

## 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  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Meets UL 94V-0 flammability requirements
- Sealed to withstand wave soldering and immersion cleaning processes

### Specifications

#### Electrical

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

#### Mechanical

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

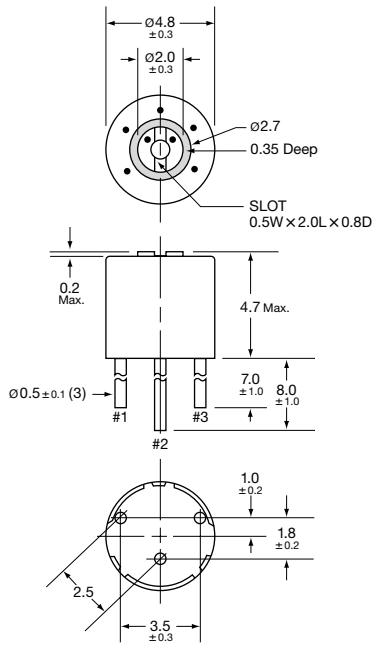
#### Environmental

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

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

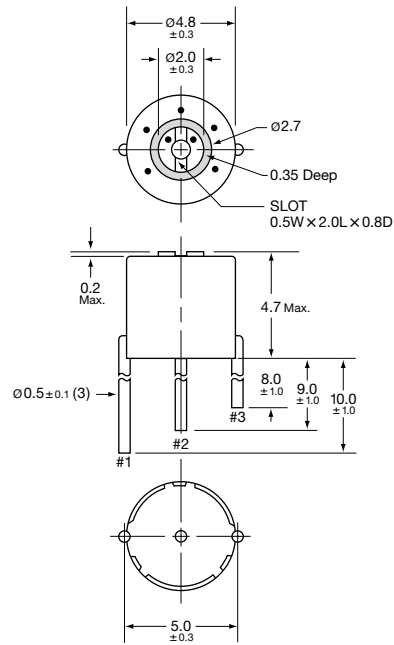
**GF04W**

**W Terminal Style, Single-Slot, Top Adjust**



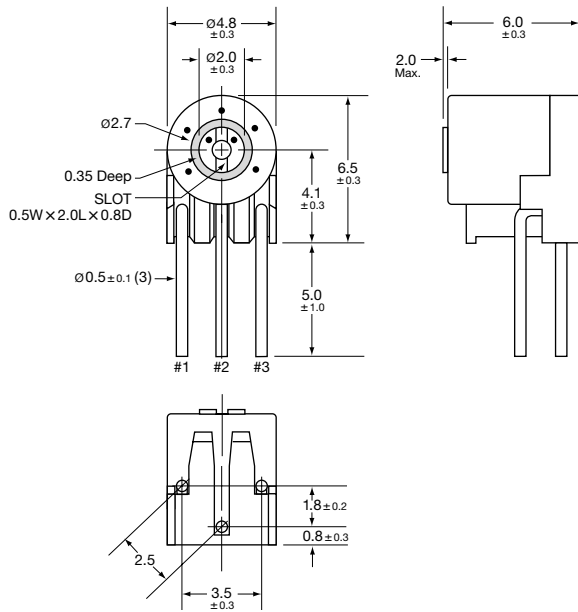
**GF04U**

**U Terminal Style, Single-Slot, Top Adjust**



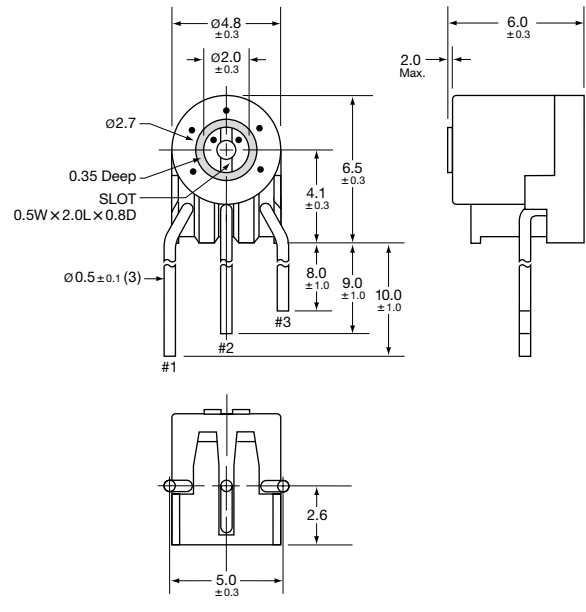
**GF04S**

**S Terminal Style, Single-Slot, Side Adjust**



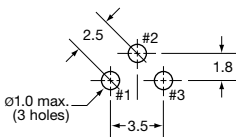
**GF04V**

**V Terminal Style, Single-Slot, Side Adjust**



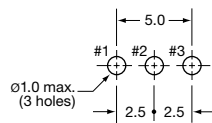
**Recommended PCB Layout**

**W & S Pin-Out**

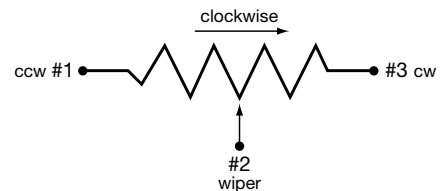


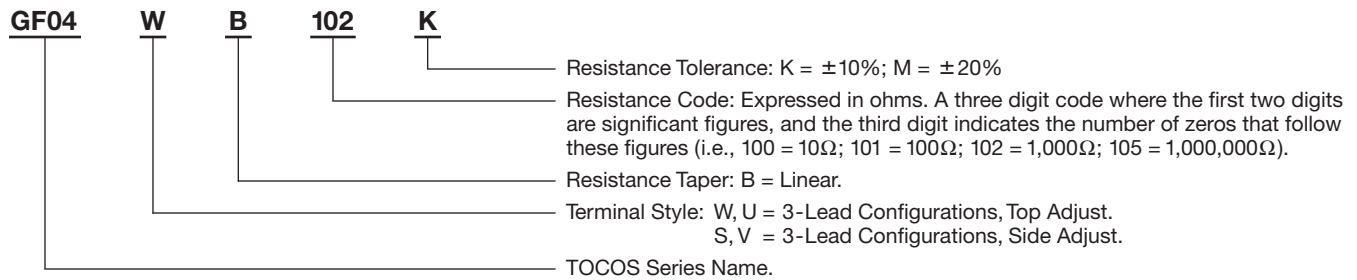
**U & V Pin-Out**

Unit: mm



**Electrical Schematic**







**Part Numbers**

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value ( $\Omega$ )	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	 <b>GF04W</b>
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	

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

100	101	GF04U B 101 K	GF04U B 101 M	 <b>GF04U</b>
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	

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


100	101	GF04S B 101 K	GF04S B 101 M	 <b>GF04S</b>
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	

## GF04 Series

## Part Numbers

Nominal Resistance		Catalog No. Bulk		Potentiometer Styles
Value ( $\Omega$ )	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;"><b>GF04V</b></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

<b>Standard:</b>	<b>Bulk Packaging</b>	<b>Quantity</b> 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.