

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	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 (S)
Marking	Resistance value or code, date code

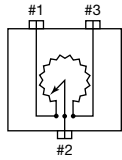
Environmental

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)

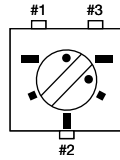
For through-hole models of the G4 series,
refer to the G4C Series on page 33.

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



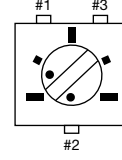
Position of the rotor inside is the same for both types of markings.

Standard Markings
Outside Positions



G4A & G4B

Reverse Markings
Outside Positions



G4D & G4E

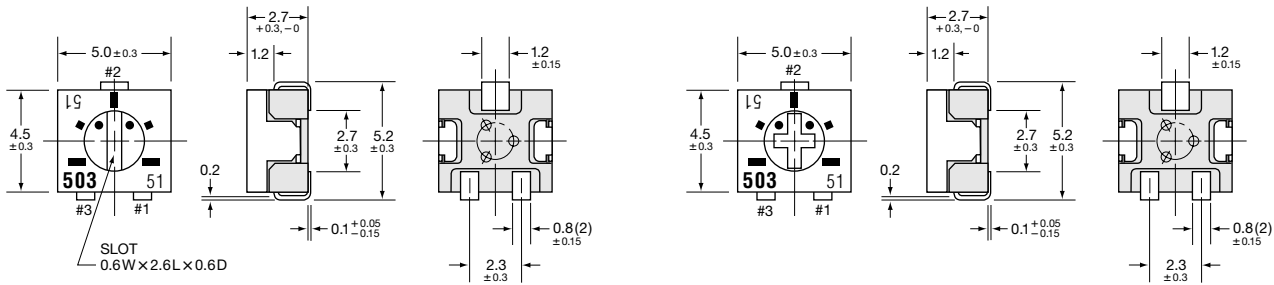
The D and E reverse markings models have the same parts and are constructed the same as the A and B models respectively. The only difference is the outside markings.

Dimensions

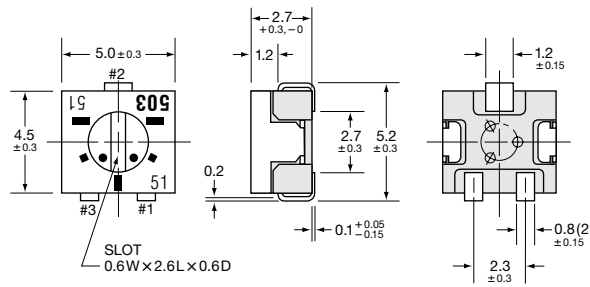
G4A J-Hook, Single-Slot, Top Adjust

G41A J-Hook, Cross-Slot, Top Adjust

Unit: mm

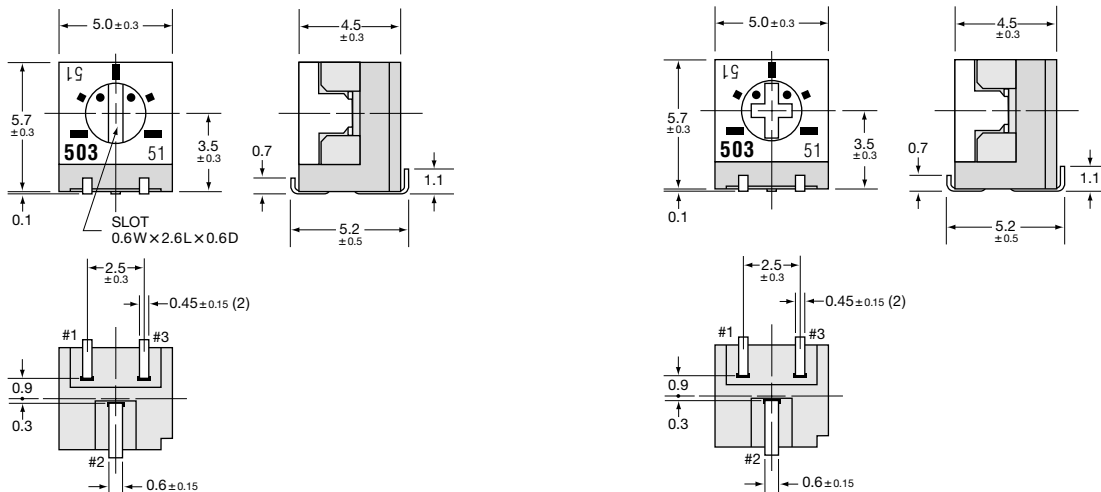


G4D Reverse Markings, J-Hook, Single-Slot, Top Adjust



G4S J-Hook, Single-Slot, Side Adjust

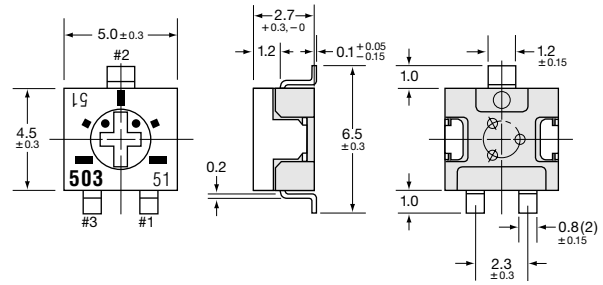
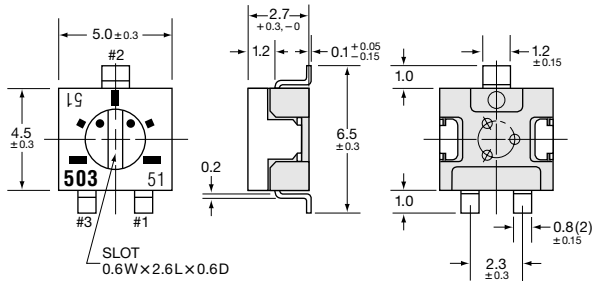
G41S J-Hook, Cross-Slot, Side Adjust



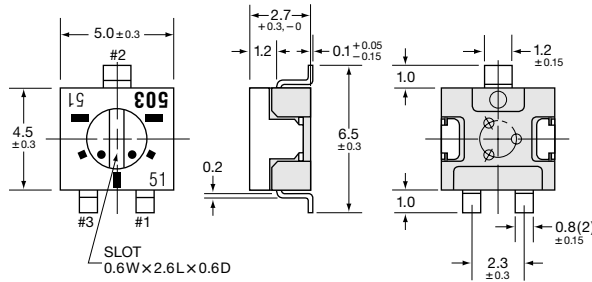
G4B Gull-Wing, Single-Slot, Top Adjust

G41B Gull-Wing, Cross-Slot, Top Adjust

Unit: mm

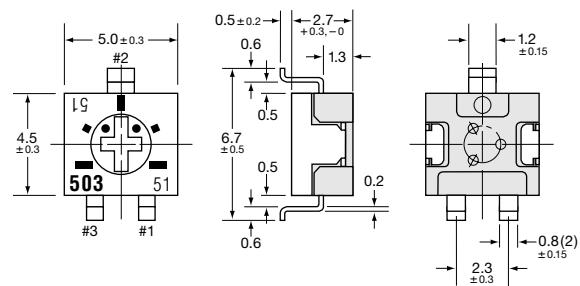
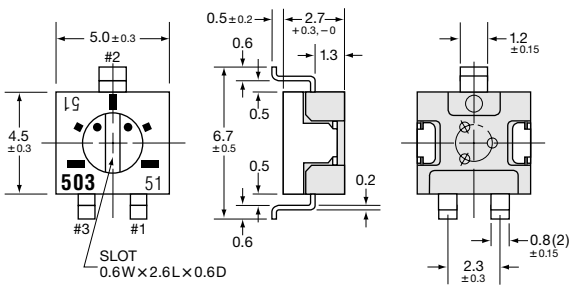


G4E Reverse Markings, Gull-Wing, Single-Slot, Top Adjust



G4BF Gull-Wing, Single-Slot, Bottom Adjust

G41BF Gull-Wing, Cross-Slot, Bottom Adjust

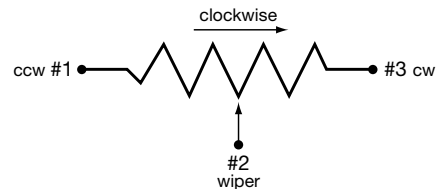
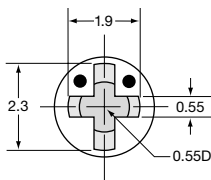


Cross-Slot Dimensions

Electrical Schematic

All G41 Models

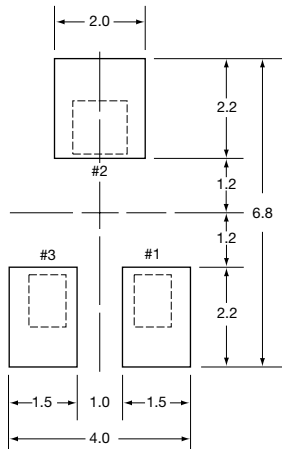
Unit: mm



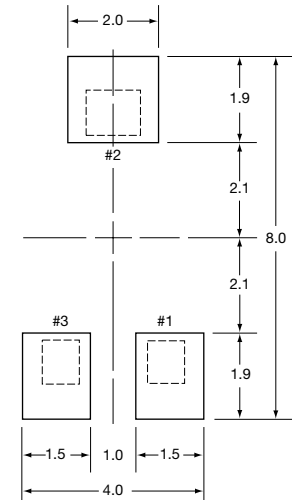
Recommended Land Patterns

Flow Soldering Method

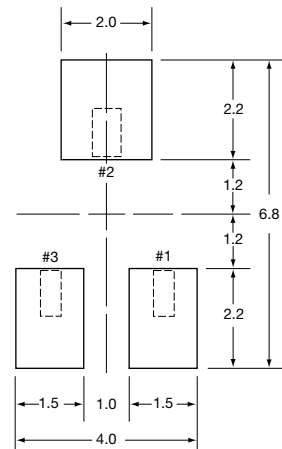
G4A, G41A, G4D



G4B, G41B, G4E

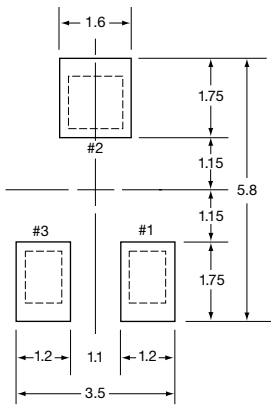


G4S, G41S

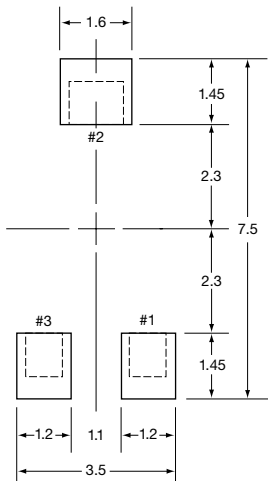


Reflow Soldering Method

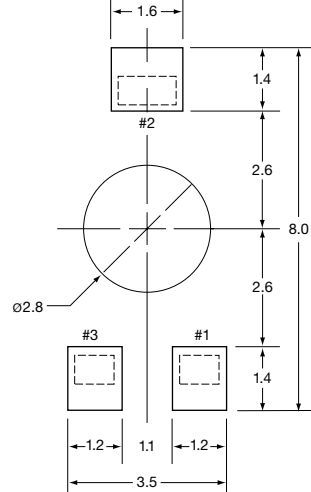
G4A, G41A, G4D



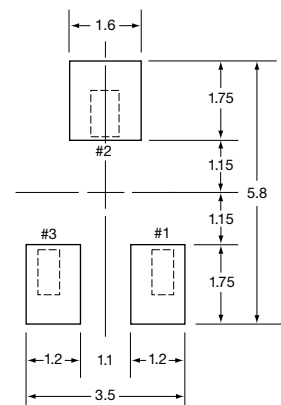
G4B, G41B, G4E



G4BF

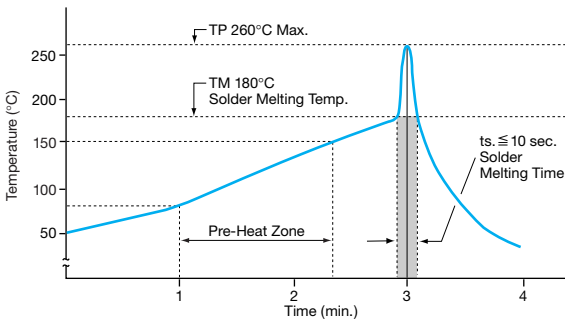


G4S, G41S

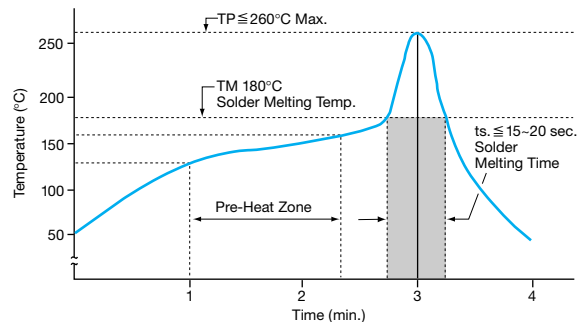


Recommended Soldering Profiles

Flow Soldering Profile



Reflow Soldering Profile

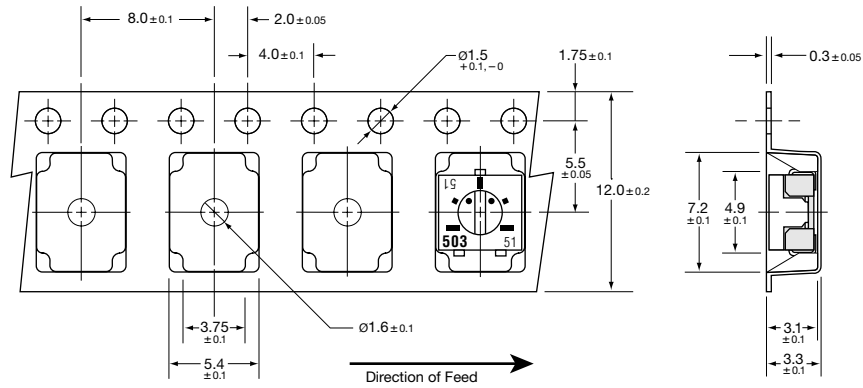


Embossed Tape Dimensions

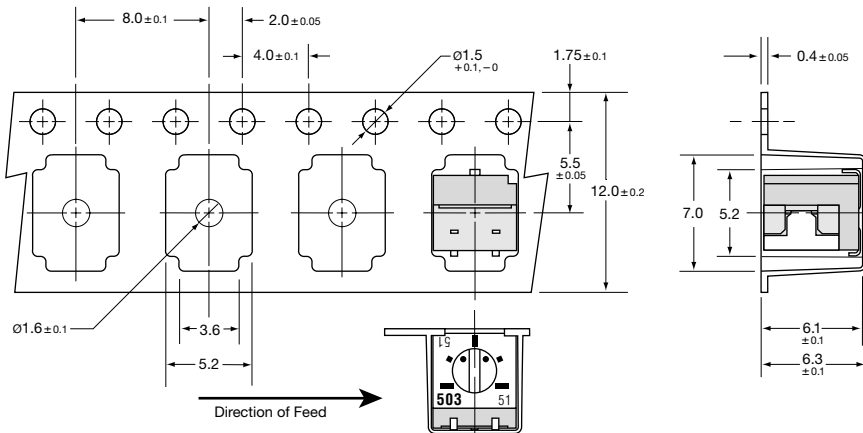
Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

Unit: mm

G4AT, G41AT, G4DT, G4BT, G41BT, G4ET



G4ST, G41ST

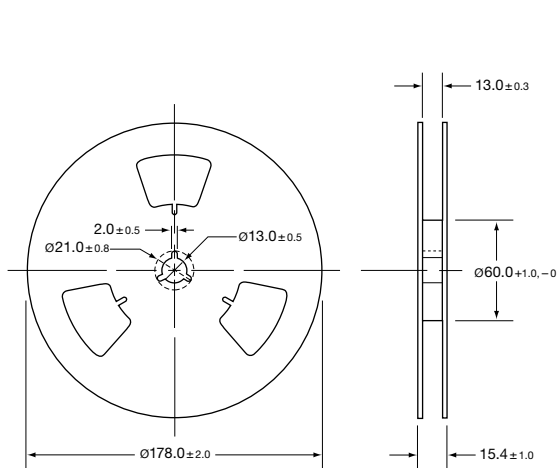


Reel Dimensions

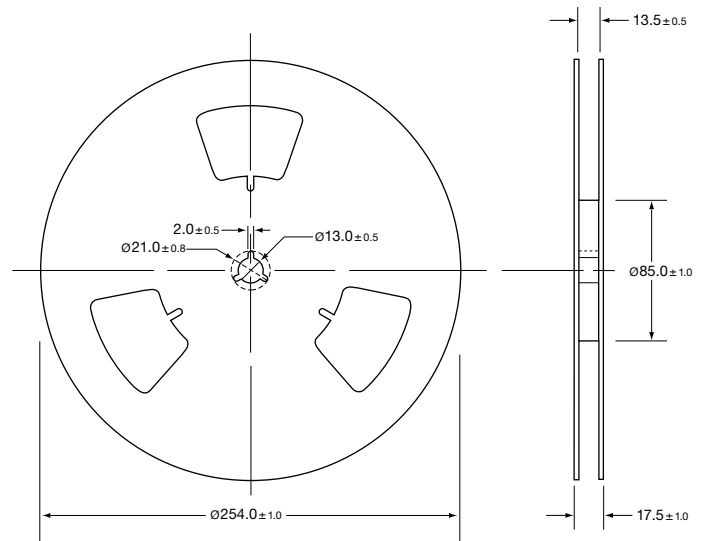
Conforms to EIA-481, JIS-C-0806 and EIAJ-RC-1009B

G4AT, G41AT, G4DT, G4BT, G41BT, G4ET

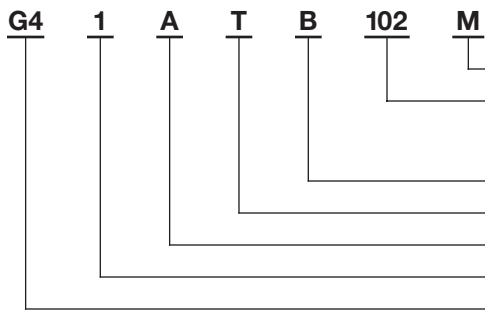
G4ST, G41ST



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, S = 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

G4S J-Hook, Single-Slot, Side Adjust

50	500	—	—	G4ST B 500 M	G4S B 500 M
100	101	G4ST B 101 K	G4S B 101 K	G4ST B 101 M	G4S B 101 M
200	201	G4ST B 201 K	G4S B 201 K	G4ST B 201 M	G4S B 201 M
500	501	G4ST B 501 K	G4S B 501 K	G4ST B 501 M	G4S B 501 M
1,000	102	G4ST B 102 K	G4S B 102 K	G4ST B 102 M	G4S B 102 M
2,000	202	G4ST B 202 K	G4S B 202 K	G4ST B 202 M	G4S B 202 M
5,000	502	G4ST B 502 K	G4S B 502 K	G4ST B 502 M	G4S B 502 M
10,000	103	G4ST B 103 K	G4S B 103 K	G4ST B 103 M	G4S B 103 M
20,000	203	G4ST B 203 K	G4S B 203 K	G4ST B 203 M	G4S B 203 M
50,000	503	G4ST B 503 K	G4S B 503 K	G4ST B 503 M	G4S B 503 M
100,000	104	G4ST B 104 K	G4S B 104 K	G4ST B 104 M	G4S B 104 M
200,000	204	G4ST B 204 K	G4S B 204 K	G4ST B 204 M	G4S B 204 M
500,000	504	G4ST B 504 K	G4S B 504 K	G4ST B 504 M	G4S B 504 M
1,000,000	105	G4ST B 105 K	G4S B 105 K	G4ST B 105 M	G4S B 105 M
2,000,000	205	—	—	G4ST B 205 M	G4S B 205 M



G4S

G41S J-Hook, Cross-Slot, Automatic Side Adjust

50	500	—	—	G41ST B 500 M	G41S B 500 M
100	101	G41ST B 101 K	G41S B 101 K	G41ST B 101 M	G41S B 101 M
200	201	G41ST B 201 K	G41S B 201 K	G41ST B 201 M	G41S B 201 M
500	501	G41ST B 501 K	G41S B 501 K	G41ST B 501 M	G41S B 501 M
1,000	102	G41ST B 102 K	G41S B 102 K	G41ST B 102 M	G41S B 102 M
2,000	202	G41ST B 202 K	G41S B 202 K	G41ST B 202 M	G41S B 202 M
5,000	502	G41ST B 502 K	G41S B 502 K	G41ST B 502 M	G41S B 502 M
10,000	103	G41ST B 103 K	G41S B 103 K	G41ST B 103 M	G41S B 103 M
20,000	203	G41ST B 203 K	G41S B 203 K	G41ST B 203 M	G41S B 203 M
50,000	503	G41ST B 503 K	G41S B 503 K	G41ST B 503 M	G41S B 503 M
100,000	104	G41ST B 104 K	G41S B 104 K	G41ST B 104 M	G41S B 104 M
200,000	204	G41ST B 204 K	G41S B 204 K	G41ST B 204 M	G41S B 204 M
500,000	504	G41ST B 504 K	G41S B 504 K	G41ST B 504 M	G41S B 504 M
1,000,000	105	G41ST B 105 K	G41S B 105 K	G41ST B 105 M	G41S B 105 M
2,000,000	205	—	—	G41ST B 205 M	G41S B 205 M




G41S

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.

G4ST, G41ST
750 pieces per 10" reel.

Bulk Packaging

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

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