

## 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  $-65^{\circ}\text{C}$  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 $\Omega$ to 2M $\Omega$ (standard 1, 2 & 5 sequence)
Resistance Tolerance	$\pm 10\%$ standard
End Resistance	1% or 2 $\Omega$ , whichever is greater
Resistance Taper	Linear
Peak Noise (C.R.V.)	1% or 3 $\Omega$ , 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 $\Omega$ minimum at 500VDC
Dielectric Strength	600VAC, 1 minute
Adjustment Travel	12 $\pm$ 2 turns nominal

#### Mechanical

Mechanical Travel	13 $\pm$ 1 turns
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

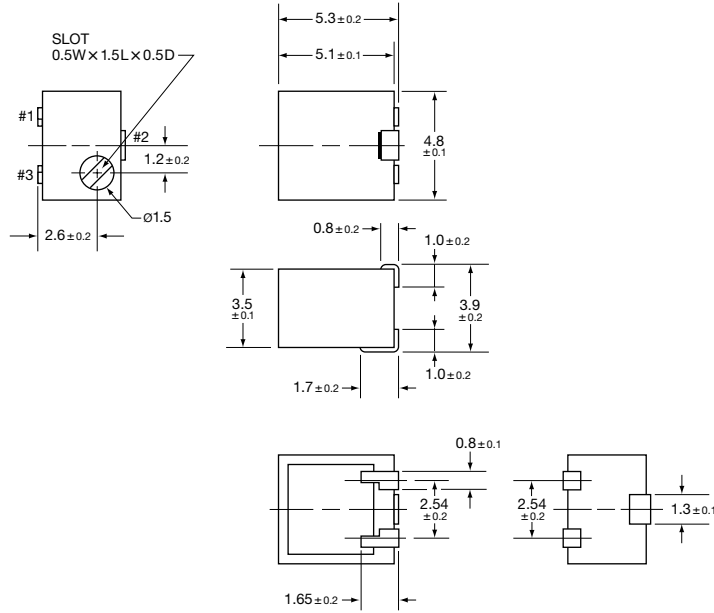
Temperature Range	$-65^{\circ}\text{C}$ to $+150^{\circ}\text{C}$
Low Temperature Operation	$-65^{\circ}\text{C}$ , 0.25 watt, 2 hours $\Delta\text{T/R} \leq \pm 1\%$ , S.S. $\leq \pm 1\%$
High Temperature Exposure	$+150^{\circ}\text{C}$ , 250 hours $\Delta\text{T/R} \leq \pm 2\%$ , S.S. $\leq \pm 1\%$
Load Life	$+85^{\circ}\text{C}$ , 0.25 watt, 1,000 hours $\Delta\text{T/R} \leq \pm 3\%$ or $\Delta\text{R} = 3\Omega$ , S.S. $\leq \pm 2\%$
Thermal Shock	$-65^{\circ}\text{C}$ , $+150^{\circ}\text{C}$ , 30 minutes each, 5 cycles $\Delta\text{T/R} \leq \pm 2\%$ , S.S. $\leq \pm 1\%$
Shock	100G, 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, 0.25 watt, 500 hours $\Delta\text{T/R} \leq \pm 3\%$ , S.S. $\leq \pm 2\%$
Moisture Resistance	$-10^{\circ}\text{C}$ to $+65^{\circ}\text{C}$ , 80-98% RH, 0.25 watt, 10 cycles, 240 hours $\Delta\text{T/R} \leq \pm 3\%$
Soldering Heat Resistance	$260^{\circ}\text{C}$ , 4 sec. in, 2 sec. out $\Delta\text{T/R} \leq \pm 1\%$
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 $\Delta\text{T/R} \leq \pm 3\%$ or $\Delta\text{R} = 3\Omega$

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

®Fluorinert is a registered trademark of 3M Co.

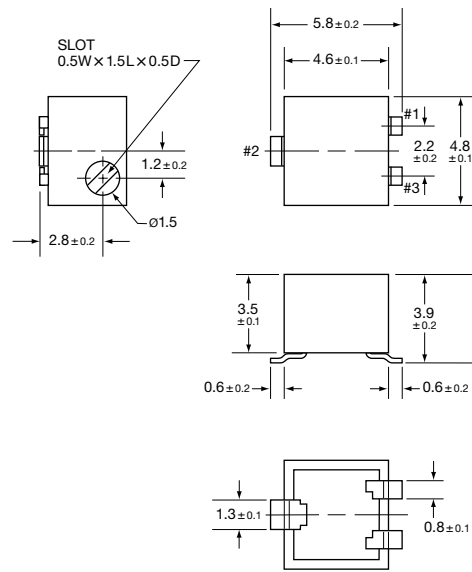
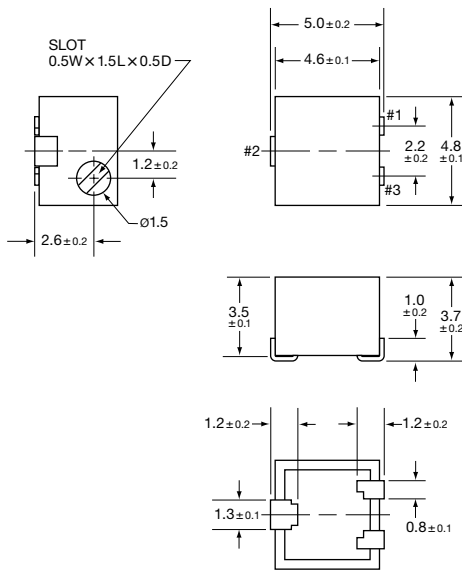
GV4W J-Hook, Single-Slot, Top Adjust

Unit: mm

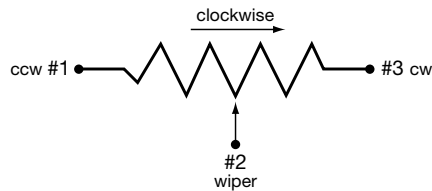


GV4J J-Hook, Single-Slot, Side Adjust

GV4G Gull-Wing, Single-Slot, Side Adjust



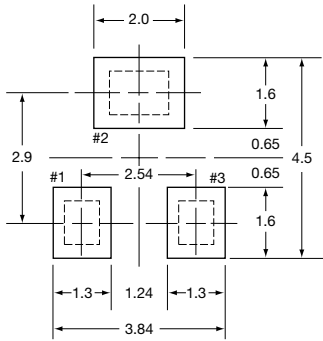
Electrical Schematic



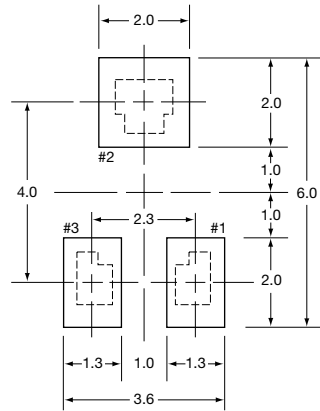
Recommended Land Patterns

Flow or Reflow Soldering Methods

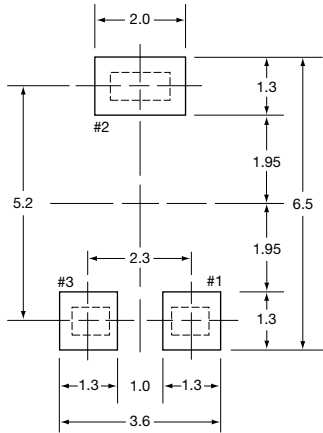
GV4W



GV4J

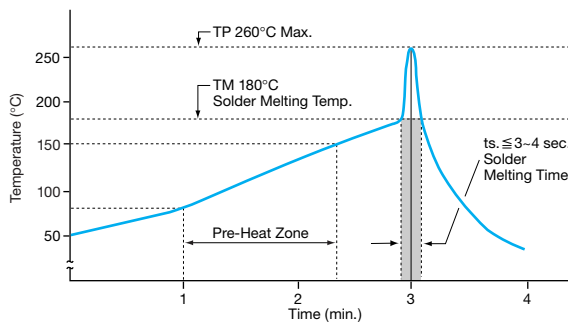


GV4G

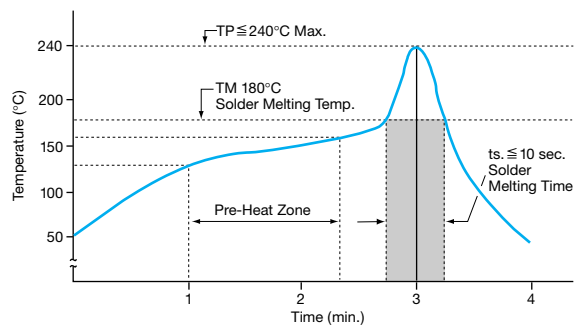


Recommended Soldering Profiles

Flow Soldering Profile



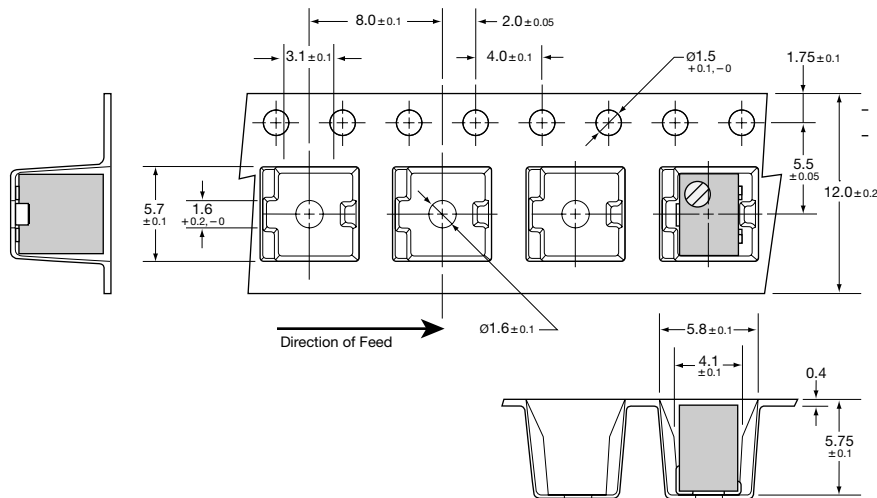
Reflow Soldering Profile



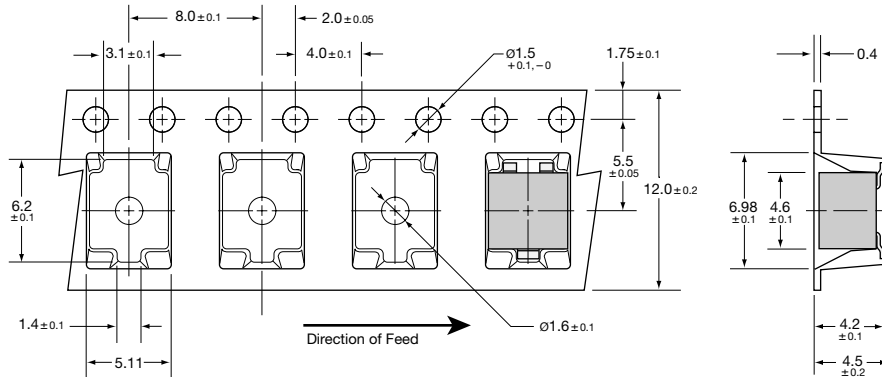
**Embossed Tape Dimensions**

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

**GV4WT**



**GV4JT, GV4GT**

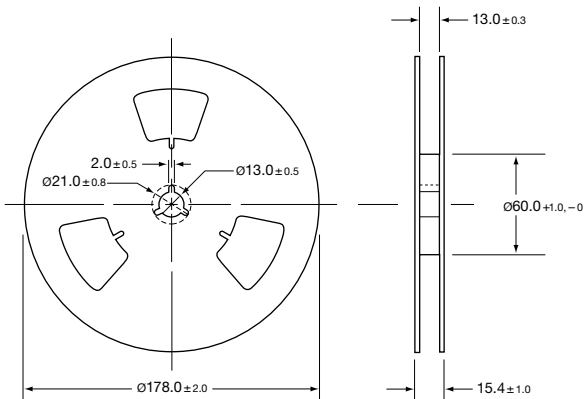


**Reel Dimensions**

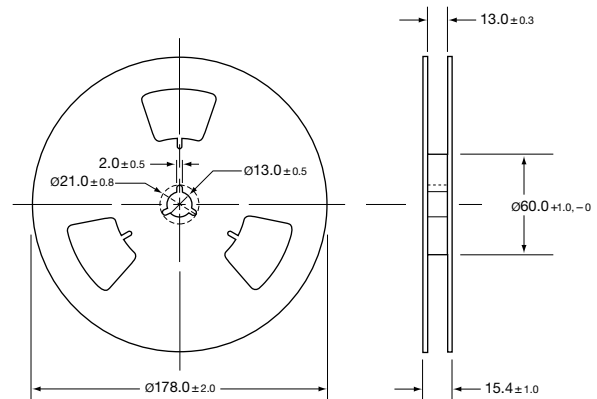
Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

**GV4WT**

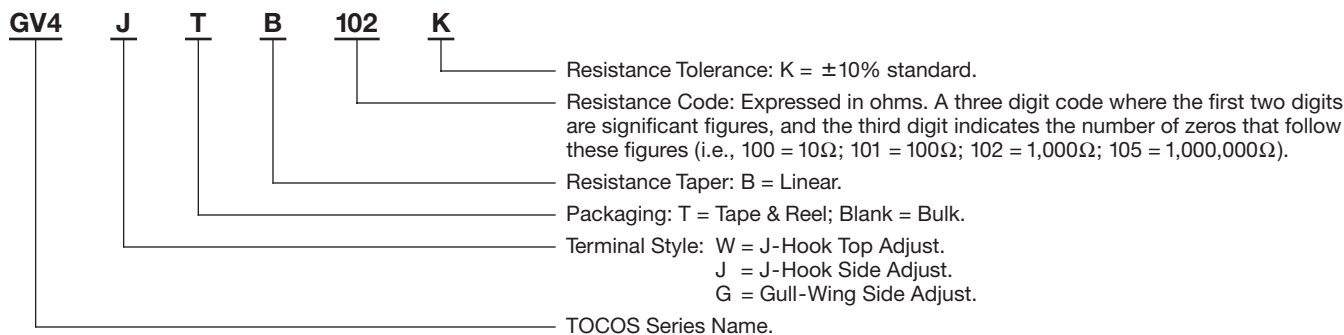
**GV4JT, GV4GT**



250 Pieces Per 7" Reel



500 Pieces Per 7" Reel



Part Numbers

Nominal Resistance		Single-Slot		Maximum Input Ratings		Potentiometer Styles
Value ( $\Omega$ )	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

Nominal Resistance		Single-Slot		Maximum Input Ratings		Potentiometer Styles
Value ( $\Omega$ )	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.

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