	0.30	
5,000	502	RA12X B 502 K	10.4	0.20	
10,000	103	RA12X B 103 K	18.9	0.19	
20,000	203	RA12X B 203 K	27.6	0.14	

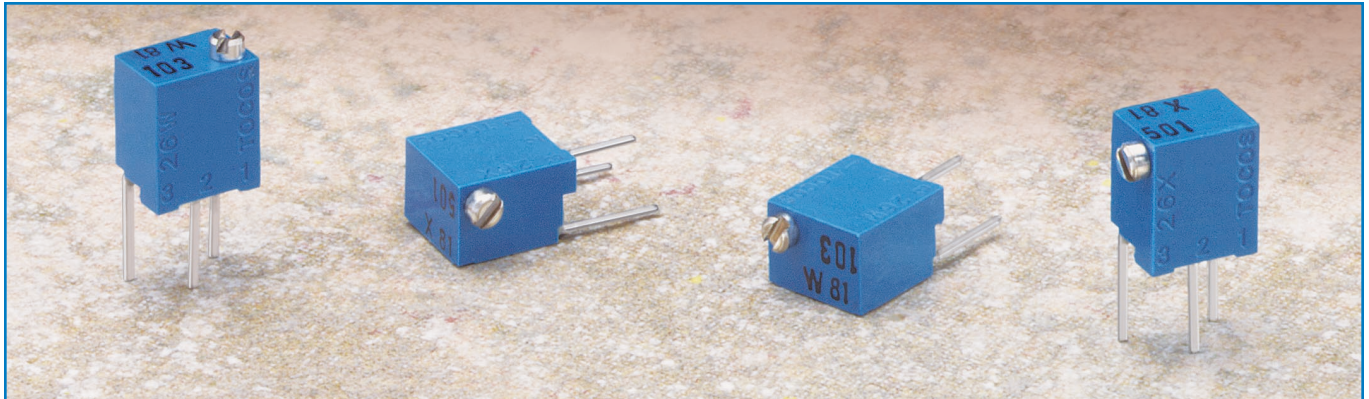
Packaging

Standard: Bulk Packaging **Quantity:** 10 pieces per vinyl bag; 100 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

1/4" Square, Multi-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 1/4" square, multi-turn, through-hole, sealed cermet trimmers
- 11-turn design for more accurate setting
- State-of-the-art brush contact design
- Stop-clutch action at ends of element
- Top and side adjust models
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning

Specifications

Electrical

Standard Resistance Range 100Ω to 5MΩ
(standard 1, 2 & 5 sequence plus 3MΩ rating)

Resistance Tolerance ±10% and ±20% (up to 2MΩ)
+30%, -20% (3MΩ and 5MΩ)

End Resistance 1% or 3Ω, whichever is greater

Resistance Taper B = Linear

Peak Noise (C.R.V.) 2% or 3Ω, whichever is greater

Power Rating 0.25 watt at +70°C, 0 watt at +125°C

Maximum Input Voltage 300VDC or power rating, whichever is smaller

Temperature Coefficient ±100ppm/°C, 200Ω to 1MΩ
±250ppm/°C, other values

Insulation Resistance 1,000MΩ minimum at 500VDC

Dielectric Strength 600VAC, 1 minute

Adjustment Travel 8.5 turns ± 1

Mechanical

Mechanical Travel 11 turns ± 1

Shaft Torque 200 gf•cm (2.77 oz•in) max.

Stop Strength Clutch action

Flammability of Plastic Materials Meets UL 94V-0

Nominal Weight 0.35g

Marking Resistance code, date code, model type, terminal identification

Environmental

Temperature Range -55°C to +125°C

Low Temperature Operation -55°C, 0.25 watt, 1 hour
ΔT/R ≤ ±2%

High Temperature Exposure +125°C, 250 hours
ΔT/R ≤ ±2%, S.S. ≤ ±1%

Load Life +70°C, 0.25 watt, 1,000 hours
ΔT/R ≤ ±2%, S.S. ≤ ±3%

Thermal Shock -55°C, +125°C,
30 minutes each, 5 cycles
ΔT/R ≤ ±1%, S.S. ≤ ±1%

Shock 100G, 6ms, 6 directions, 3 times each
ΔT/R ≤ ±1%, S.S. ≤ ±1%

Vibration 10-2,000Hz, 1.5mm amplitude,
20G, 12 hours
ΔT/R ≤ ±1%, S.S. ≤ ±1%

Humidity +40°C, 90-95% RH,
0.25 watt, 500 hours
ΔT/R ≤ ±3%, S.S. ≤ ±1%

Moisture Resistance -10°C to +65°C, 80-98% RH,
0.25 watt, 10 cycles, 240 hours
ΔT/R ≤ ±3%

Soldering Heat Resistance 350°C, 3 seconds
ΔT/R ≤ ±1%

Seal Test +85°C, hot water for 1 minute

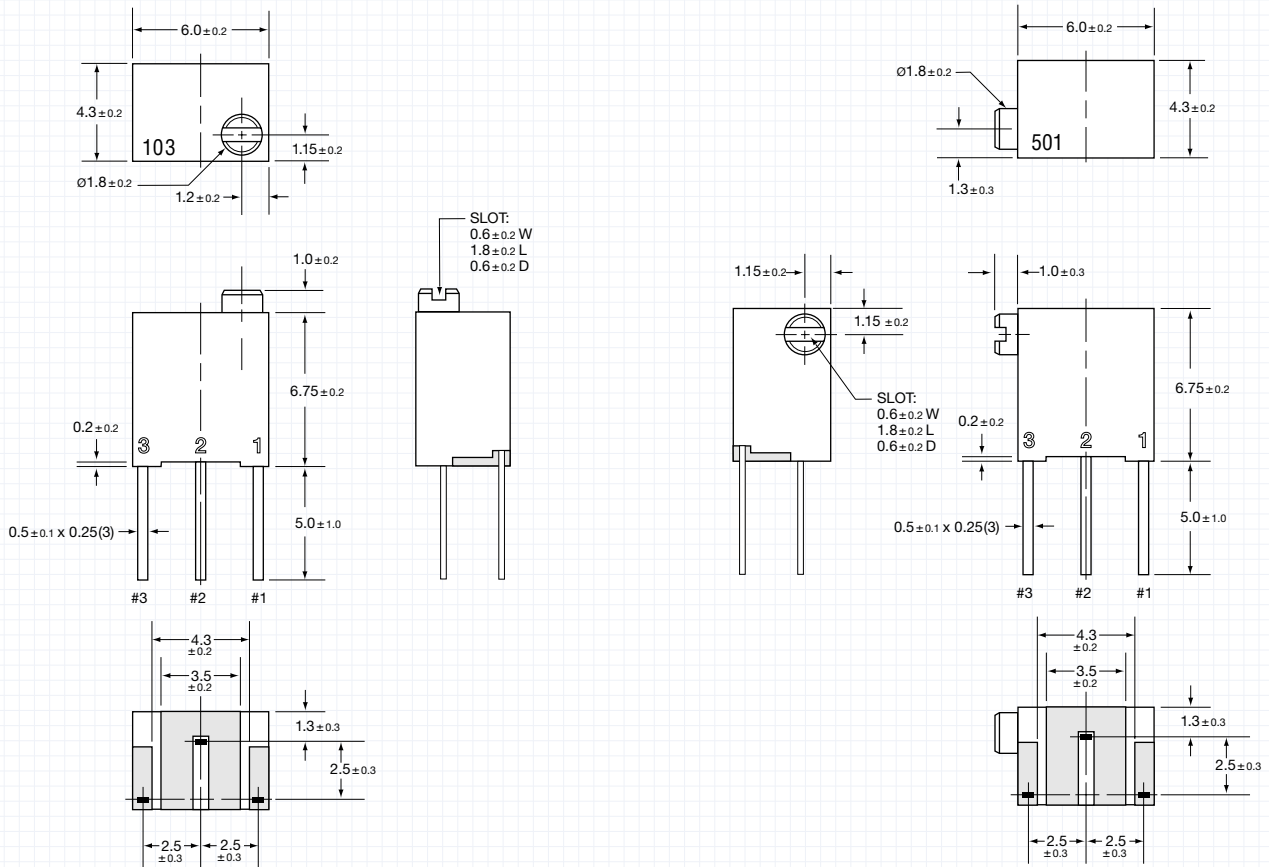
Rotational Life 200 cycles without discontinuity
ΔT/R ≤ ±5%

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

RJC26W
W Terminal Style, Single-Slot, Top Adjust

RJC26X
X Terminal Style, Single-Slot, Side Adjust

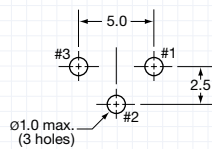
Unit: mm



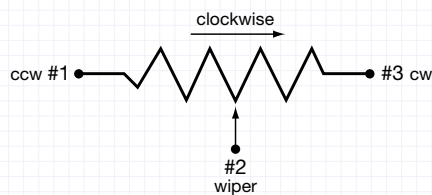
Recommended PCB Layout

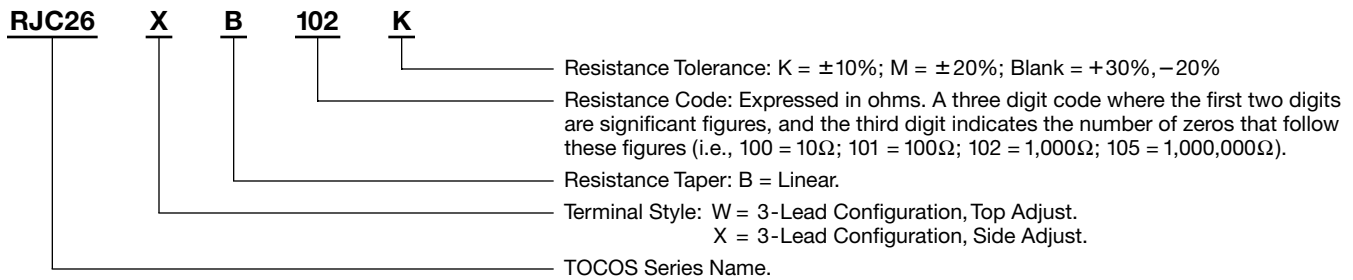
W & X Pin-Out

Unit: mm



Electrical Schematic



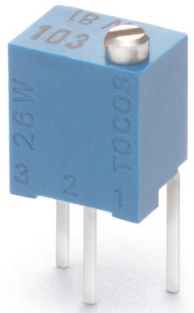


Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance ±10%	Resistance Tolerance ±20%	

RJC26W Through-Hole, W Terminal Style, Single-Slot, Top Adjust

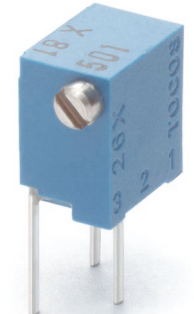
100	101	RJC26W B 101 K	RJC26W B 101 M
200	201	RJC26W B 201 K	RJC26W B 201 M
500	501	RJC26W B 501 K	RJC26W B 501 M
1,000	102	RJC26W B 102 K	RJC26W B 102 M
2,000	202	RJC26W B 202 K	RJC26W B 202 M
5,000	502	RJC26W B 502 K	RJC26W B 502 M
10,000	103	RJC26W B 103 K	RJC26W B 103 M
20,000	203	RJC26W B 203 K	RJC26W B 203 M
50,000	503	RJC26W B 503 K	RJC26W B 503 M
100,000	104	RJC26W B 104 K	RJC26W B 104 M
200,000	204	RJC26W B 204 K	RJC26W B 204 M
500,000	504	RJC26W B 504 K	RJC26W B 504 M
1,000,000	105	RJC26W B 105 K	RJC26W B 105 M
2,000,000	205	RJC26W B 205 K	RJC26W B 205 M
3,000,000	305	RJC26W B 305 (Blank = +30%, -20%)	
5,000,000	505	RJC26W B 505 (Blank = +30%, -20%)	



RJC26W

RJC26X Through-Hole, X Terminal Style, Single-Slot, Side Adjust

100	101	RJC26X B 101 K	RJC26X B 101 M
200	201	RJC26X B 201 K	RJC26X B 201 M
500	501	RJC26X B 501 K	RJC26X B 501 M
1,000	102	RJC26X B 102 K	RJC26X B 102 M
2,000	202	RJC26X B 202 K	RJC26X B 202 M
5,000	502	RJC26X B 502 K	RJC26X B 502 M
10,000	103	RJC26X B 103 K	RJC26X B 103 M
20,000	203	RJC26X B 203 K	RJC26X B 203 M
50,000	503	RJC26X B 503 K	RJC26X B 503 M
100,000	104	RJC26X B 104 K	RJC26X B 104 M
200,000	204	RJC26X B 204 K	RJC26X B 204 M
500,000	504	RJC26X B 504 K	RJC26X B 504 M
1,000,000	105	RJC26X B 105 K	RJC26X B 105 M
2,000,000	205	RJC26X B 205 K	RJC26X B 205 M
3,000,000	305	RJC26X B 305 (Blank = +30%, -20%)	
5,000,000	505	RJC26X B 505 (Blank = +30%, -20%)	



RJC26X

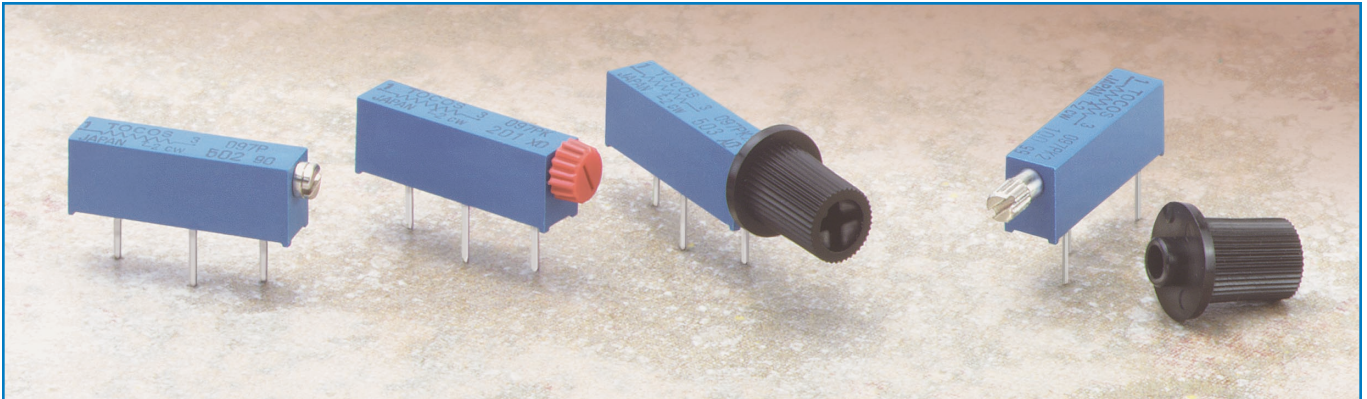
Packaging

Standard: Bulk Packaging Quantity
50 pieces per vinyl bag.
500 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

3/4" Rectilinear, 15-Turn, Through-Hole, Sealed Cermet Trimmers



Features

- 3/4" rectilinear, 15-turn, through-hole, sealed cermet trimmers
- Miniature design for component density
- Side adjust with single-slot standard or extended shaft
- Knob styles available for easier adjustment
- State-of-the-art brush contact design
- Excellent stability and low noise
- PC board solderable pins
- Sealed to withstand wave soldering and immersion cleaning
- Meets UL flammability standards

Specifications

Electrical

Standard Resistance Range	10Ω to 1MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 3Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1Ω, whichever is greater
Power Rating	0.75 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	300VDC or power rating, whichever is smaller
Temperature Coefficient	±100ppm/°C, 200Ω to 1MΩ ±250ppm/°C, other values
Insulation Resistance	1,000MΩ minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	.15 ± 3 turns

Mechanical

Mechanical Travel	.15 ± 3 turns
Shaft Torque	300 gf·cm (4.16 oz·in) max.
Stop Strength	Clutch action
Flammability of Plastic Materials	UL 94V-0 for housing; UL 94HB for knob
Nominal Weight	1.1g (P); 1.3g (PK) 1.7g (PK1 with knob attached & PK2)
Marking	Resistance code, date code, model type, wiring diagram

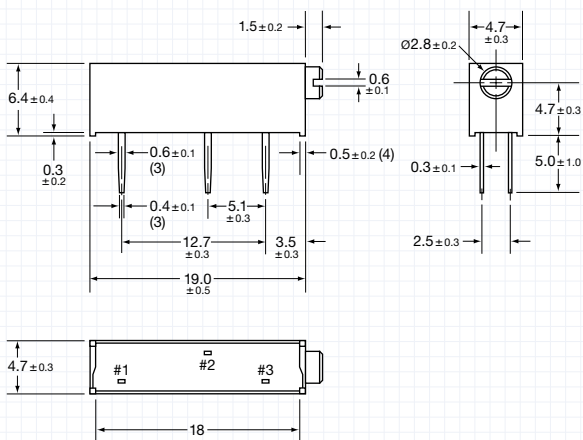
Environmental

Temperature Range	-55°C to +125°C
Low Temperature Operation	-55°C, 0.75 watt, 45 minutes ΔT/R ≤ ±3%, S.S. ≤ ±1%
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Load Life	+70°C, 0.75 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±3%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±2%, S.S. ≤ ±1%
Shock	50G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±1%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95%RH, 0.75 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Moisture Resistance	-10°C to +65°C, 80-98%RH, 0.75 watt, 10 cycles, 240 hours ΔT/R ≤ ±3%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	200 cycles without discontinuity ΔT/R ≤ ±3%

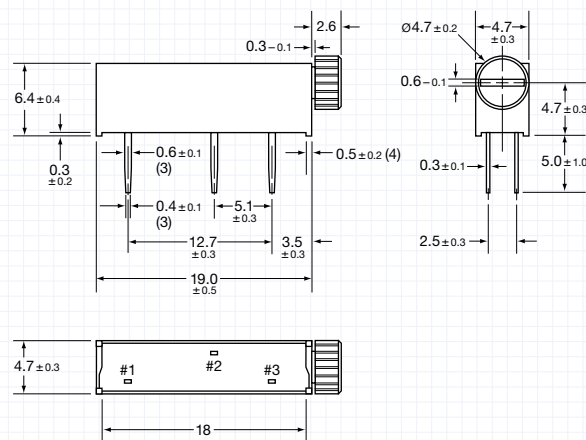
ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

Unit: mm

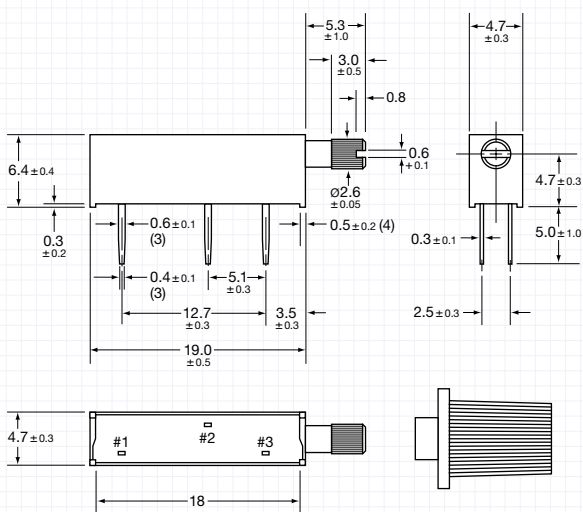
RJC097P
Single-Slot, Short Shaft, Side Adjust



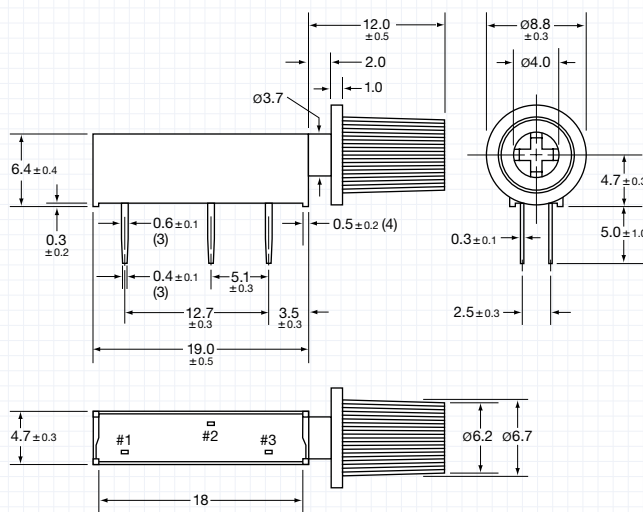
RJC097PK
Short Shaft, Permanent Small Knob, Side Adjust



RJC097PK1
Single-Slot, Extended Shaft, Side Adjust,
Removable Large Knob (same knob as PK2)



RJC097PK2
Extended Shaft, Permanent Large Knob, Side Adjust

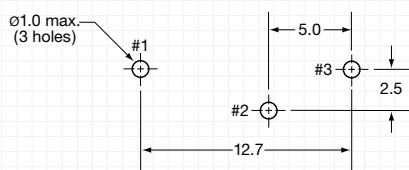


The knob shipped with the PK1 is the same style and size as the PK2 knob. With the knob attached, the dimensions and weight of PK1 are the same as the PK2 model.

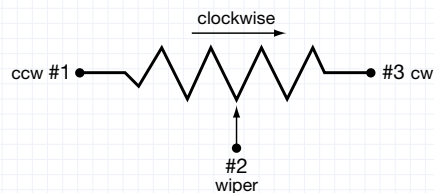
Recommended PCB Layout

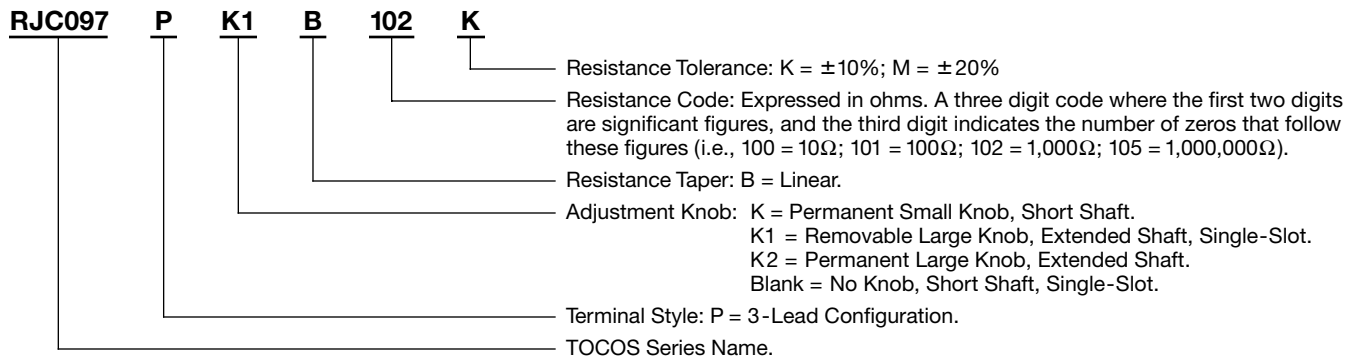
P, PK, PK1 & PK2 Pin-Out

Unit: mm



Electrical Schematic



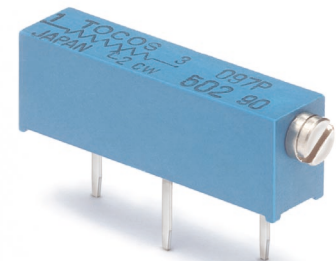


Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

RJC097P Through-Hole, P Terminal Style, Single-Slot, Short Shaft, Side Adjust

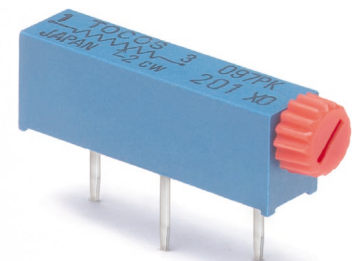
10	100	RJC097P B 100 K	RJC097P B 100 M
20	200	RJC097P B 200 K	RJC097P B 200 M
50	500	RJC097P B 500 K	RJC097P B 500 M
100	101	RJC097P B 101 K	RJC097P B 101 M
200	201	RJC097P B 201 K	RJC097P B 201 M
500	501	RJC097P B 501 K	RJC097P B 501 M
1,000	102	RJC097P B 102 K	RJC097P B 102 M
2,000	202	RJC097P B 202 K	RJC097P B 202 M
5,000	502	RJC097P B 502 K	RJC097P B 502 M
10,000	103	RJC097P B 103 K	RJC097P B 103 M
20,000	203	RJC097P B 203 K	RJC097P B 203 M
50,000	503	RJC097P B 503 K	RJC097P B 503 M
100,000	104	RJC097P B 104 K	RJC097P B 104 M
200,000	204	RJC097P B 204 K	RJC097P B 204 M
500,000	504	RJC097P B 504 K	RJC097P B 504 M
1,000,000	105	RJC097P B 105 K	RJC097P B 105 M



RJC097P

RJC097PK Through-Hole, P Terminal Style, Short Shaft, Permanent Small Knob, Side Adjust

10	100	RJC097PK B 100 K	RJC097PK B 100 M
20	200	RJC097PK B 200 K	RJC097PK B 200 M
50	500	RJC097PK B 500 K	RJC097PK B 500 M
100	101	RJC097PK B 101 K	RJC097PK B 101 M
200	201	RJC097PK B 201 K	RJC097PK B 201 M
500	501	RJC097PK B 501 K	RJC097PK B 501 M
1,000	102	RJC097PK B 102 K	RJC097PK B 102 M
2,000	202	RJC097PK B 202 K	RJC097PK B 202 M
5,000	502	RJC097PK B 502 K	RJC097PK B 502 M
10,000	103	RJC097PK B 103 K	RJC097PK B 103 M
20,000	203	RJC097PK B 203 K	RJC097PK B 203 M
50,000	503	RJC097PK B 503 K	RJC097PK B 503 M
100,000	104	RJC097PK B 104 K	RJC097PK B 104 M
200,000	204	RJC097PK B 204 K	RJC097PK B 204 M
500,000	504	RJC097PK B 504 K	RJC097PK B 504 M
1,000,000	105	RJC097PK B 105 K	RJC097PK B 105 M



RJC097PK

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

RJC097PK1 Through-Hole, P Terminal Style, Single-Slot, Extended Shaft, Removable Large Knob, Side Adjust

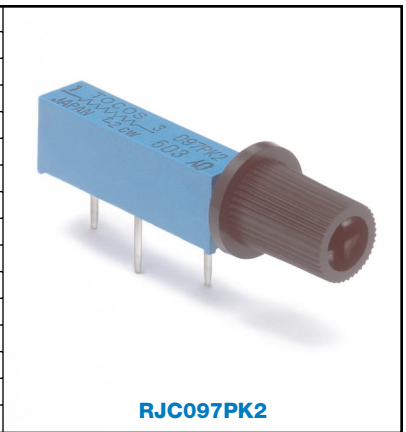
10	100	RJC097PK1 B 100 K	RJC097PK1 B 100 M
20	200	RJC097PK1 B 200 K	RJC097PK1 B 200 M
50	500	RJC097PK1 B 500 K	RJC097PK1 B 500 M
100	101	RJC097PK1 B 101 K	RJC097PK1 B 101 M
200	201	RJC097PK1 B 201 K	RJC097PK1 B 201 M
500	501	RJC097PK1 B 501 K	RJC097PK1 B 501 M
1,000	102	RJC097PK1 B 102 K	RJC097PK1 B 102 M
2,000	202	RJC097PK1 B 202 K	RJC097PK1 B 202 M
5,000	502	RJC097PK1 B 502 K	RJC097PK1 B 502 M
10,000	103	RJC097PK1 B 103 K	RJC097PK1 B 103 M
20,000	203	RJC097PK1 B 203 K	RJC097PK1 B 203 M
50,000	503	RJC097PK1 B 503 K	RJC097PK1 B 503 M
100,000	104	RJC097PK1 B 104 K	RJC097PK1 B 104 M
200,000	204	RJC097PK1 B 204 K	RJC097PK1 B 204 M
500,000	504	RJC097PK1 B 504 K	RJC097PK1 B 504 M
1,000,000	105	RJC097PK1 B 105 K	RJC097PK1 B 105 M



RJC097PK1

RJC097PK2 Through-Hole, P Terminal Style, Extended Shaft, Permanent Large Knob, Side Adjust

10	100	RJC097PK2 B 100 K	RJC097PK2 B 100 M
20	200	RJC097PK2 B 200 K	RJC097PK2 B 200 M
50	500	RJC097PK2 B 500 K	RJC097PK2 B 500 M
100	101	RJC097PK2 B 101 K	RJC097PK2 B 101 M
200	201	RJC097PK2 B 201 K	RJC097PK2 B 201 M
500	501	RJC097PK2 B 501 K	RJC097PK2 B 501 M
1,000	102	RJC097PK2 B 102 K	RJC097PK2 B 102 M
2,000	202	RJC097PK2 B 202 K	RJC097PK2 B 202 M
5,000	502	RJC097PK2 B 502 K	RJC097PK2 B 502 M
10,000	103	RJC097PK2 B 103 K	RJC097PK2 B 103 M
20,000	203	RJC097PK2 B 203 K	RJC097PK2 B 203 M
50,000	503	RJC097PK2 B 503 K	RJC097PK2 B 503 M
100,000	104	RJC097PK2 B 104 K	RJC097PK2 B 104 M
200,000	204	RJC097PK2 B 204 K	RJC097PK2 B 204 M
500,000	504	RJC097PK2 B 504 K	RJC097PK2 B 504 M
1,000,000	105	RJC097PK2 B 105 K	RJC097PK2 B 105 M



RJC097PK2

Packaging
Standard:
Bulk Packaging
Quantity

P & PK: 20 pieces per vinyl bag.

200 pieces per box.

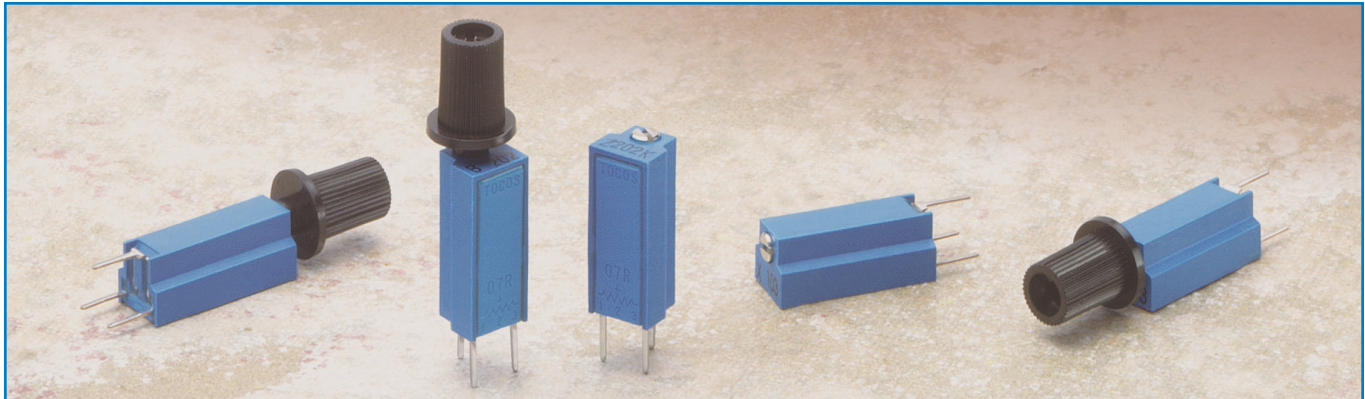
PK1 & PK2: 10 pieces per vinyl bag.

100 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

3/4" Rectilinear, 13-Turn, Through-Hole, Sealed Cermet Trimmers



Features

- 3/4" rectilinear, 13-turn, through-hole, sealed cermet trimmers
- Space-saving vertical mount design
- Single-slot top adjustment
- Knob style available for easier adjustment
- High performance, excellent stability
- Wide operating temperature range of -55°C to $+125^{\circ}\text{C}$
- PC board solderable pins
- Sealed to withstand wave soldering and immersion cleaning
- Meets UL flammability standards

Specifications

Electrical

Standard Resistance Range	10 Ω to 1M Ω (standard 1, 2 & 5 sequence)
Resistance Tolerance	$\pm 10\%$ and $\pm 20\%$
End Resistance	1% or 3 Ω , whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1 Ω , whichever is greater for $\leq 10\text{k}\Omega$; 2% max. for $\geq 20\text{k}\Omega$
Power Rating	0.75 watt at $+40^{\circ}\text{C}$, 0 watt at $+125^{\circ}\text{C}$
Maximum Input Voltage	300VDC or power rating, whichever is smaller
Temperature Coefficient	$\pm 100\text{ppm}/^{\circ}\text{C}$, 200 Ω to 500k Ω $\pm 250\text{ppm}/^{\circ}\text{C}$, other values
Insulation Resistance	100M Ω minimum at 500VDC
Dielectric Strength	900VAC, 1 minute
Adjustment Travel	13 ± 3 turns

Mechanical

Mechanical Travel	13 ± 3 turns
Shaft Torque	7.2 to 300 gf•cm (0.10 to 4.16 oz•in)
Stop Strength	Clutch action
Flammability of Plastic Materials	UL 94V-0 for housing; UL 94HB for knob
Nominal Weight	1.4g; 1.8g with knob
Marking	Resistance code, date code, model type, wiring diagram

Environmental

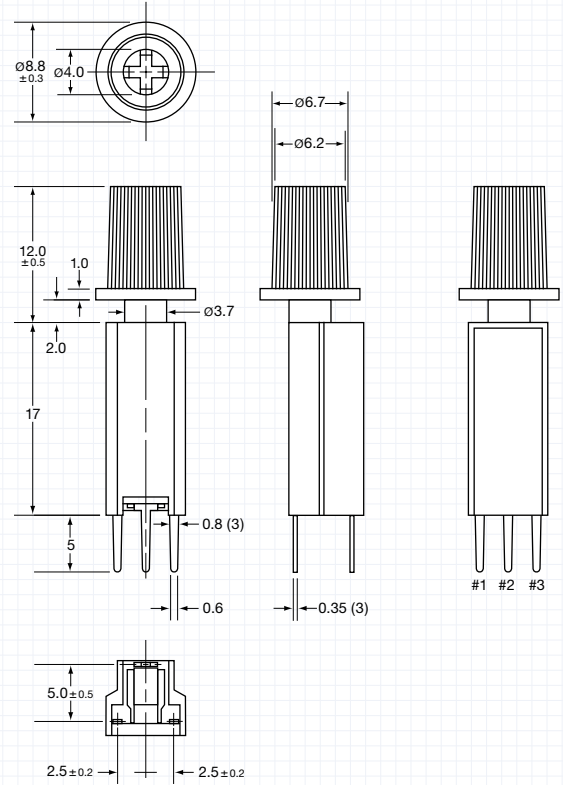
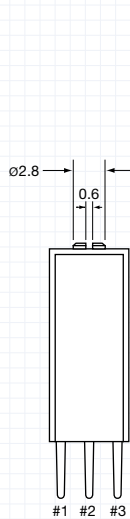
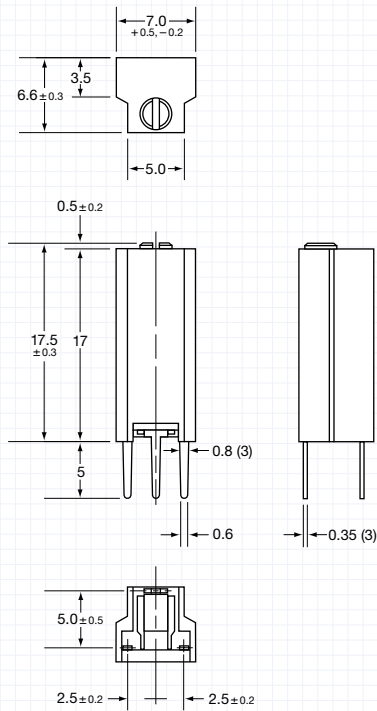
Temperature Range	-55°C to $+125^{\circ}\text{C}$
High Temperature Exposure	$+125^{\circ}\text{C}$, 250 hours $\Delta\text{T/R} \leq \pm 3\%$, S.S. $\leq \pm 1\%$
Load Life	$+40^{\circ}\text{C}$, 0.75 watt, 1,000 hours $\Delta\text{T/R} \leq \pm 3\%$, S.S. $\leq \pm 2\%$
Thermal Shock	-55°C , $+125^{\circ}\text{C}$, 30 minutes each, 5 cycles $\Delta\text{T/R} \leq \pm 2\%$, S.S. $\leq \pm 1\%$
Shock	50G, 6ms, 6 directions, 3 times each $\Delta\text{T/R} \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours $\Delta\text{T/R} \leq \pm 1\%$, S.S. $\leq \pm 1\%$
Humidity	$+40^{\circ}\text{C}$, 90-95%RH, 0.75 watt, 1,000 hours $\Delta\text{T/R} \leq \pm 3\%$, S.S. $\leq \pm 1\%$
Moisture Resistance	-10°C to $+65^{\circ}\text{C}$, 80-98%RH, 0.75 watt, 10 cycles, 240 hours $\Delta\text{T/R} \leq \pm 3\%$
Soldering Heat Resistance	350°C , 3 seconds $\Delta\text{T/R} \leq \pm 1\%$
Seal Test	$+85^{\circ}\text{C}$, hot water for 1 minute
Rotational Life	200 cycles without discontinuity $\Delta\text{T/R} \leq \pm 5\%$

$\Delta\text{T/R}$ = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

RJC07R
Single-Slot, Short Shaft, Top Adjust

RJC07RK2
Extended Shaft, Permanent Knob, Top Adjust

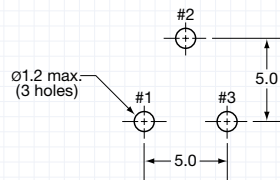
Unit: mm



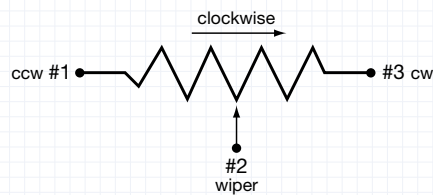
Recommended PCB Layout

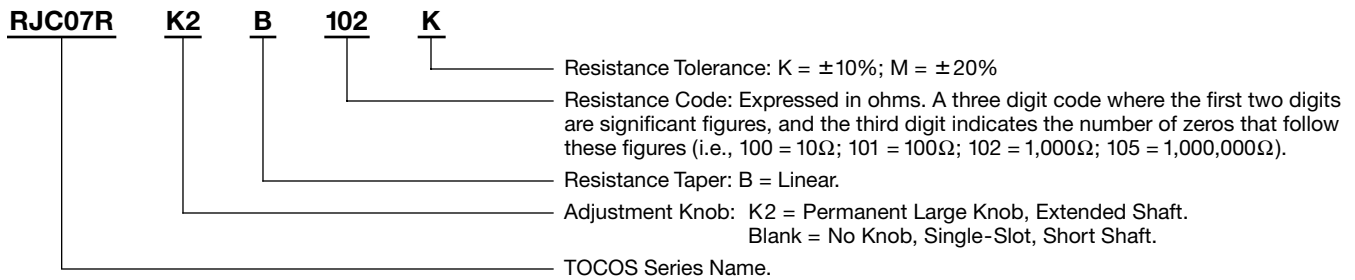
RJC07R & RJC07RK2 Pin-Out

Unit: mm



Electrical Schematic






Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value (Ω)	Code	Resistance Tolerance $\pm 10\%$	Resistance Tolerance $\pm 20\%$	

RJC07R Through-Hole, Single-Slot, Short Shaft, Top Adjust


10	100	RJC07R B 100 K	RJC07R B 100 M
20	200	RJC07R B 200 K	RJC07R B 200 M
50	500	RJC07R B 500 K	RJC07R B 500 M
100	101	RJC07R B 101 K	RJC07R B 101 M
200	201	RJC07R B 201 K	RJC07R B 201 M
500	501	RJC07R B 501 K	RJC07R B 501 M
1,000	102	RJC07R B 102 K	RJC07R B 102 M
2,000	202	RJC07R B 202 K	RJC07R B 202 M
5,000	502	RJC07R B 502 K	RJC07R B 502 M
10,000	103	RJC07R B 103 K	RJC07R B 103 M
20,000	203	RJC07R B 203 K	RJC07R B 203 M
50,000	503	RJC07R B 503 K	RJC07R B 503 M
100,000	104	RJC07R B 104 K	RJC07R B 104 M
200,000	204	RJC07R B 204 K	RJC07R B 204 M
500,000	504	RJC07R B 504 K	RJC07R B 504 M
1,000,000	105	RJC07R B 105 K	RJC07R B 105 M



RJC07R

RJC07RK2 Through-Hole, Extended Shaft, Permanent Knob, Top Adjust

10	100	RJC07RK2 B 100 K	RJC07RK2 B 100 M
20	200	RJC07RK2 B 200 K	RJC07RK2 B 200 M
50	500	RJC07RK2 B 500 K	RJC07RK2 B 500 M
100	101	RJC07RK2 B 101 K	RJC07RK2 B 101 M
200	201	RJC07RK2 B 201 K	RJC07RK2 B 201 M
500	501	RJC07RK2 B 501 K	RJC07RK2 B 501 M
1,000	102	RJC07RK2 B 102 K	RJC07RK2 B 102 M
2,000	202	RJC07RK2 B 202 K	RJC07RK2 B 202 M
5,000	502	RJC07RK2 B 502 K	RJC07RK2 B 502 M
10,000	103	RJC07RK2 B 103 K	RJC07RK2 B 103 M
20,000	203	RJC07RK2 B 203 K	RJC07RK2 B 203 M
50,000	503	RJC07RK2 B 503 K	RJC07RK2 B 503 M
100,000	104	RJC07RK2 B 104 K	RJC07RK2 B 104 M
200,000	204	RJC07RK2 B 204 K	RJC07RK2 B 204 M
500,000	504	RJC07RK2 B 504 K	RJC07RK2 B 504 M
1,000,000	105	RJC07RK2 B 105 K	RJC07RK2 B 105 M



RJC07RK2

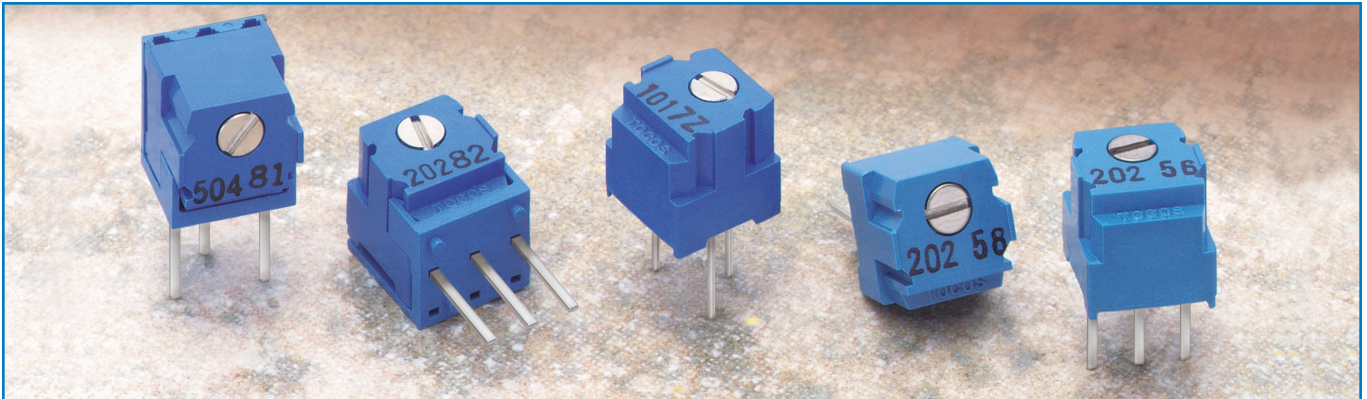
Packaging

Standard: Bulk Packaging **Quantity**
 RJC07R: 20 pieces per vinyl bag; 200 pieces per box.
 RJC07RK2: 50 pieces per vinyl bag; 200 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to **Guidelines and Precautions for Using Potentiometers**.

1/4" Square, Multi-Turn, Through-Hole Sealed Cermet Trimmers



Features

- 1/4" square, multi-turn, through-hole, sealed cermet trimmers
- Top and side adjust styles available
- 2-turn adjustment travel for quick setting
- Space-saving, low profile design
- Excellent stability and low noise
- Wide temperature range of -55°C to +125°C
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning
- Taping available, reel or ammo packaging

Specifications

Electrical

Standard Resistance Range	10Ω to 1MΩ (standard 1, 2 & 5 sequence)
Resistance Tolerance	±10% and ±20%
End Resistance	1% or 3Ω, whichever is greater
Resistance Taper	B = Linear
Peak Noise (C.R.V.)	1% or 1Ω, whichever is greater
Power Rating	0.5 watt at +70°C, 0 watt at +125°C
Maximum Input Voltage	250VDC or power rating, whichever is smaller
Temperature Coefficient	±100 ppm/°C, 200Ω to 1MΩ ±250 ppm/°C, other values
Insulation Resistance	100MΩ minimum at 500VDC
Dielectric Strength	500VAC, 1 minute
Adjustment Travel	2 turns (735°±10°)

Mechanical

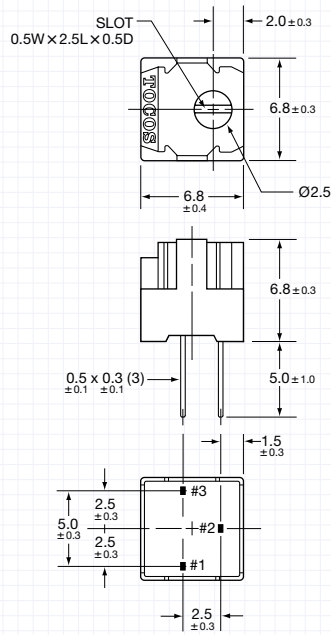
Mechanical Travel	2 turns (735°±10°)
Shaft Torque	200 gf·cm (2.77 oz·in) max.
Stop Strength	300 gf·cm (4.16 oz·in) min.
Flammability of Plastic Materials	Meets UL 94V-0
Nominal Weight	0.5g (P, U); 0.6g (S, V)
Marking	Resistance code, date code

Environmental

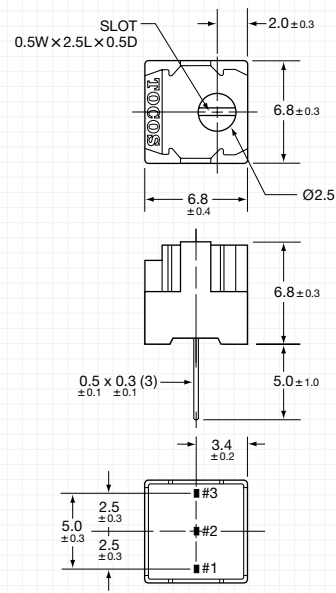
Temperature Range	-55°C to +125°C
Low Temperature Operation	-55°C, 0.5 watt, 1 hour ΔT/R ≤ ±2%
High Temperature Exposure	+125°C, 250 hours ΔT/R ≤ ±2%, S.S. ≤ ±1%
Load Life	+70°C, 0.5 watt, 1,000 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Thermal Shock	-55°C, +125°C, 30 minutes each, 5 cycles ΔT/R ≤ ±1%, S.S. ≤ ±1%
Shock	100G, 6ms, 6 directions, 3 times each ΔT/R ≤ ±2%, S.S. ≤ ±1%
Vibration	10-2,000Hz, 1.5mm amplitude, 20G, 12 hours ΔT/R ≤ ±1%, S.S. ≤ ±1%
Humidity	+40°C, 90-95% RH, 0.5 watt, 500 hours ΔT/R ≤ ±3%, S.S. ≤ ±1%
Moisture Resistance	-10°C to +65°C, 80-98% RH, 0.5 watt, 10 cycles, 240 hours ΔT/R ≤ ±3%
Soldering Heat Resistance	350°C, 3 seconds ΔT/R ≤ ±1%
Seal Test	+85°C, hot water for 1 minute
Rotational Life	200 cycles without discontinuity ΔT/R ≤ ±5%

ΔT/R = Total Resistance Change; S.S. = Setting Stability (voltage ratio)

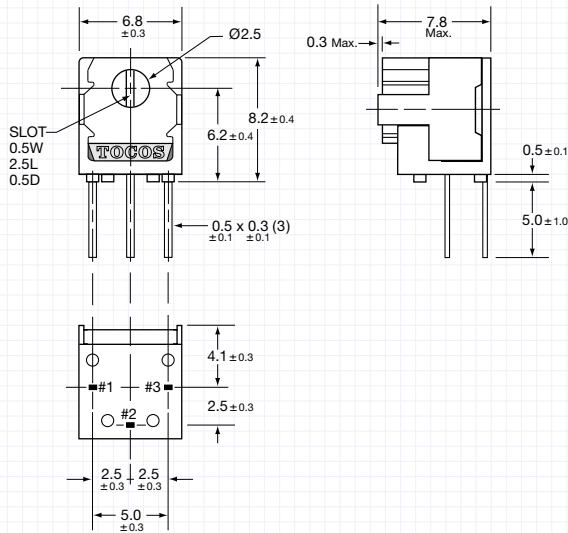
GV6P
P Terminal Style, Single-Slot, Top Adjust



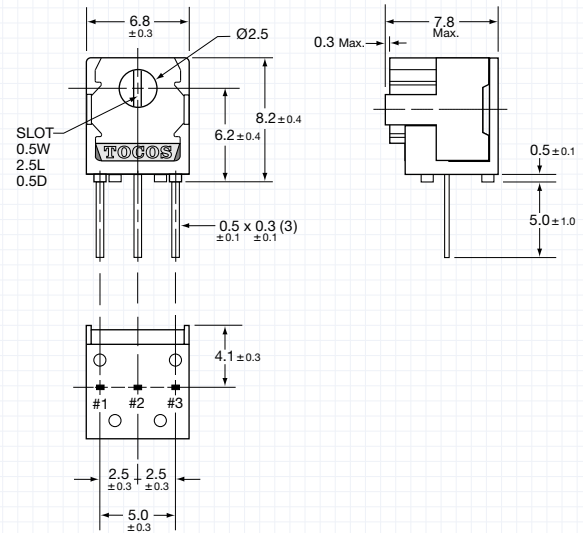
GV6U
U Terminal Style, Single-Slot, Top Adjust



GV6S
S Terminal Style, Single-Slot, Side Adjust



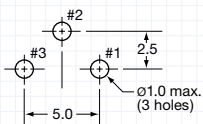
GV6V
V Terminal Style, Single-Slot, Side Adjust



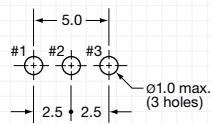
Recommended PCB Layout

Electrical Schematic

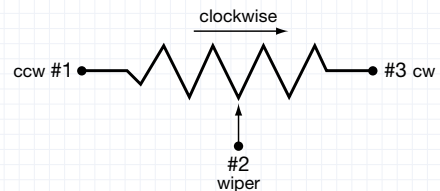
P & S Pin-Out



U & V Pin-Out



Unit: mm

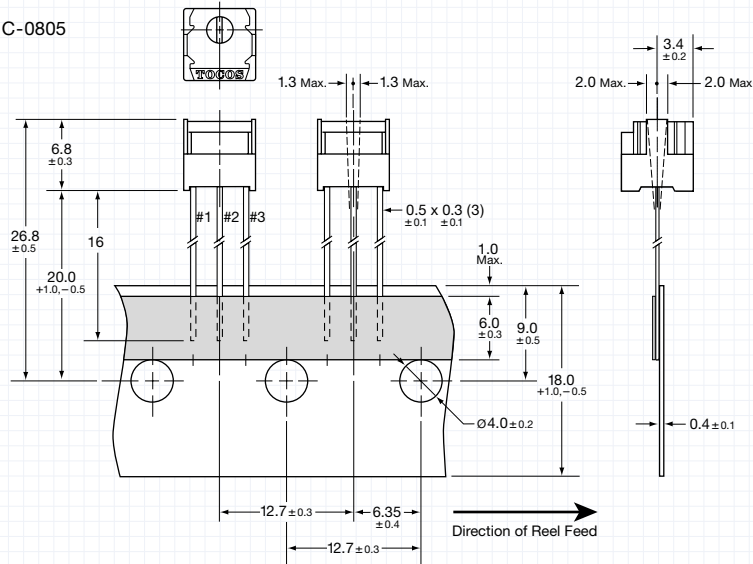


Unit: mm

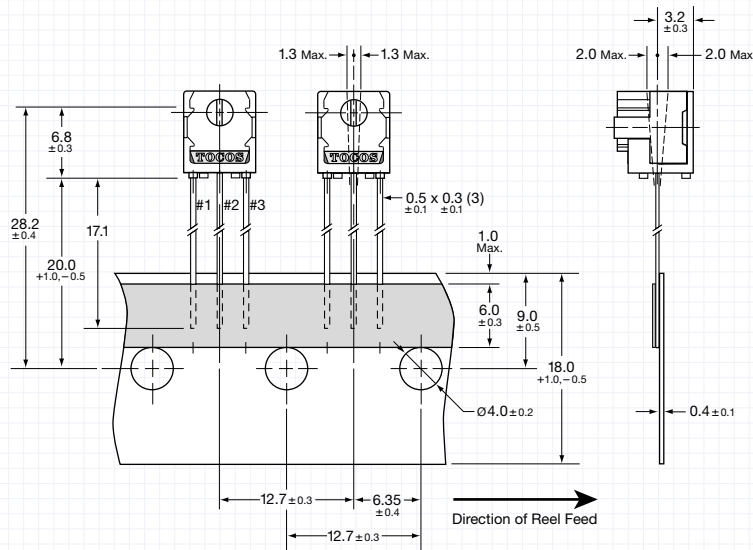
Tape Dimensions

Conforms to EIA-468-B and JIS-C-0805

GV6UT & GV6UT2



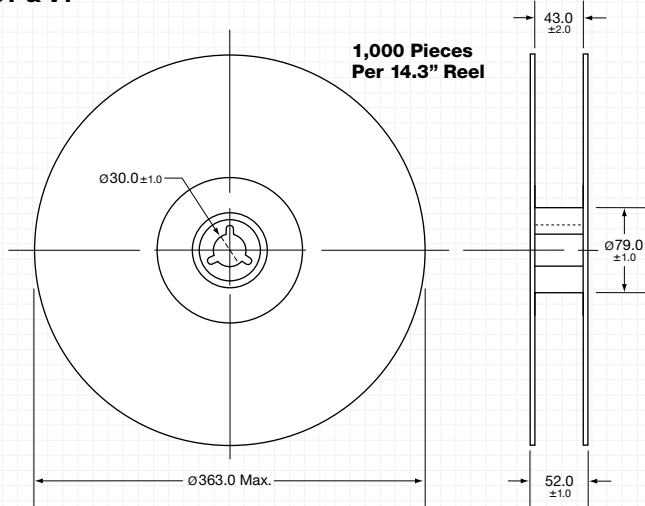
GV6VT & GV6VT2



Reel Dimensions

Conforms to EIA-468-B and JIS-C-0805

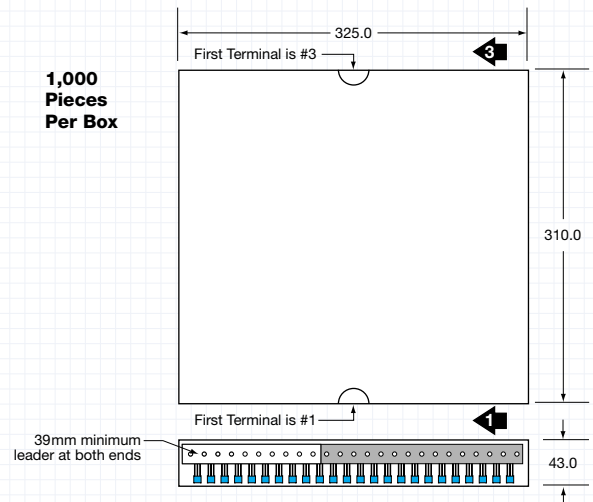
UT & VT

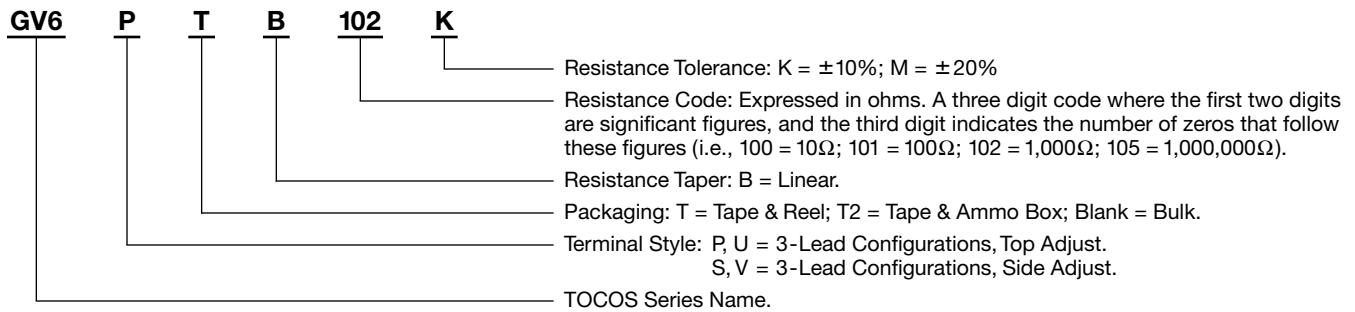


Ammo Box Dimensions

Conforms to EIA-468-B and JIS-C-0805

UT2 & VT2





Part Numbers

Nominal Resistance		Resistance Tolerance: K = $\pm 10\%$ (see footnote for M = $\pm 20\%$)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GV6P Through-Hole, P Terminal Style, Single-Slot, Top Adjust

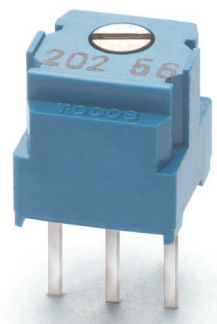
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk
10	100	—	—	GV6P B 100 K
20	200	—	—	GV6P B 200 K
50	500	—	—	GV6P B 500 K
100	101	—	—	GV6P B 101 K
200	201	—	—	GV6P B 201 K
500	501	—	—	GV6P B 501 K
1,000	102	—	—	GV6P B 102 K
2,000	202	—	—	GV6P B 202 K
5,000	502	—	—	GV6P B 502 K
10,000	103	—	—	GV6P B 103 K
20,000	203	—	—	GV6P B 203 K
50,000	503	—	—	GV6P B 503 K
100,000	104	—	—	GV6P B 104 K
200,000	204	—	—	GV6P B 204 K
500,000	504	—	—	GV6P B 504 K
1,000,000	105	—	—	GV6P B 105 K



GV6P

GV6U Through-Hole, U Terminal Style, Single-Slot, Top Adjust

Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk
10	100	GV6UT B 100 K	GV6UT2 B 100 K	GV6U B 100 K
20	200	GV6UT B 200 K	GV6UT2 B 200 K	GV6U B 200 K
50	500	GV6UT B 500 K	GV6UT2 B 500 K	GV6U B 500 K
100	101	GV6UT B 101 K	GV6UT2 B 101 K	GV6U B 101 K
200	201	GV6UT B 201 K	GV6UT2 B 201 K	GV6U B 201 K
500	501	GV6UT B 501 K	GV6UT2 B 501 K	GV6U B 501 K
1,000	102	GV6UT B 102 K	GV6UT2 B 102 K	GV6U B 102 K
2,000	202	GV6UT B 202 K	GV6UT2 B 202 K	GV6U B 202 K
5,000	502	GV6UT B 502 K	GV6UT2 B 502 K	GV6U B 502 K
10,000	103	GV6UT B 103 K	GV6UT2 B 103 K	GV6U B 103 K
20,000	203	GV6UT B 203 K	GV6UT2 B 203 K	GV6U B 203 K
50,000	503	GV6UT B 503 K	GV6UT2 B 503 K	GV6U B 503 K
100,000	104	GV6UT B 104 K	GV6UT2 B 104 K	GV6U B 104 K
200,000	204	GV6UT B 204 K	GV6UT2 B 204 K	GV6U B 204 K
500,000	504	GV6UT B 504 K	GV6UT2 B 504 K	GV6U B 504 K
1,000,000	105	GV6UT B 105 K	GV6UT2 B 105 K	GV6U B 105 K



GV6U

*Substitute code letter M in place of K at end of catalog part number for $\pm 20\%$ resistance tolerance.

GV6 Series

Part Numbers

Nominal Resistance		Resistance Tolerance: K = $\pm 10\%$ (see footnote for M = $\pm 20\%$)			Potentiometer Styles
Value (Ω)	Code	Catalog No.* Tape & Reel	Catalog No.* Tape & Ammo Box	Catalog No.* Bulk	

GV6S Through-Hole, S Terminal Style, Single-Slot, Side Adjust

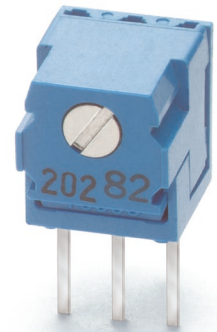
10	100	—	—	GV6S B 100 K
20	200	—	—	GV6S B 200 K
50	500	—	—	GV6S B 500 K
100	101	—	—	GV6S B 101 K
200	201	—	—	GV6S B 201 K
500	501	—	—	GV6S B 501 K
1,000	102	—	—	GV6S B 102 K
2,000	202	—	—	GV6S B 202 K
5,000	502	—	—	GV6S B 502 K
10,000	103	—	—	GV6S B 103 K
20,000	203	—	—	GV6S B 203 K
50,000	503	—	—	GV6S B 503 K
100,000	104	—	—	GV6S B 104 K
200,000	204	—	—	GV6S B 204 K
500,000	504	—	—	GV6S B 504 K
1,000,000	105	—	—	GV6S B 105 K



GV6S

GV6V Through-Hole, V Terminal Style, Single-Slot, Side Adjust

10	100	GV6VT B 100 K	GV6VT2 B 100 K	GV6V B 100 K
20	200	GV6VT B 200 K	GV6VT2 B 200 K	GV6V B 200 K
50	500	GV6VT B 500 K	GV6VT2 B 500 K	GV6V B 500 K
100	101	GV6VT B 101 K	GV6VT2 B 101 K	GV6V B 101 K
200	201	GV6VT B 201 K	GV6VT2 B 201 K	GV6V B 201 K
500	501	GV6VT B 501 K	GV6VT2 B 501 K	GV6V B 501 K
1,000	102	GV6VT B 102 K	GV6VT2 B 102 K	GV6V B 102 K
2,000	202	GV6VT B 202 K	GV6VT2 B 202 K	GV6V B 202 K
5,000	502	GV6VT B 502 K	GV6VT2 B 502 K	GV6V B 502 K
10,000	103	GV6VT B 103 K	GV6VT2 B 103 K	GV6V B 103 K
20,000	203	GV6VT B 203 K	GV6VT2 B 203 K	GV6V B 203 K
50,000	503	GV6VT B 503 K	GV6VT2 B 503 K	GV6V B 503 K
100,000	104	GV6VT B 104 K	GV6VT2 B 104 K	GV6V B 104 K
200,000	204	GV6VT B 204 K	GV6VT2 B 204 K	GV6V B 204 K
500,000	504	GV6VT B 504 K	GV6VT2 B 504 K	GV6V B 504 K
1,000,000	105	GV6VT B 105 K	GV6VT2 B 105 K	GV6V B 105 K



GV6V

*Substitute code letter M in place of K at end of catalog part number for $\pm 20\%$ resistance tolerance.

Packaging

Standard:

Tape & Reel Packaging

UT & VT

1,000 pieces per 14.3" reel.

Tape & Ammo Packaging

UT2 & VT2

1,000 pieces per ammo box.

Bulk Packaging

All GV6 Models

50 pieces per vinyl bag.

500 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to Guidelines and Precautions for Using Potentiometers.

TOCOS Trimmer Potentiometers are designed and manufactured with emphasis on dependability and cost-effectiveness. For reliable performance and general safety, follow these guidelines and precautions for using trimmer potentiometers when designing, manufacturing and operating devices.

Guidelines for Circuit Design

1. Terminal Arrangement. When using trimmer potentiometers in circuit designs, be aware of the terminal arrangement, and in which rotational direction the shaft or rotor is turned to increase or decrease the resistance. As shown in Figure 1, turning the shaft or rotor clockwise will increase the resistance between the #1 and #2 terminals.

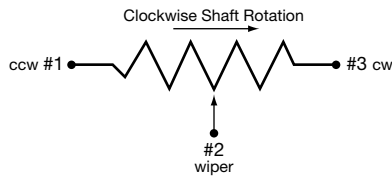


Figure 1

2. Power Rating and Performance Testing. Always use the trimmer potentiometer when testing rated performance. Carefully check the rated power, maximum operating voltage, operating temperature range, and other rated performance specifications. Increase or decrease the rated power according to the power derating curve. A typical power derating curve is shown in Figure 2. Use a trimmer potentiometer with sufficient allowable power rating to maintain stable performance over a long period of time. TOCOS recommends that the maximum working power should not be more than one-half the rated power of the trimmer potentiometer.

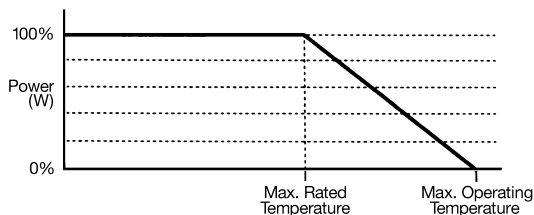


Figure 2: Example of Power Derating Curve

3. Trimmer Accessibility. During design of the board layout, always take into consideration the accessibility of trimmer potentiometers. The style of trimmer and its board location should be convenient for setting and resetting. Also consider when and how adjustment will be performed, on the assembly line or in the field, manually or by robotics.

4. Trimmer Applications. Normally, as shown in Figure 3, a trimmer may be used in a circuit as a potentiometer (three-terminal voltage divider) or as a rheostat (two-terminal variable resistor where all the current passes through the wiper). Wiper current, therefore, is especially important in rheostat applications. The potentiometer circuit is preferred because of more stable performance; however, if the trimmer is used as a rheostat, the resistance constriction and temperature coefficient should be checked carefully. Since the rated power is a partial load, it is increased or decreased in proportion to the position of the

wiper. Remember that the power capability is always proportional to the amount of element in use in a rheostat connection. If wiper current is not specified for the trimmer, then you may safely use the current rating (not to exceed 100 mA) that produces maximum power dissipation when applied through the element only.

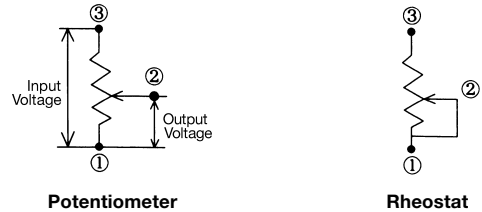


Figure 3

5. Applied Voltage. When DC voltage is applied, local resistance may be abnormally high depending on how the trimmer potentiometer is connected. Always connect the positive (+) current to the wiper terminal as illustrated in Figure 4.

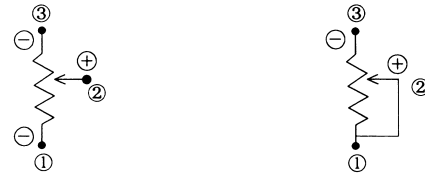


Figure 4

If you have any questions concerning the use of trimmer potentiometers, please do not hesitate to contact us.

Guidelines for Production Processes

It is very important to consider the environmental extremes of the production line as well as those typically taken into account when selecting trimmers and other components for new circuit designs. The mounting, soldering and cleaning processes used during production may be more severe than any conditions encountered during actual end use.

Follow the recommended guidelines and precautions to minimize production line stress and don't overlook testing and verifying the ability of trimmers and other components to withstand your assembly operations. Typical operations during production as illustrated in Figure 5 are similar for both surface mount and through-hole products.

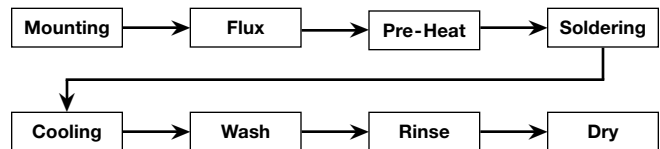


Figure 5

Mounting

1. Mounting SMD Trimmers. Because surface mount products have been designed for automatic assembly systems, the operations involved for handling SMD products is more complicated, but far more reliable and cost effective in the long run than the techniques now used for leaded components.

Packaged in embossed tape on reels, SMD trimmers are automatically mounted by pick-and-place equipment. The alignment, leveling, orientation and stability of these SMD trimmers and other board components before soldering are critical factors during this operation. It is therefore very important to follow the recommended PC board land patterns for all SMD trimmer models.

In preparation for mounting SMD trimmers by flow or reflow soldering, solder paste land patterns are printed on the PC board. The density, thickness and joint quality of the solder paste is essential for reliable connections. Sn 63% Pb 37% is recommended for the solder paste and should be 8 to 10 mils thick. All solder paste residue must be removed during the cleaning process because it usually contains a high percentage of activators. If no-clean, low solids paste is used, the cleaning is not as critical.

When using the flow soldering method for mounting SMD trimmers, an adhesive must be applied to assure placement stability during physical handling and the curing process. The amount of adhesive to use is dependent upon its holding strength, and the curing time and temperature should be in accordance with manufacturer's specifications. Be sure the curing time is sufficient for changing the liquid adhesive into a solid before soldering. An epoxy is recommended but should be used sparingly, as with any adhesive, to avoid overflow onto solder pads and terminals.

2. Mounting Through-Hole Trimmers. Always use the recommended PC board mounting hole layouts and specified maximum hole diameters for through-hole trimmers. Do not force lead terminals into PC board holes that do not match the lead spacing of the trimmer unit. To avoid undue stress on the lead wires from vibration or mechanical shock, mount the trimmer body as close as possible to the PC board. Clinch lead wires after insertion to prevent any stress on the body of the trimmer before soldering. Never bend or pull lead wires unnecessarily and avoid applying excessive bending stress to the terminals during normal insertion operations.

Flux Application

Flux Application. Before soldering, flux is applied to remove surface oxides, prevent reoxidation and promote wetting to ensure reliable intermetallic connections. The most common application method is controlled foam.

Do not allow flux to adhere to any part of the trimmer other than the terminals. Flux residue may penetrate the trimmer housing causing poor wiper contact or malfunction of the adjustment mechanism. Resin based or no-clean synthetic resin based (SRB) fluxes are recommended. Highly activated fluxes should be avoided. If an organic acid (OA) will be used, please consult TOCOS before use.

Pre-Heating

Pre-heating is the controlled gradual heating of trimmers, other components and PC boards in order to stabilize temperature conditions before entering the actual solder zone. Pre-heating prevents thermal shock and also

vaporizes all solder paste solvents and moisture. To minimize temperature difference between the top and bottom of a PC board, pre-heat both sides of the board. To avoid any adverse affect on trimmer performance and reliability, use the lowest possible pre-heat temperature.

For screw actuated trimmers, make sure the position of the wiper is *not* in contact with either end termination before pre-heating and soldering as illustrated in *Figure 6*.

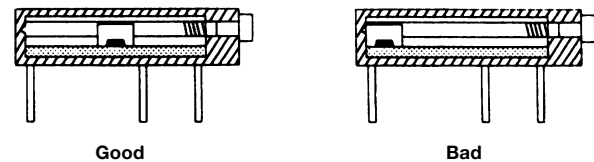


Figure 6

1. Surface Mount Trimmers. For pre-heat time and temperature for surface mount trimmers and the specially designed G4C through-hole series, refer to the reflow and flow temperature profiles specified for individual trimmer series. A typical temperature profile in shown is *Figure 7*.

2. Through-Hole Trimmers. Because the through-hole trimmer series encompass an extensive group of products, individual temperature profiles are not included under each through-hole trimmer series. The recommended pre-heating parameters for through-hole trimmers are 50°C to 150°C within a maximum exposure time of 3 minutes. The pre-heating and soldering temperature profile is specified in *Figure 9* under Soldering, Subsection 3.

Soldering

Using the appropriate soldering technique during the production process ensures good solder connections without degrading electrical and mechanical performance of trimmers and other components. Generally, controlling the maximum temperature and exposure time is the most important concern during the soldering phase.

1. General Soldering Precautions. Before pre-heating and soldering screw actuated trimmers, make sure the position of the wiper is *not* in contact with the end terminals, as illustrated in *Figure 6*, to avoid malfunction of trimmers.

Avoid soldering more than once using the reflow system. Do not allow solder to flow onto any portion of the PC board or any part of the trimmer other than the terminals. Follow the recommended maximum temperature and exposure time specified for each trimmer product. Limit solder exposure time to the shortest time possible. Use a minimum soldering temperature of 215°C.

After soldering, allow appropriate cooling time for trimmers, other components and PC board to prevent extreme temperature difference between the soldering stage and the washing cycle.

2. Soldering Surface Mount Trimmers. Reflow or flow soldering may be used for SMD trimmer assembly. Usually, four methods may be used for soldering SMD products: IR (infrared), forced hot air convection, or vapor phase for reflow soldering, and dual wave system for flow soldering.

The recommended temperature profiles for flow and reflow soldering methods are specified under each series of SMD products. Examples of flow and reflow temperature profiles are shown in *Figure 7* and *Figure 8*.

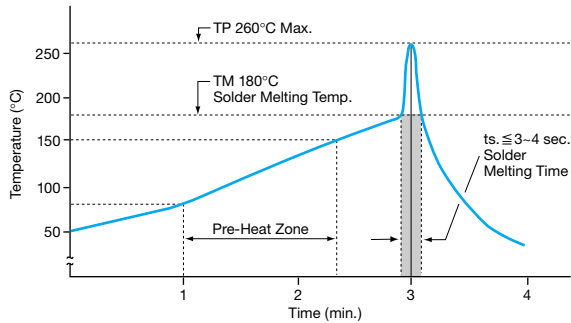


Figure 7: Example of Flow Soldering Temperature Profile For SMD Trimmers

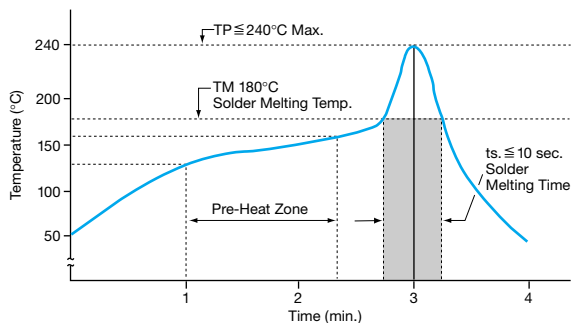


Figure 8: Example of Reflow Soldering Temperature Profile For SMD Trimmers

However, it should be noted that soldering temperature and exposure time may have to be adjusted depending on which heating source is used for reflow.

If infrared radiation is the heat source, the temperature increase of trimmers and other components should be carefully checked because the radiation absorption rate depends on the color and structure of material of trimmers and other components. User must always test and verify pre-heating and soldering processes as well as other production-line assembly before final production.

If the solder temperature exceeds the maximum allowable limit, trimmers with silver terminations may have degraded solder joints and loss of mechanical function due to the leaching of silver into the solder.

3. Soldering Through-Hole Trimmers. Through-hole trimmers are soldered using flow (wave) equipment. Two popular methods for flow soldering are single wave or drag system. Since temperature profiles are not specified under each series of through-hole trimmers, follow the pre-heating and soldering temperature profile for through-hole trimmers specified in *Figure 9*.

Note: The G4C series trimmers are through-hole versions of the surface mount G4 series and are designed to withstand either flow or reflow soldering. Follow the recommended temperature profiles specified for the SMD G4 series.

Because there are many variations of board types and circuit designs with similar or mixed components, the parameters in *Figure 9* will serve as a guideline for user's production process. User must always test and verify the pre-heating and soldering parameters as well as other phases of production before final production.

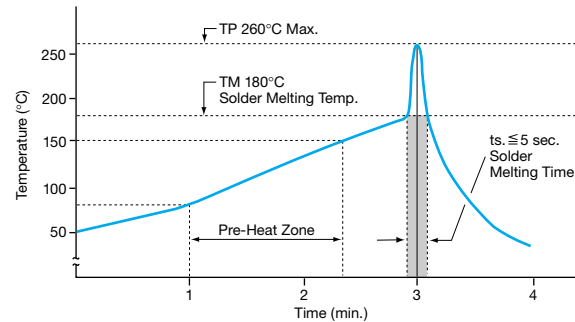


Figure 9: Recommended Flow Soldering Temperature Profiles For Through-Hole Trimmers.

4. Using A Soldering Iron. Use the appropriate soldering iron size, shape and heat capacity for soldering trimmer potentiometers. Do not exceed the maximum time and temperature parameters specified for each trimmer series. Soldering should be performed in the shortest amount of time possible to avoid flux and solder from adhering to the caulked area around the base of the terminals or to any other part of the trimmer. Never touch the body of a trimmer with the soldering iron.

When inserting leaded terminals of a trimmer into the PC board, do not apply excessive force when bending or forming the wire leads. Always crimp wire leads to prevent stress on the body of the trimmer and to provide stability before soldering. To avoid poor connections and possible component or circuit damage, do not expose trimmers to excessive or repeated high temperature while using a soldering iron.

5. Board Reworking. When board reworking is necessary such as removing and replacing components or resoldering connections, keep in mind that excessive and repeated exposure to high temperatures may affect the performance and reliability of a trimmer. If a soldering iron is used, follow the guidelines specified in the previous section.

For reworking surface mount trimmers, it is not advisable to use a soldering iron or flow (wave) soldering. Hot air reflow is the safest method for SMD trimmers.

No matter what soldering method is used for reworking, be sure to monitor the internal and external temperature of the trimmer to avoid extreme temperature changes which may damage trimmers.

6. Wire Soldering. If wiring is required such as external wire jumpers, avoid using solid wire. Use stranded wire to minimize stress on the terminals. If vibration is a problem, use longer wire to alleviate added stress.

When soldering wire to a PC board, use the shortest time possible to avoid excessive heat which may damage the copper foil traces.

Cleaning

The cleaning process is a combination of washing, rinsing and drying cycles that are necessary to remove flux and contaminants from the PC board after soldering. Extra cleaning precautions should always be taken for trimmers because of their moving parts that are typically sealed with a silicone O-ring or the more advanced chevron seal design. The following guidelines will protect trimmers from the harsh environment of the cleaning process and prevent deterioration, degradation of performance and short circuit.

To prevent thermal shock and excessive saturation from the washing and rinsing solutions, the temperature, exposure time, spraying pressure and drying techniques must be strictly controlled as the trimmer enters each cleaning cycle.

To protect the seal from high-pressure cleaning sprays, select a suitable style trimmer that can be mounted on the PC board so the rotor is not directly exposed to high-pressure sprays.

TOCOS sealed trimmer potentiometers are designed for immersion cleaning in a variety of cleaning agents. To insure compatibility with any cleaning agent, test for adverse reactions with the materials of the trimmer such as the housing, shaft and O-ring, and also, make sure the integrity of the markings is not affected after testing. Avoid using cleaning solvents such as trichloroethane or Freon® which endanger the environment.

Temperature control, especially during the transition from the soldering process to the cleaning process, is extremely important. After soldering, gradually cool down trimmers to room temperature (25°C) before the cleaning phase. If a trimmer is not sufficiently cooled down before entering the lower temperature of the wash cycle, and it is soaked with a cleaning solution, the sudden drop in air temperature will create a partial vacuum within the trimmer causing the cleaning solution to be sucked into the trimmer.

Also, minimize temperature variations as trimmers move through the cleaning cycles to avoid thermal shock and trimmer damage during the cleaning process.

To avoid the effects of excessive moisture during the cleaning process, limit the wash-rinse and rinse-dry cycles to as few as possible.

Make sure cleaning solutions are completely evaporated during the drying cycle before any adjustment is made.

Because of the variations in time, temperature, cleaning agents and board types, the cleaning processes should be tested and verified before final production.

Adjustment Guidelines

1. Adjustment Tool. Use the appropriate adjustment tool which conforms to the geometric slot design of the trimmer. Do not use a tool that is designed for high torque applications. For better control, the tool should have an adequate length and comfortable handle or knurled shaft.

During actuation, the applied rotational force should be within the shaft torque range specified for each trimmer series. To prevent discontinuity or mechanical damage, never apply any force greater than the stop torque specified for the trimmer.

2. Adjustment and Terminations. For electrical stability, the setting position of the wiper in relationship to the termination at either end of the resistive element is very important when adjusting trimmers. Set the resistance within a range that excludes at least 10% at each end of the total electrical operation range (adjustment travel).

Never set the wiper at either end stop or in the dead band area of a continuous rotation trimmer.

If you find that the wiper contact of a trimmer is set too close to either end termination after adjustment testing, select a trimmer with a more appropriately rated resistance value that will allow more latitude for setting within the recommended 80% range of adjustment travel.

To prevent electrical or mechanical damage while testing trimmer performance, avoid using test equipment that may inadvertently apply current greater than the maximum allowable limit.

3. Locking Paint, Coating and Potting. Special processes may be required during production such as the application of locking paint, coating or potting materials. Make sure that the substances used for these processes do not corrode metals or attack plastic materials of the trimmers. Do not subject trimmers to excessive heat during the curing of any substance used for locking, coating or potting.

Because a trimmer is normally the only component on a PC board with moving parts, the quantity, viscosity and application of these substances is critical. Locking paint, which is used to seal the position of the rotor after adjustment, as well as coating and potting materials should be of optimum viscosity. Low viscous substances (too thin) will flow into moving parts of a trimmer; high viscous substances (too thick) will impede the movement of the adjustment mechanism. Use the minimal amount of any substance and avoid applying them in the adjustment slots or obliterating critical markings. For example, the proper placement of locking paint is shown in *Figure 10*.

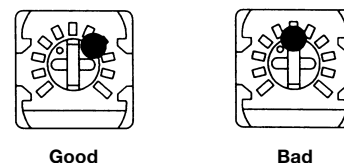


Figure 10

4. Environmental Conditions. If a trimmer is wet or condensation has formed on the terminals and housing, do not attempt any adjustment. Actuation under these conditions may allow moisture to penetrate into the trimmer causing silver migration and eventual burning or short circuit.

It is important to note that silver migration is also likely to occur if high DC current is applied under high humidity and high temperature conditions.

Avoid exposing the adjustment mechanism, terminals and other portions of trimmers to solvents such as ammonium, alcohol, esters, halogenized hydrocarbons and silicone, or to any toxic gas or oil.

Storage

Avoid storing trimmer potentiometers in high temperature and high humidity areas. The recommended storage conditions are 25°C (room temperature) at a maximum relative humidity of 75%. An air-conditioned area is the most ideal storage environment.

Keep trimmers in a dust-free area, and do not store them in direct sunlight.

Do not store trimmers within the vicinity of any corrosive gases such as hydrogen sulfide, sulfurous acid, chlorine or ammonium. The oxidation of metals caused by such toxic

gases may affect solderability as well as the electrical and mechanical performance of these products.

Keep trimmer products in the original packages until just before use, and unpack only the quantity needed. Always seal any opened packages to protect trimmers from oxidation and contaminants.

If any special storage conditions are specified for trimmer products, it is the user's responsibility to comply with the special requirements.

Explanation of Terms

The following explanation of terms, based on the booklet of industrial standards published by the Variable Electronic Components Institute (VECI), will help you understand the purpose, construction and applications for trimmer potentiometers.

General Terms

Trimmer Potentiometer. An electrical mechanical variable resistor with three terminals. Two of the terminals are connected to the resistive element (one at each end), and one terminal is connected to a movable conductive contact which slides over the element, thus allowing the input voltage to be divided as a result of the mechanical input. It is designed to function as a voltage divider or rheostat. These trimmers are commonly included in a circuit for easy adjustment and are used to correct variations in other circuit components or for changes due to aging. They are used for infrequent adjustment and, therefore, usually not accessible to the operator.

Wirewound Trimmer Potentiometer. A trimming potentiometer characterized by a resistance element made up of turns of wire on which the wiper contacts only a small portion of each turn.

Non-Wirewound Trimmer Potentiometer. A trimming potentiometer characterized by the continuous nature of the surface area of the resistance element to be contacted. Contact is maintained over a continuous, unbroken path. The resistance is achieved by using material compositions other than wire such as cermet, carbon, conductive plastic or metal film.

Resistance Element. A continuous, unbroken length of resistive material without joints, bonds or welds except at the junction of the element and the electrical terminals connected to each end of the element.

Terminal. An external part that provides electrical access to the resistance element and wiper.

Leadwire Type Terminal. Flexible insulated conductor.

Printed Circuit Terminal. Rigid uninsulated electrical conductor suitable for printed circuit board plug-in.

Solder Lug Terminal. Rigid uninsulated electrical conductor suitable for external lead attachment.

Wiper. The part of a trimmer which makes contact with the resistive element that allows the output to be varied when the adjustment shaft is rotated.

Stop, Clutch Action. An internal device which allows the wiper to idle at the ends of the resistive element without damage as the adjustment shaft continues to be actuated in the same direction.

Stop, Solid. A positive limit to mechanical and/or electrical adjustment.

Stacking. The mounting of one trimmer potentiometer adjacent to or on top of another utilizing the same mounting hardware.

Theoretical Resolution. (wirewound only) The theoretical measurement of sensitivity to which the output ratio may be adjusted and is the reciprocal of the number of turns of wire in resistance winding expressed as a percentage.

$N = \text{Total number of resistance wire turns.}$

$\frac{1}{N} \times 100 = \text{Theoretical resolution percent.}$

Input and Output Terms

Total Applied Voltage. The total voltage applied between the designated input terminals.

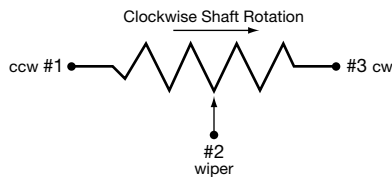
Output Voltage. The voltage between the wiper terminal and the designated reference point. Unless otherwise specified, the designated reference point is the counter-clockwise (CCW) terminal.

Output Ratio. The ratio of the output voltage to the designated input reference voltage. Unless otherwise specified, the reference voltage is the total applied voltage.

Load Resistance. An external resistance as seen by the output voltage (connected between the wiper terminal and the designated reference point).

Adjustment Terms

Direction of Travel. Clockwise (CW) or counterclockwise (CCW) rotation when viewing the adjustment shaft end of the potentiometer. The designation of terminals in the figure below corresponds to the direction of wiper travel.



Actuation. Turning the shaft or other mechanical movement of a trimmer in order to move the wiper over the surface of the resistive element.

Adjustability. The precision with which the output of a trimmer can be adjusted to the desired value.

Adjustment Locking. Refers to the sealing or marking of the position of the adjustment screw after initial setting with viscous paint or other similar substance.

Adjustment Shaft. The mechanical input part of a trimmer potentiometer which when actuated causes the wiper to traverse the resistance element resulting in a change in output voltage or resistance.

Adjustment Travel, Electrical. The total travel of the adjustment shaft between minimum and maximum output voltages.

Backlash. The play or unimpeded motion of the adjustment mechanism which causes poor adjustability.

Continuity Travel. The total travel of the shaft over which electrical continuity is maintained between the wiper and the resistive element.

Mechanical Cycle. Movement of the wiper from one end of travel to the other and back again.

Mechanical Travel, Solid Stops. The total travel of the adjustment shaft between integral stops. Continuity must be maintained throughout the travel.

Mechanical Travel, Clutch Action. The total travel of the adjustment shaft between the points where clutch actuation begins. Continuity must be maintained throughout the travel and during clutch actuation.

Mechanical Travel, Continuous Rotation. The total travel of the adjustment shaft when the wiper movement is unrestricted at either end of the resistive element as the adjustment shaft continues to be actuated.

Multi-Turn Adjustment. Requires more than 360° mechanical input to cause the wiper to traverse the total resistance element.

Single-Turn Adjustment. Requires 360° or less mechanical input to cause the wiper to traverse the total resistance element.

Electrical and Operational Terms

Absolute Minimum Resistance. The resistance measured between the wiper terminal and each end terminal with the wiper positioned to give a minimum value.

Adjustability, Output Resistance. The precision with which the output resistance of a device can be set to the desired value.

Adjustability, Output Voltage Ratio. The precision with which the output voltage ratio of a device can be set to the desired value.

Adjustment Noise. Random unpredictable and undesirable electrical signals that are superimposed on the output of a trimmer during the adjustment rotation.

Contact Resistance Variation (CRV). The apparent resistance seen between the wiper and the resistance element when the wiper is energized with a specified current and moved over the adjustment travel in either direction at a constant speed. The output variations are measured over a specified frequency bandwidth, exclusive of the effects due to roll-on or roll-off of the terminations and is expressed in ohms or percentage of total resistance.

Continuity. Continuity is the maintenance of continuous electrical contact between the wiper and both end terminals of the resistive element.

Dielectric Strength. The ability to withstand the application of a specified potential of a given characteristic between the terminals and all other external conducting parts such as shaft, housing and mounting hardware without exceeding a specified leakage current value.

End Resistance. The resistance measured between the wiper terminal and an end terminal when the wiper is positioned at the corresponding end of mechanical travel. Absolute minimum resistance and end resistance are synonymous for continuous rotation trimmers.

Equivalent Noise Resistance (ENR). (wirewound only) Any spurious variation in the electrical output not present in the input, defined quantitatively in terms of an equivalent parasitic, transient resistance in ohms, appearing between the contact and the resistive element when the shaft is rotated or translated. The ENR is defined independently of the resolution, functional characteristics and the total travel. The magnitude of the ENR is the maximum departure from a specific reference line. The wiper of the potentiometer is required to be excited by a specific current and moved at a specific speed.

Inductance. Wirewound trimmers generally exhibit inductance function or phase shift, associated with the construction of the element, when operated in a high frequency application.

Insulation Resistance. The resistance to a specified DC voltage impressed between the terminals and all other external conducting parts such as shaft, housing and mounting hardware.

Linear Taper. The plot of the trimmer output that is directly proportionate to constant rate of shaft movement.

Load Life. The number of hours at which a device may dissipate rated power under specified operating conditions while remaining within specified allowable degradations.

Log Taper. The plot of the trimmer output that is logarithmically proportionate to constant rate of shaft movement.

Ohm. The basic unit of electrical resistance.

Power Rating. The maximum power that a trimmer potentiometer can dissipate across the total resistive element under specified conditions while meeting specified performance requirements.

Resistance-Temperature Characteristic (RTC). The difference between the total resistance values measured at a reference temperature of +25°C and the specified test temperature expressed as a percent of the total resistance.

$$RTC = \frac{R_2 - R_1}{R_1} \times 100$$

Where: R_1 = Resistance at reference temperature (+25°C) in ohms.

R_2 = Resistance at test temperature in ohms.

Resistance Tolerance. The total resistance range that can be tolerated by the circuit after giving consideration to changes due to aging and wear. It is NOT a measure of variable resistor quality. This tolerance applies to total resistance only, not to the set point of the wiper circuit.

Roll-On Step. The abrupt change in output that occurs as the wiper moves from the termination area onto the resistive material of a non-wirewound element.

Resolution. The ability of a trimmer to make very fine adjustments. In a wirewound trimmer, the percent of total output produced by a single turn of wire. Non-wirewound trimmers have essentially infinite resolution. Wirewound trimmers have a step function increase in resistance across the element, so ohmic values between these steps cannot be obtained.

Rotational Life. The number of cycles obtainable under specific operating conditions while remaining within specified allowable degradation. A cycle is defined as one complete traversal of the wiper over the resistive element in both directions.

Setting Stability. The amount of change in the output voltage, without readjustment, expressed as a percentage of the total applied voltage.

Temperature Coefficient of Resistance (TC). The unit change in resistance per degree celsius change from a reference temperature, expressed in parts per million per degree celsius as follows:

$$TC = \frac{R_2 - R_1}{R_1 (T_2 - T_1)} \times 10^6$$

Where: R_1 = Resistance at reference temperature in ohms.

R_2 = Resistance at test temperature in ohms.

T_1 = Reference temperature in degrees celsius.

T_2 = Test temperature in degrees celsius.

Total Resistance. The DC resistance between the input terminals with the wiper positioned to either end stop, or in dead band for continuous rotation potentiometers.

Wiper Current. The maximum allowable sustained current through the wiper contact. This value is essentially independent of total resistance. It is especially important in rheostat mode applications.

Mechanical Terms

Carbon Composition. A type of resistive element made from a mixture of carbon powders in a binder molded into a solid mass, under heat and pressure, as an integral part of its substrate.

Cermet. (from CERamic and METals) A type of resistive element consisting of a mixture of metal particles, precious metal oxides and glass powders, which are mixed with a liquid vehicle, screened onto a ceramic substrate and fired at vitrifying temperatures.

Collector Rail. The part of a trimmer on which the wiper travels that is electrically connected to the wiper terminal.

Contact Force. The force that holds the wiper in contact with the surface of the element.

Immersion Sealed. The ability of the unit to withstand submersion in acceptable cleaning solutions used in normal soldering processes without performance degradation under specific environmental conditions.

Potting. Process in which the space between a component and its case is filled with a compound which hardens to provide an airtight, moisture-proof, insulating seal.

Rotor. An insulated part of a trimmer, attached to the shaft, to which the wiper is connected.

Solderability. The ability of the terminals to accept a uniform coating of solder under specified conditions.

Starting Torque. The maximum moment in the clockwise and counterclockwise directions required to initiate shaft adjustment anywhere in the mechanical travel.

Stick-Slip. A condition in which starting torque is greater than running torque. This creates a very abrupt transition between the two, making fine adjustments difficult.

Stop Torque. The maximum static moment that can be applied to adjustment shaft at each mechanical stop for a specified period of time without loss of continuity or mechanical damage affecting operational characteristics.

Terminal Strength. The ability of the terminals to withstand specified mechanical stresses without sustaining damage that would affect utility of the terminals or operation of the trimming potentiometer.

Termination. The connection between the resistive element and the terminals.

Weldability. The ability of materials to be welded together under specified conditions.

Conversion Tables

Centigrade/ Fahrenheit		Fraction Conversions			Millimeters/Inches							
°C	°F	Fraction	Inches	mm	mm	Inches	mm	Inches	mm	Inches	mm	Inches
538	1000	1/64	0.015625	0.39688	0.01	0.00039	0.65	0.02559	29.0	1.14173	91.0	3.58268
500	932	1/32	0.03125	0.79375	0.02	0.00079	0.66	0.02598	30.0	1.18110	92.0	3.62205
482	900	3/64	0.046875	1.19063	0.03	0.00118	0.67	0.02638	31.0	1.22047	93.0	3.66142
450	842	1/16	0.0625	1.5875	0.04	0.00157	0.68	0.02677	32.0	1.25984	94.0	3.70079
427	800											
400	752	5/64	0.078125	1.98438	0.05	0.00197	0.69	0.02717	33.0	1.29921	95.0	3.74016
371	700	3/32	0.09375	2.38125	0.06	0.00236	0.70	0.02756	34.0	1.33858	96.0	3.77953
350	662	7/64	0.109375	2.77813	0.07	0.00276	0.71	0.02795	35.0	1.37795	97.0	3.81890
316	600	1/8	0.125	3.175	0.08	0.00315	0.72	0.02835	36.0	1.41732	98.0	3.85827
300	572											
260	500	9/64	0.140625	3.57188	0.09	0.00354	0.73	0.02874	37.0	1.45669	99.0	3.89764
250	482	5/32	0.15625	3.96875	0.10	0.00394	0.74	0.02913	38.0	1.49606	100.0	3.93701
204	400	11/64	0.171875	4.36563	0.11	0.00433	0.75	0.02953	39.0	1.53543	101.0	3.97638
200	392	3/16	0.1875	4.7625	0.12	0.00472	0.76	0.02992	40.0	1.57480	101.6	4.0
190	374											
180	356	13/64	0.203125	5.15938	0.13	0.00512	0.77	0.03031	41.0	1.61417	102.0	4.01575
170	338	7/32	0.21875	5.55625	0.14	0.00551	0.78	0.03071	42.0	1.65354	103.0	4.05512
160	320	15/64	0.234375	5.95313	0.15	0.00591	0.79	0.03110	43.0	1.69291	104.0	4.09449
150	302	1/4	0.250	6.35	0.16	0.00630	0.80	0.03150	44.0	1.73228	105.0	4.13386
140	284	17/64	0.265625	6.74688	0.17	0.00669	0.81	0.03189	45.0	1.77165	106.0	4.17323
130	266	9/32	0.28125	7.14375	0.18	0.00709	0.82	0.03228	46.0	1.81102	107.0	4.21260
125	257	19/64	0.296875	7.54063	0.19	0.00748	0.83	0.03268	47.0	1.85039	108.0	4.25197
120	248	5/16	0.3125	7.9375	0.20	0.00787	0.84	0.03307	48.0	1.88976	109.0	4.29134
110	230											
105	221	21/64	0.328125	8.33438	0.21	0.00827	0.85	0.03346	49.0	1.92913	110.0	4.33071
100	212	11/32	0.34375	8.73125	0.22	0.00866	0.86	0.03386	50.0	1.96850	111.0	4.37008
95	203	23/64	0.359375	9.12813	0.23	0.00906	0.87	0.03425	50.8	2.0	112.0	4.40945
90	194	3/8	0.375	9.525	0.24	0.00945	0.88	0.03465	51.0	2.00787	113.0	4.44882
85	185											
80	176	25/64	0.390625	9.92188	0.25	0.00984	0.89	0.03504	52.0	2.04724	114.0	4.48819
75	167	13/32	0.40625	10.31875	0.26	0.01024	0.90	0.03543	53.0	2.08661	115.0	4.52756
70	158	27/64	0.421875	10.71563	0.27	0.01063	0.91	0.03583	54.0	2.12598	116.0	4.56693
65	149	7/16	0.4375	11.1125	0.28	0.01102	0.92	0.03622	55.0	2.16535	117.0	4.60630
60	140											
55	131	29/64	0.453125	11.50938	0.29	0.01142	0.93	0.03661	56.0	2.20472	118.0	4.64567
50	122	15/32	0.46875	11.90625	0.30	0.01181	0.94	0.03701	57.0	2.24409	119.0	4.68504
45	113	31/64	0.484375	12.30313	0.31	0.01220	0.95	0.03740	58.0	2.28346	120.0	4.72441
40	104	1/2	0.5	12.7	0.32	0.01260	0.96	0.03780	59.0	2.32283	121.0	4.76378
35	95											
30	86	33/64	0.515625	13.09688	0.33	0.01299	0.97	0.03819	60.0	2.36220	122.0	4.80315
25	77	17/32	0.53125	13.49375	0.34	0.01339	0.98	0.03858	61.0	2.40157	123.0	4.84252
20	68	35/64	0.546875	13.89063	0.35	0.01378	0.99	0.03898	62.0	2.44094	124.0	4.88189
15	59	9/16	0.5625	14.2875	0.36	0.01417	1.0	0.03937	63.0	2.48031	125.0	4.92126
10	50											
5	41	37/64	0.578125	14.68438	0.37	0.01457	2.0	0.07874	64.0	2.51969	126.0	4.96063
0	32	19/32	0.59375	15.08125	0.38	0.01496	3.0	0.11811	65.0	2.55906	127.0	5.0
- 5.0	23	39/64	0.609375	15.47813	0.39	0.01535	4.0	0.15748	66.0	2.59843	128.0	5.03937
-10.0	14	5/8	0.625	15.875	0.40	0.01575	5.0	0.19685	67.0	2.63780	129.0	5.07874
-15.0	5											
-17.8	0	41/64	0.640625	16.27188	0.41	0.01614	6.0	0.23622	68.0	2.67717	130.0	5.11811
-20.0	- 4	21/32	0.65625	16.66875	0.42	0.01654	7.0	0.27559	69.0	2.71654	131.0	5.15748
-20.6	- 5	43/64	0.671875	17.06563	0.43	0.01693	8.0	0.31496	70.0	2.75591	132.0	5.19685
-23.3	-10	11/16	0.6875	17.4625	0.44	0.01732	9.0	0.35433	71.0	2.79528	133.0	5.23622
-25.0	-13											
-26.1	-15	45/64	0.703125	17.85938	0.45	0.01772	10.0	0.39370	72.0	2.83465	134.0	5.27559
-28.9	-20	23/32	0.71875	18.25625	0.46	0.01811	11.0	0.43307	73.0	2.87402	135.0	5.31496
-30.0	-22	47/64	0.734375	18.65313	0.47	0.01850	12.0	0.47244	74.0	2.91339	136.0	5.35433
-31.7	-25	3/4	0.75	19.05	0.48	0.01890	13.0	0.51181	75.0	2.95276	137.0	5.39370
-34.4	-30											
-35.0	-31	49/64	0.765625	19.44688	0.49	0.01929	14.0	0.55118	76.0	2.99213	138.0	5.43307
-37.2	-35	25/32	0.78125	19.84375	0.50	0.01969	15.0	0.59055	76.2	3.0	139.0	5.47244
-40.0	-40	51/64	0.796875	20.24063	0.51	0.02008	16.0	0.62992	77.0	3.03150	140.0	5.51181
-42.8	-45	13/16	0.8125	20.6375	0.52	0.02047	17.0	0.66929	78.0	3.07087	141.0	5.55118
-45.0	-49											
-45.6	-50	53/64	0.828125	21.03438	0.53	0.02087	18.0	0.70866	79.0	3.11024	142.0	5.59055
-48.3	-55	27/32	0.84375	21.43125	0.54	0.02126	19.0	0.74803	80.0	3.14961	143.0	5.62992
-50.0	-58	55/64	0.859375	21.82813	0.55	0.02165	20.0	0.78740	81.0	3.18898	144.0	5.66929
-51.1	-60	7/8	0.875	22.225	0.56	0.02205	21.0	0.82677	82.0	3.22835	145.0	5.70866
-53.9	-65											
-55.0	-67	57/64	0.890625	22.62188	0.57	0.02244	22.0	0.86614	83.0	3.26772	146.0	5.74803
-56.7	-70	29/32	0.90625	23.01875	0.58	0.02283	23.0	0.90551	84.0	3.30709	147.0	5.78740
-59.4	-75	59/64	0.921875	23.41563	0.59	0.02323	24.0	0.94488	85.0	3.34646	148.0	5.82677
-60.0	-76	15/16	0.9375	23.8125	0.60	0.02362	25.0	0.98425	86.0	3.38583	149.0	5.86614
-62.2	-80											
-65.0	-85	61/64	0.953125	24.20938	0.61	0.02402	25.4	1.0	87.0	3.42520	150.0	5.90551
-67.8	-90	31/32	0.96875	24.60625	0.62	0.02441	26.0	1.02362	88.0	3.46457	151.0	5.94488
		63/64	0.984375	25.00313	0.63	0.02480	27.0	1.06299	89.0	3.50394	152.0	5.98425
		1	1.0	25.4	0.64	0.02520	28.0	1.10236	90.0	3.54331	152.4	6.0

$C^{\circ} = (F^{\circ} - 32) \times 5/9$
 $F^{\circ} = (C^{\circ} \times 9/5) + 32$

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