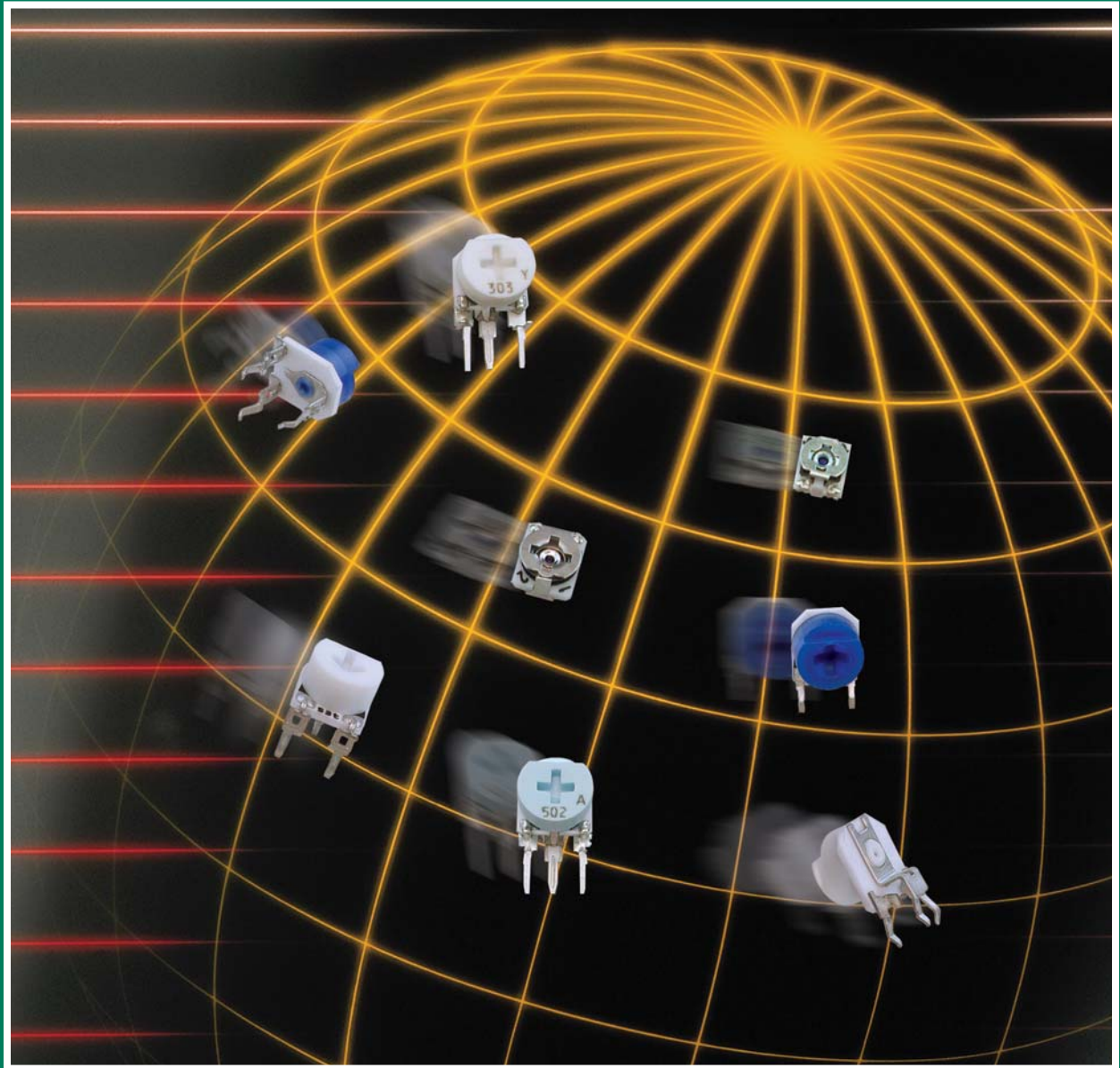


TOCOS[®]

POTENTIOMETERS



OPEN FRAME TRIMMERS



SELECTION GUIDE

www.tocos.com

Specifications for Surface Mount Single-Turn Trimmers

Series	VG026 Series	VG039N Series
Model Examples		
Features	<ul style="list-style-type: none"> ■ 2mm Surface Mount, Single-Turn, Cermet Trimmers ■ Low Profile, 0.8mm in Height ■ First in Industry: Resin Sealed Insulation Area on Mounting Surface to Eliminate Rerouting Traces ■ Stable Performance in Adverse Ambient Conditions ■ 8mm Embossed Tape for Automatic Insertion ■ Recommended for Reflow Soldering ■ RoHS Compliant: Pb-Free and Cd-Free 	<ul style="list-style-type: none"> ■ 3mm Surface Mount, Single-Turn, Cermet Trimmers ■ Low Profile, 1.2mm in Height ■ First in Industry: Resin Sealed Insulation Area on Mounting Surface to Eliminate Rerouting Traces ■ Stable Performance in Adverse Ambient Conditions ■ 8mm Embossed Tape for Automatic Insertion ■ Recommended for Reflow Soldering ■ RoHS Compliant: Pb-Free and Cd-Free
Nominal Size and Construction	2.2mm x 2.6mm x 0.8mm in height Open Frame, Surface Mount	3mm x 3.8mm x 1.2mm in height Open Frame, Surface Mount
Resistive Element	Cermet	Cermet
Adjustment Travel	Single-Turn: 240° ± 20°	Single-Turn: 270° ± 20°
Adjustment Type	Top Adjust Flush Cross-Slot	Top Adjust Flush Cross-Slot with Rotational Stops
Terminal Style	Surface Mount Triangular Footprint	Surface Mount Triangular Footprint
Resistance Range	100Ω to 1MΩ (1, 2, 3, 5 Sequence)	100Ω to 1MΩ (1, 2, 3, 5 Sequence)
Resistance Tolerance	± 25%	± 25%
Power Rating	0.1 W at +70°C 0 W at +100°C	0.15 W at +70°C 0 W at +100°C
Maximum Working Voltage	50V	50V or $\sqrt{PR} = V$, whichever is smaller
Temperature Range	-40°C to +100°C	-40°C to +100°C
Temperature Coefficient	± 250 ppm/°C	± 250 ppm/°C
Operating Torque	0.49 – 7.84 mN•m (5 – 80 gf•cm)	0.98 – 11.76 mN•m (10 – 120 gf•cm)

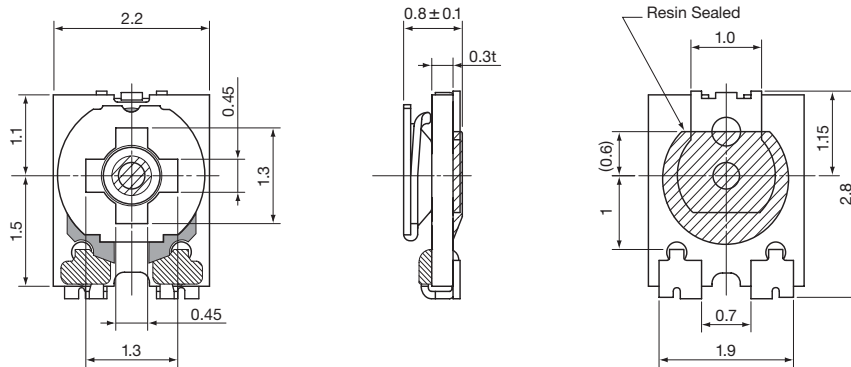
Standard Nominal Resistance Values with Ordering Codes

Standard Nominal Resistances and Ordering Codes	Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code
	100	101	1,000	102	10,000	103	100,000	104
	200	201	2,000	202	20,000	203	200,000	204
	300	301	3,000	302	30,000	303	300,000	304
	500	501	5,000	502	50,000	503	500,000	504
	—	—	—	—	—	—	1,000,000	105

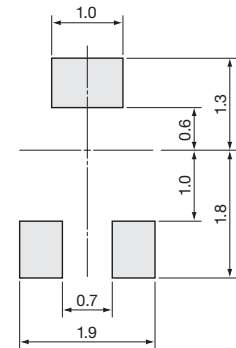
Dimensions for Surface Mount Single-Turn Trimmers

VG026 2mm Surface Mount, Cross-Slot, Single-Turn

Unit: mm



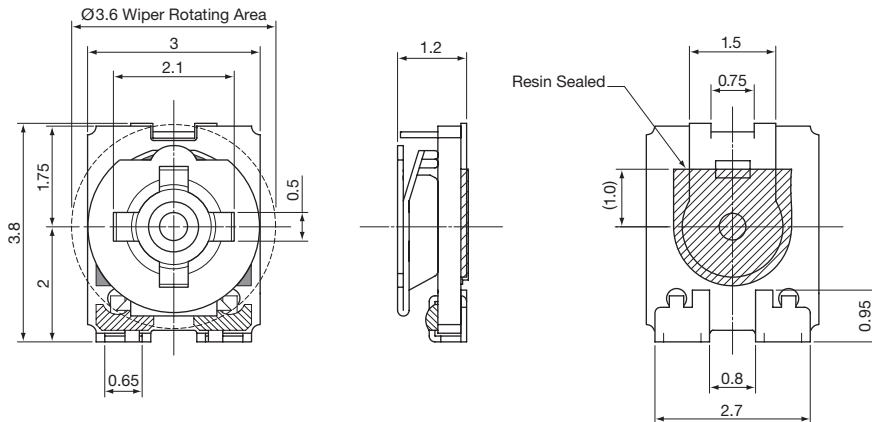
Recommended Land Pattern



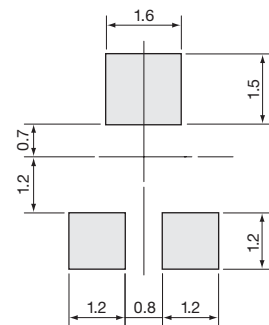
□ Solder Pads

Packaging
8mm Embossed Tape; 3,000 Pieces Per Ø180 mm Reel

VG039N 3mm Surface Mount, Cross-Slot, Single-Turn



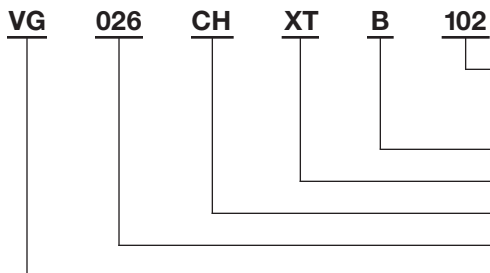
Recommended Land Pattern



□ Solder Pads

Packaging
8mm Embossed Tape; 2,500 Pieces Per Ø180 mm Reel

Part Numbering System for Surface Mount VG026 and VG039N



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: XT = Tape; Blank = Bulk.

Design Type: Surface Mount Chip.

Size: 026 = 2mm; 039N = 3mm (See Dimensions).

TOCOS Series: VG = Cermet.

Specifications for Through-Hole Single-Turn Trimmers

Series	VG067 Series	VZ067 Series
Model Examples		
Features	<ul style="list-style-type: none"> ■ Cermet Through-Hole, Single-Turn Trimmers ■ Horizontal and Vertical Mounting Styles ■ Cross-Slot Dust Resistant Cap ■ PC Board Standoff Terminals with Snap-in Retention Configuration ■ Stable Performance in Adverse Ambient Conditions ■ Suitable for Automatic Adjustment Equipment ■ RoHS Compliant: Pb-Free and Cd-Free 	<ul style="list-style-type: none"> ■ Carbon Through-Hole, Single-Turn Trimmers ■ Horizontal and Vertical Mounting Styles ■ Cross-Slot Dust Resistant Cap ■ PC Board Standoff Terminals with Snap-in Retention Configuration ■ Stable Performance in Adverse Ambient Conditions ■ Suitable for Automatic Adjustment Equipment ■ RoHS Compliant: Pb-Free and Cd-Free
Nominal Size and Construction	6.8mm x 8.4mm Open Frame, Through-Hole	6.8mm x 8.4mm Open Frame, Through-Hole
Resistive Element	Cermet	Carbon
Adjustment Travel	Single-Turn: 240° ± 10°	Single-Turn: 240° ± 10°
Adjustment Type	Top Adjust or Side Adjust Cross-Slot Dust Resistant Cap	Top Adjust or Side Adjust Cross-Slot Dust Resistant Cap
Terminal Style	Snap-In, Standoff Through-Hole Pins Triangular Footprint	Snap-In, Standoff Through-Hole Pins Triangular Footprint
Resistance Range	100Ω to 1MΩ (1, 2, 3, 5 Sequence)	100Ω to 1MΩ (1, 2, 3, 5 Sequence)
Resistance Tolerance	± 25%	± 25%
Residual Resistance	Within 1% of Total Resistance Value 1kΩ: 10Ω max.; 100kΩ: < 5% max.	Within 1% of Total Resistance Value 1kΩ: 10Ω max.; 100kΩ: < 5% max.
Noise (C.R.V.)	Within 4% of Total Resistance Value	Within 4% of Total Resistance Value
Power Rating	0.2 W at +70°C 0 W at +100°C	0.1 W at +70°C 0 W at +100°C
Maximum Working Voltage	100V or $\sqrt{PR} = V$, whichever is smaller	100V or $\sqrt{PR} = V$, whichever is smaller
Temperature Range	-25°C to +100°C	-25°C to +100°C
Temperature Coefficient	± 250 ppm/°C	—
Operating Torque	2.94 – 29.4 mN•m (30 – 300 gf•cm)	2.94 – 29.4 mN•m (30 – 300 gf•cm)
Stop Strength	49.0 mN•m (500 gf•cm)	49.0 mN•m (500 gf•cm)

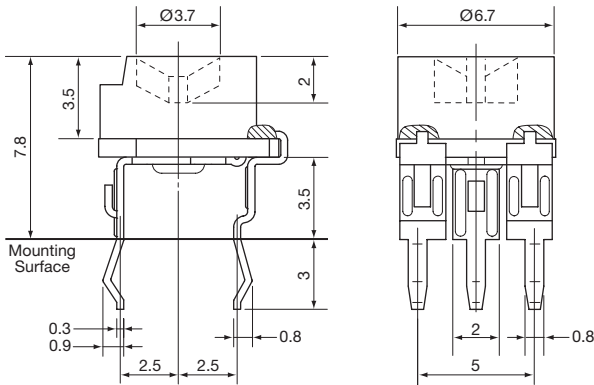
Standard Nominal Resistance Values with Ordering Codes

Standard Nominal Resistances and Ordering Codes	Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code
	100	101	1,000	102	10,000	103	100,000	104
200	201	2,000	202	20,000	203	200,000	204	
300	301	3,000	302	30,000	303	300,000	304	
500	501	5,000	502	50,000	503	500,000	504	
—	—	—	—	—	—	1,000,000	105	

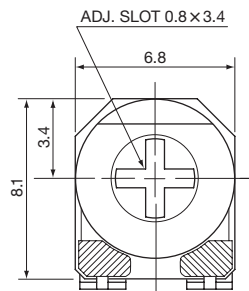
Dimensions for Through-Hole Single-Turn Trimmers

VG067TL1 and VZ067TL1 Through-Hole, Horizontal Mount, Cross-Slot, Top Adjust

Unit: mm

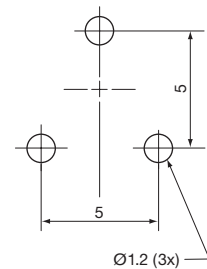


Top View



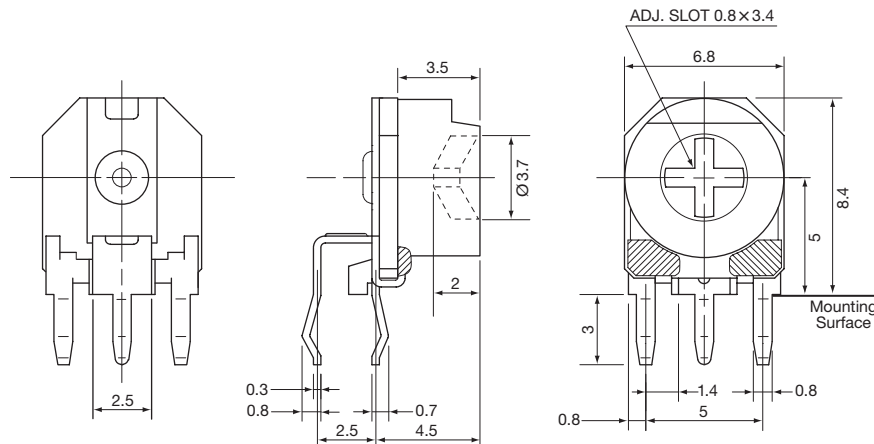
Recommended PCB Layout

L1 Top Adjust Pin-Out



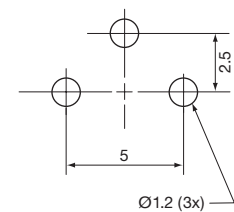
Standard Packaging
Bulk, 500 Pieces Per Bag
Contact Tocos for Optional Tape and Reel or Ammo Box Packaging.

VG067TH1 and VZ067TH1 Through-Hole, Vertical Mount, Cross-Slot, Side Adjust



Recommended PCB Layout

H1 Side Adjust Pin-Out



Standard Packaging
Bulk, 500 Pieces Per Bag
Contact Tocos for Optional Tape and Reel or Ammo Box Packaging.

Part Numbering System for Through-Hole VG067 and VZ067

VZ **067** **T** **H1** **B** **204**

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., 200 = 20Ω; 201 = 200Ω; 202 = 2,000Ω; 203 = 20,000Ω).

Resistance Taper: B = Linear.

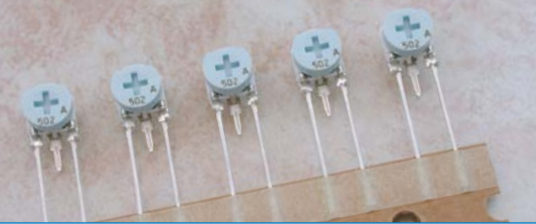
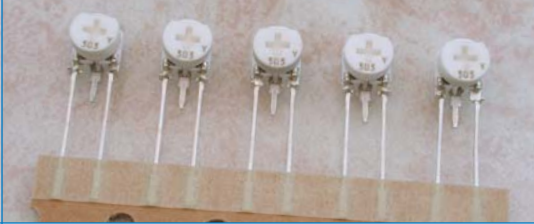
Mounting Style: L1 = Horizontal (Top Adjust); H1 = Vertical (Side Adjust)

Design Type: T = Dust Resistant Cap.

Size: 067 = 6mm (See Dimensions).

TOCOS Series: VG = Cermet; VZ = Carbon.

Specifications for Through-Hole Single-Turn Trimmers

Series	NVG6 Series	NVZ6 Series
Model Examples		
Features	<ul style="list-style-type: none"> ■ Cermet Through-Hole, Single-Turn Trimmers ■ Adjustable from Both Sides ■ Front/Top Cross-Slot Dust Cap or Back/Bottom Single-Slot Blade Adjustment ■ Straight Standoff Terminals ■ Radial Lead Paper Tape Packaged in Ammo Box ■ Stable Performance in Adverse Ambient Conditions ■ RoHS Compliant: Pb-Free and Cd-Free 	<ul style="list-style-type: none"> ■ Carbon Through-Hole, Single-Turn Trimmers ■ Adjustable from Both Sides ■ Front/Top Cross-Slot Dust Cap or Back/Bottom Single-Slot Blade Adjustment ■ Straight Standoff Terminals ■ Radial Lead Paper Tape Packaged in Ammo Box ■ Stable Performance in Adverse Ambient Conditions ■ RoHS Compliant: Pb-Free and Cd-Free
Nominal Size and Construction	6.8mm x 8.4mm Open Frame, Through-Hole	6.8mm x 8.4mm Open Frame, Through-Hole
Resistive Element	Cermet	Carbon
Adjustment Travel	Single-Turn: 240° ± 10°	Single-Turn: 240° ± 10°
Adjustment Type	Front/Top Cross-Slot Dust Cap or Back/Bottom Single-Slot Blade Adjustment	Front/Top Cross-Slot Dust Cap or Back/Bottom Single-Slot Blade Adjustment
Terminal Style	Triangular Footprint, Standoff Straight Pins Radial Lead Paper Taping for Automatic Insertion	Triangular Footprint, Standoff Straight Pins Radial Lead Paper Taping for Automatic Insertion
Resistance Range	100Ω to 1MΩ (1, 2, 3, 5 Sequence)	100Ω to 1MΩ (1, 2, 3, 5 Sequence)
Resistance Tolerance	± 30%	± 30%
Residual Resistance	Within 2% of Total Resistance Value 1kΩ: 10Ω max.; 100kΩ: < 5% max.	Within 2% of Total Resistance Value 1kΩ: 10Ω max.; 100kΩ: < 5% max.
Noise (C.R.V.)	Within 4% of Total Resistance Value	Within 4% of Total Resistance Value
Power Rating	0.3 W at +70°C 0 W at +100°C	0.1 W at +70°C 0 W at +100°C
Maximum Working Voltage	100V or $\sqrt{PR} = V$, whichever is smaller	100V or $\sqrt{PR} = V$, whichever is smaller
Temperature Range	-25°C to +100°C	-25°C to +100°C
Temperature Coefficient	± 250 ppm/°C	—
Operating Torque	0.98 – 29.4 mN•m (10 – 300 gf•cm)	0.98 – 29.4 mN•m (10 – 300 gf•cm)
Stop Strength	49.0 mN•m (500 gf•cm)	49.0 mN•m (500 gf•cm)

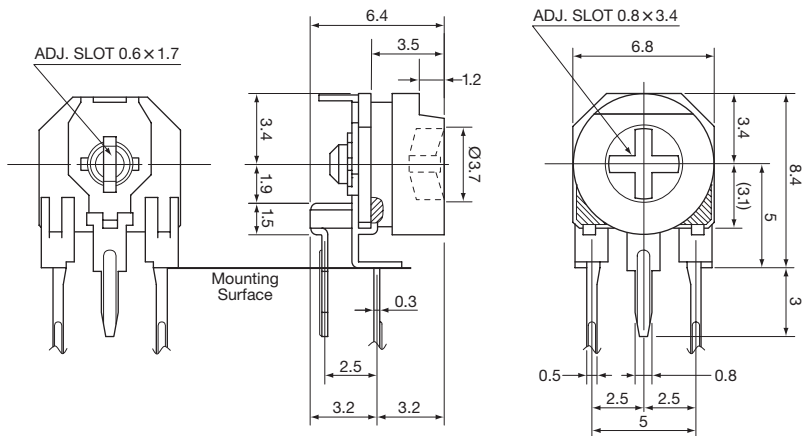
Standard Nominal Resistance Values with Ordering Codes

Standard Nominal Resistances and Ordering Codes	Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code
	100	101	1,000	102	10,000	103	100,000	104
	200	201	2,000	202	20,000	203	200,000	204
	300	301	3,000	302	30,000	303	300,000	304
	500	501	5,000	502	50,000	503	500,000	504
	—	—	—	—	—	—	1,000,000	105

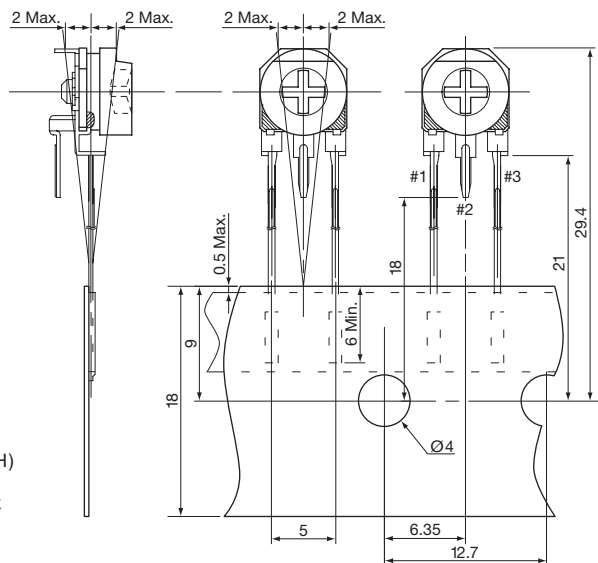
Dimensions for Through-Hole Single-Turn Trimmers

NVG6THT and NVZ6THT Through-Hole, Vertical Mount, Cross-Slot, Side Adjust (Front or Back)

Unit: mm



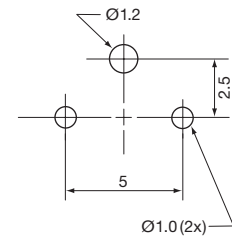
Tape Dimensions Radial Lead Paper Taping



Packaging 18mm Paper Tape Ammo Box (L x W x H) 335 x 330 x 50mm 1,000 Pieces Per Box

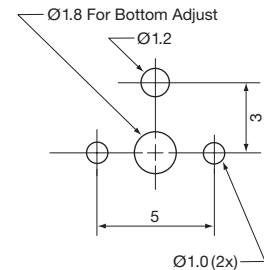
Recommended PCB Layout

HT Side Adjust Pin-Out



NVG6TLTA and NVZ6TLTA Top Adjust Models Available with this Recommended PCB Layout

LTA Top Adjust Pin-Out



Part Numbering System for Through-Hole NVG6 and NVZ6

NVZ 6 T HT B 302

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., 300 = 30 Ω ; 301 = 300 Ω ; 302 = 3,000 Ω ; 303 = 30,000 Ω).

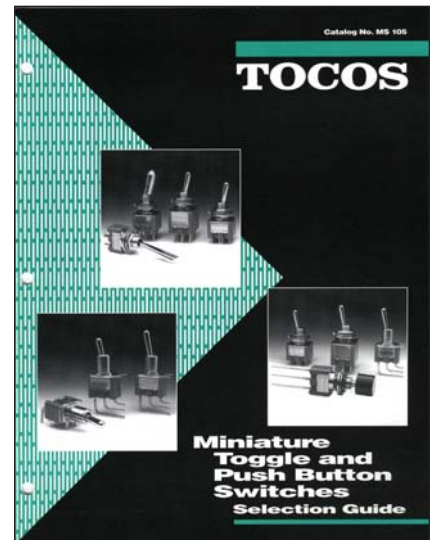
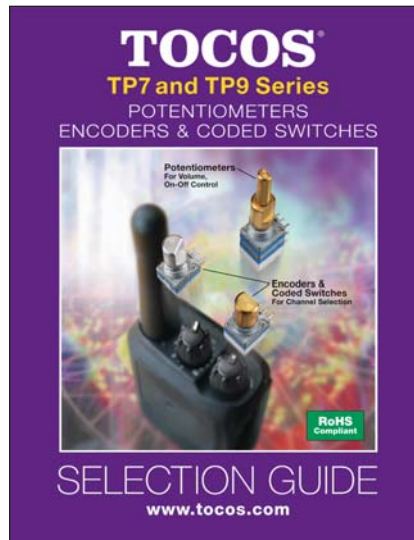
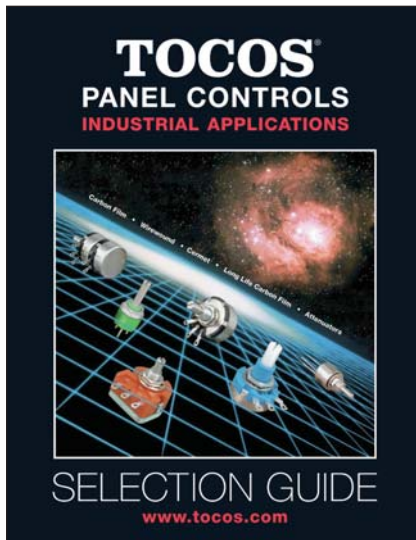
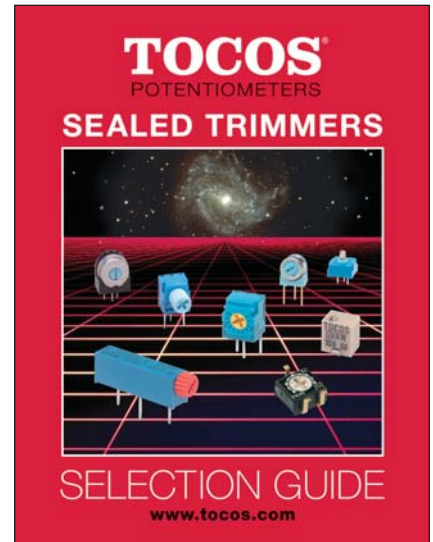
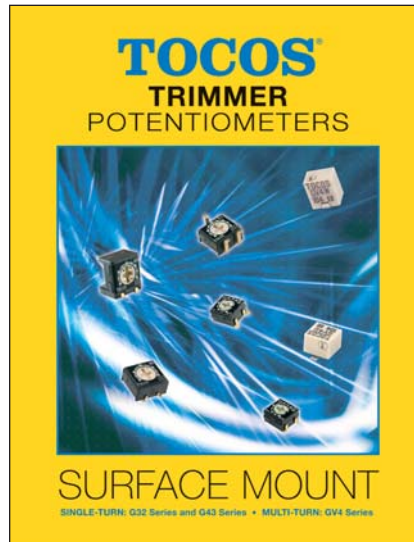
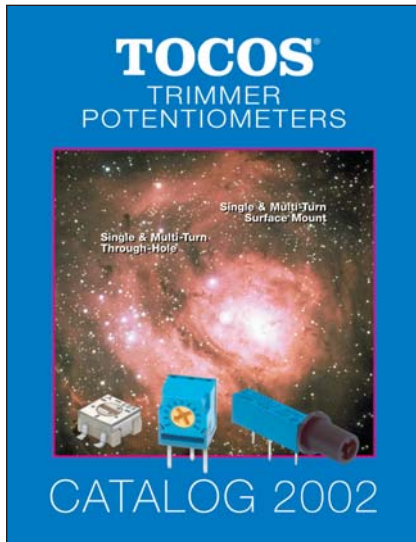
Resistance Taper: B = Linear.

Mounting Style: HT = Vertical (Side Adjust); LTA = Horizontal (Top Adjust).

Design Type: T = Dust Resistant Cap.

Size: 6 = 6mm (See Dimensions).

TOCOS Series: NVG = Cermet; NVZ = Carbon.



All catalogs are downloadable from our website:

www.tocos.com

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