

Features

- Surface Mount 4 mm Square / Multiturn Cermet / Industrial / Sealed
- Halogen free** with date code 114
- Sealed to withstand board wash processing
- Pick and place centering design, with flush adjustment
- 4mm design meets EIA/EIAJ/IPC/VECI SMD standard trimmer footprint
- Low CRV - 1 %
- RoHS compliant* - see [processing information](#) on RoHS compliant surface mount trimmers
- For trimmer applications/processing guidelines, [click here](#)

3224 - 4 mm SMD Trimpot® Trimming Potentiometer

Electrical Characteristics

Standard Resistance Range 10 to 2 megohm
 (see standard resistance table)
 Resistance Tolerance ±10 % std.
 Absolute Min. Resistance 1 % or 2.0 ohms
 (whichever is greater)
 Contact Resistance Variation 1 % or 3 ohms max.
 Resolution Essentially Infinite
 Insulation Resistance 500 vdc.
 100 megohms min.
 Dielectric Strength
 Sea Level 600 vac (1 minute)
 Adjustment Angle 12 turns nom.

Environmental Characteristics

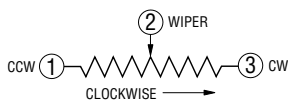
Power Rating (300 volts max.)
 85 °C 0.25 watt
 150 °C 0 watt
 Temperature Range -65 °C to +150 °C
 Temperature Coefficient ±100 ppm/°C
 Seal Test 85 °C Fluorinert I/60 seconds
 Humidity MIL-STD 202 Method 106
 TRS ±2 %; IR 10 megohms
 Vibration 20 G TRS ±1 %; VRS ±1 %
 Shock 100 G TRS ±1 %; VRS ±1 %
 Load Life @ 85 °C rated power 1,000 hours
 TRS 3 ohms or 3 % (whichever is greater)
 Rotational Cycling 200 cycles
 TRS 3 ohms or 3 % (whichever is greater)
 Thermal Shock 5 cycles
 TRS ±2 %; VRS ±1 %
 Moisture Sensitivity Level N/A
 ESD Classification 2

Physical Characteristics

Mechanical Stop Wiper idles
 Torque 180 g-cm max.
 Weight Approximately 0.01 oz.
 Marking Manufacturer's code, resistance code and date code
 Solderability Per MIL-STD-202, Method 208
 Wiper 50 % (Actual TR) ±10 %
 Flammability UL94V0
 Pushover Strength
 J, G 4.4 lbs.
 W, X 1 lb.
 Adjustment Tool H-91

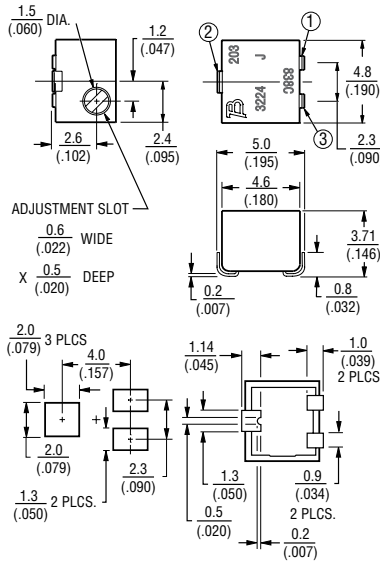
DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

TOLERANCES: ± $\frac{0.25}{(.010)}$ EXCEPT WHERE NOTED

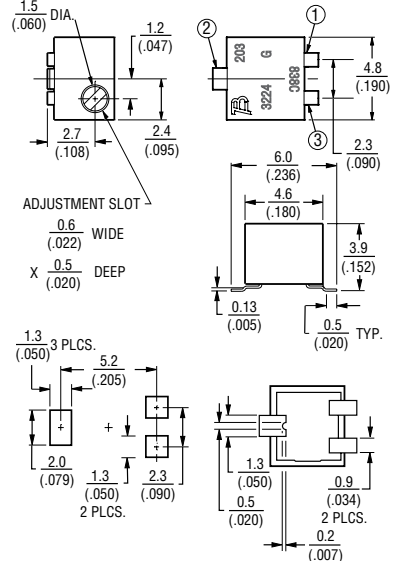


Product Dimensions

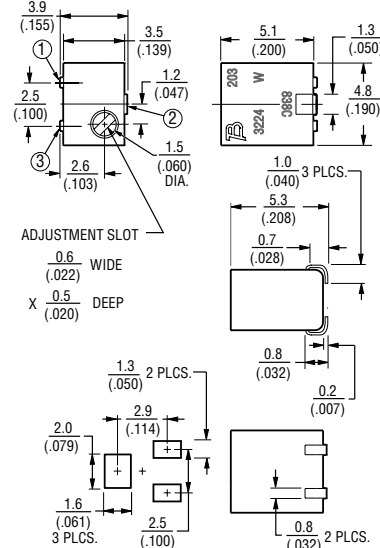
3224J Side Adjust



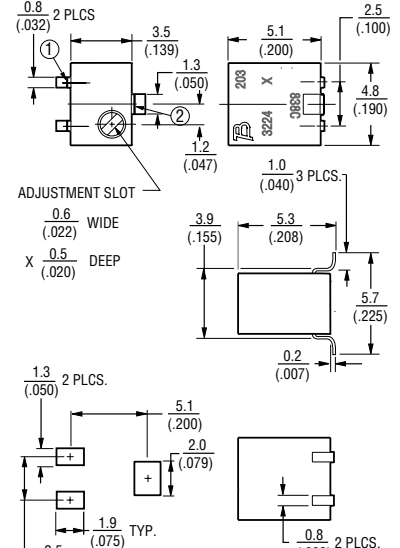
3224G Side Adjust



3224W Top Adjust



3224X Top Adjust



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

* RoHS Directive 2015/863, Mar. 31, 2015 and Annex

** Bourns follows the prevailing definition of "halogen free" in the industry. Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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WARNING Cancer and Reproductive Harm
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Additional Features

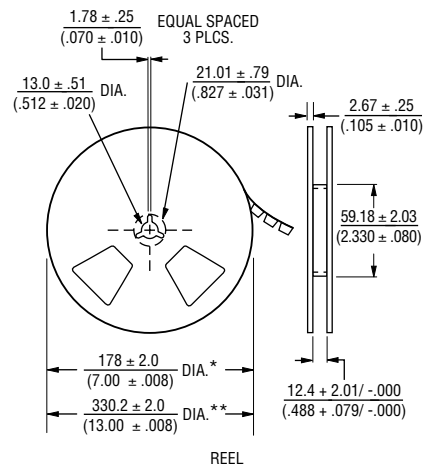
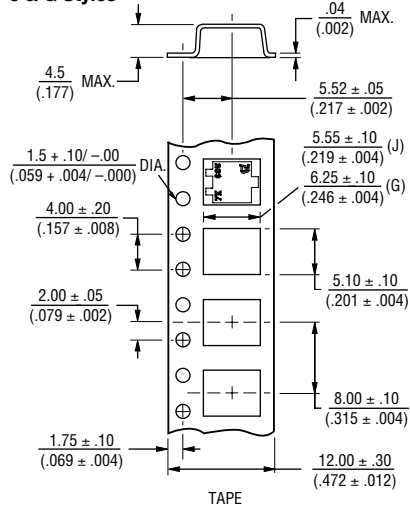
- Top and side adjust styles
- J-hook, and gull-wing

3224 - 4 mm SMD Trimpot® Trimming Potentiometer

BOURNS®

Packaging Specifications

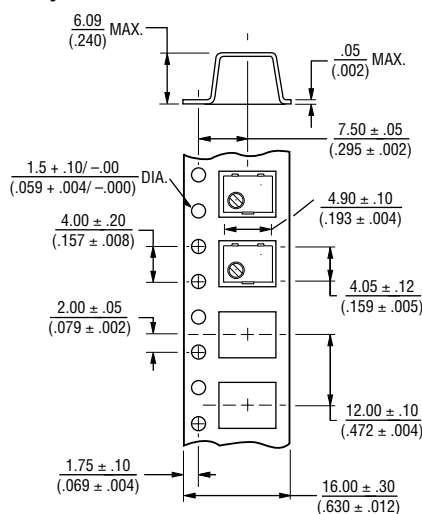
J & G Styles



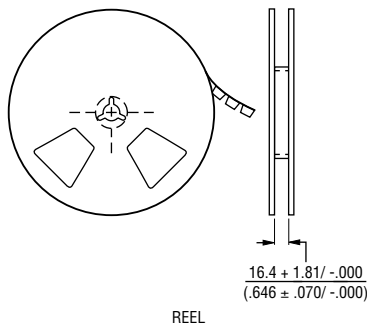
* Embossed Tape Designator "E"
 ** Embossed Tape Designator "G"
 (See How To Order chart for further information.)

Cover tape peel strength: Meets EIA specification 481.

W Style



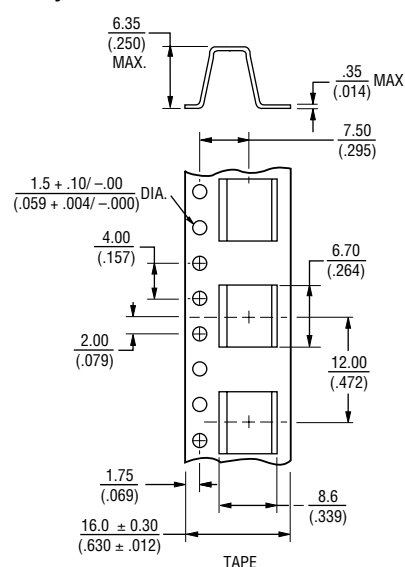
W & X Style Reel



* Embossed Tape Designator "E"
 ** Embossed Tape Designator "G"
 (See How To Order chart for further information.)

Cover tape peel strength: Meets EIA specification 481.

X Style



How To Order

Model **3224 J - 1 - 502 E**

Style _____

Standard or Modified Product Indicator _____

-1= IR Reflow (standard)
 †-2= Wave Solderable
 -FW5= .070" ± .010" Shaft Extension

Resistance Code _____

Embossed Tape Designator _____

E = Style J, G: 500 pcs./7" reel (standard)
 Style W: 250 pcs./7" reel (standard)
 Style X: 200 pcs./7" reel (standard)
 G = Style J, G: 1500 pcs./13" reel (standard)
 Style W: 1000 pcs./13" reel (standard)
 Style X: 850 pcs./13" reel (standard)
 Blank = Style J, G: 1500 pcs./13" reel (FW5)
 Style W, X: 600 pcs./13" reel (FW5)

Consult factory for other available options.
 †-2 has a treated stainless steel shaft.

Tape and reel material meets Antistatic ANSI/ESD 5541-2003 packaging standards.

Standard Resistance Table

Resistance (Ohms)	Resistance Code
10	100
20	200
50	500
100	101
200	201
500	501
1,000	102
2,000	202

Resistance (Ohms)	Resistance Code
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105
2,000,000	205

Popular distribution values listed in boldface.
 Special resistances available.

REV. 08/19

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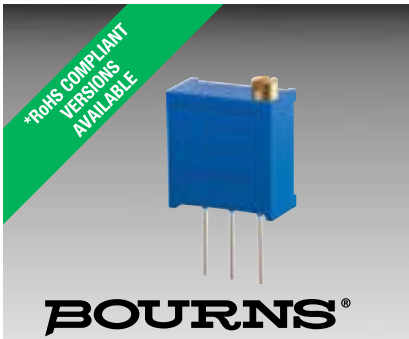
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PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>



Features

- Multiturn / Cermet / Industrial / Sealed
- 5 terminal styles
- Tape and reel packaging available
- Chevron seal design
- [Listed on the QPL](#) for style [RJ24](#) per MIL-R-22097 and [RJ24](#) per High-Rel Mil-R-39035

- [Mounting hardware available \(H-117P\)](#)
- RoHS compliant* version available
- For trimmer applications/processing guidelines, [click here](#)

3296 - 3/8" Square Trimpot® Trimming Potentiometer

Electrical Characteristics

Standard Resistance Range	10 ohms to 2 megohms (see standard resistance table)
Resistance Tolerance	±10 % std. (tighter tolerance available)
Absolute Minimum Resistance	1 % or 2 ohms max. (whichever is greater)
Contact Resistance Variation	1.0 % or 3 ohms max. (whichever is greater)
Adjustability	
Voltage	±0.01 %
Resistance	±0.05 %
Resolution	Infinite
Insulation Resistance	500 vdc. 1,000 megohms min.
Dielectric Strength	
Sea Level	900 vac
70,000 Feet	350 vac
Effective Travel	25 turns nom.

Environmental Characteristics

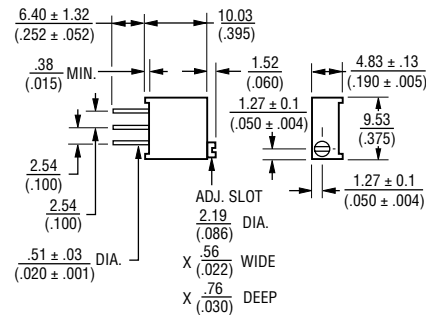
Power Rating (300 volts max.)	
70 °C	0.5 watt
125 °C	0 watt
Temperature Range	-55 °C to +125 °C
Temperature Coefficient	±100 ppm/°C
Seal Test	85 °C Fluorinert†
Humidity	MIL-STD-202 Method 103 96 hours
	(2 % ΔTR, 10 Megohms IR)
Vibration	20 G (1 % ΔTR; 1 % ΔVR)
Shock	100 G (1 % ΔTR; 1 % ΔVR)
Load Life	1,000 hours 0.5 watt @ 70 °C (3 % ΔTR; 3 % or 3 ohms, whichever is greater, CRV)
Rotational Life	200 cycles (4 % ΔTR; 3 % or 3 ohms, whichever is greater, CRV)
Moisture Sensitivity Level	N/A
ESD Classification (HBM)	2

Physical Characteristics

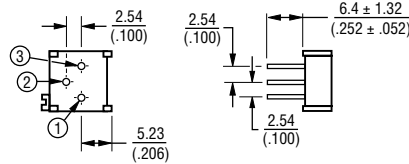
Torque	3.0 oz-in. max.
Mechanical Stops	Wiper idles
Terminals	Solderable pins
Weight	0.03 oz.
Marking	Manufacturer's trademark, resistance code, wiring diagram, date code, mfr's. model number and style
Wiper	50 % (Actual TR) ±10 %
Flammability	U.L. 94V-0
Standard Packaging	50 pcs. per tube
Adjustment Tool	H-90

Product Dimensions

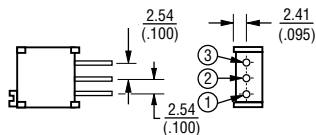
Common Dimensions



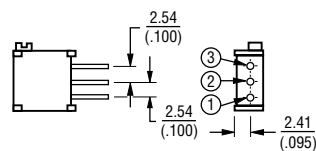
3296P



3296W



3296X

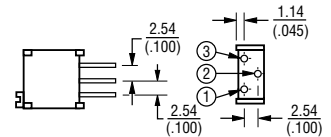


Standard Resistance Table

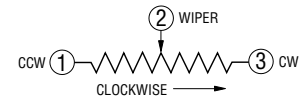
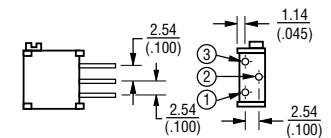
Resistance (Ohms)	Resistance Code
10	100
20	200
50	500
100	101
200	201
500	501
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
25,000	253
50,000	503
100,000	104
200,000	204
250,000	254
500,000	504
1,000,000	105
2,000,000	205

Popular values listed in boldface. Special resistances available.

3296Y



3296Z



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

TOLERANCES: ± $\frac{0.25}{(.010)}$ EXCEPT WHERE NOTED

How To Order

Model	3296 W - 1 - 103	LF
Style		
Standard or Modified Product Indicator		
-1 = Standard Product		
Resistance Code		
Packaging Designator		
Blank = Tube (Standard)		
R = Tape and Reel (X and W Pin Styles Only)		
A = Ammo Pack (X and W Pin Styles Only)		
Tape and reel material meets Antistatic ANSI/ESD 5541-2003 packaging standards.		
Terminations		
LF = 100 % Tin-plated (RoHS compliant)		
Blank = 90 % Tin / 10 % Lead-plated (Standard)		

Consult factory for other available options.



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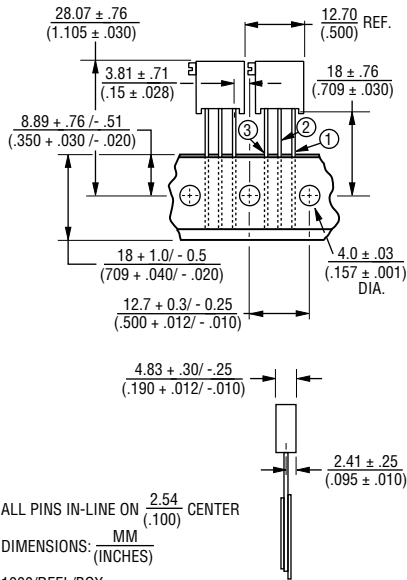
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3296 - 3/8" Square Trimpot® Trimming Potentiometer

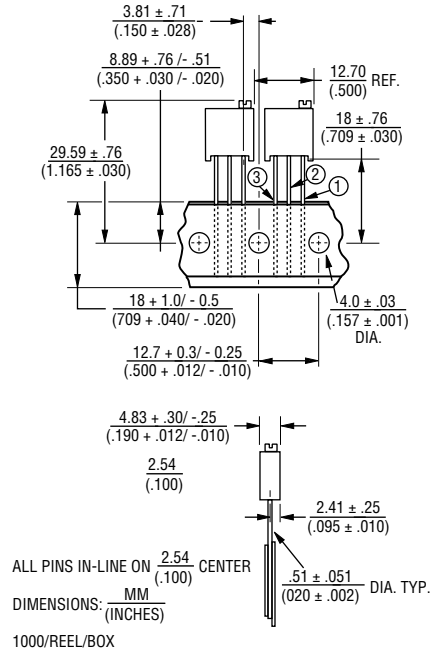
BOURNS®

Packaging Specifications

SIDE ADJUST 3296X-1



TOP ADJUST 3296W-1



Meets EIA Specification 468.

BOURNS®

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PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>

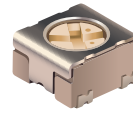
Trimmer Potentiometers



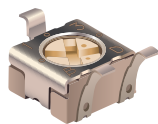
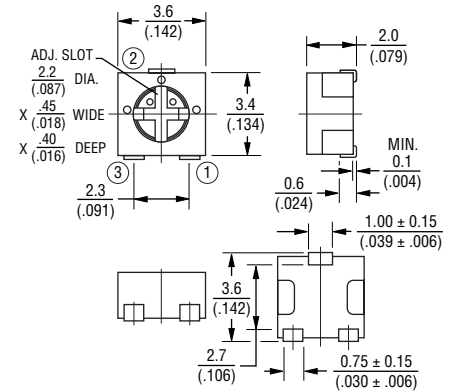
SMD Sealed Type Single-Turn PVG3 Series

■ Features

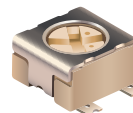
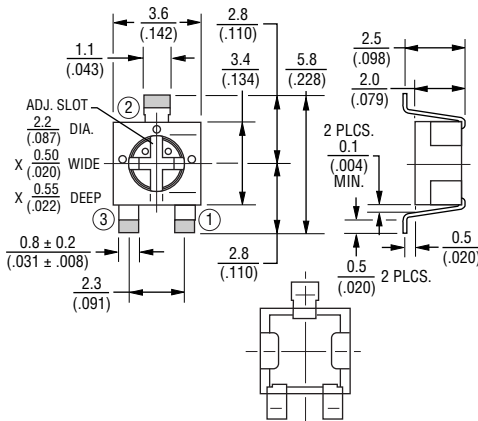
1. Surface Mount 3 mm Square / Single-turn / Cermet / Sealed
2. Available in J-hook, gull-wing and reverse gull-wing pin styles
3. Units can be pre-adjusted at clockwise, counter-clockwise or standard 50 % position
4. 3 mm design meets EIA/EIAJ/IPC/VECI SMD standard trimmer footprint
5. RoHS compliant*
6. Metal cover for thermal protection/heat transfer
7. Units tested under 85 °C water test for 60 seconds, no bubbles



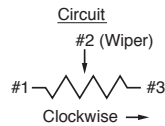
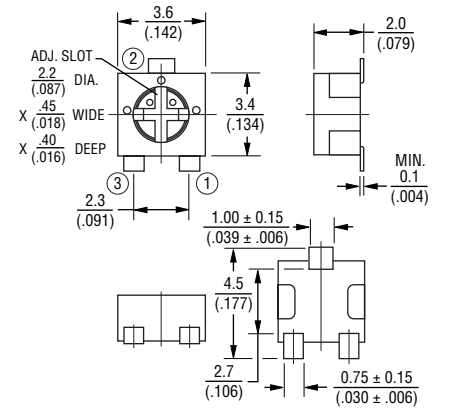
PVG3A



PVG3K



PVG3G



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$ TOLERANCES: $\pm \frac{0.25}{(.010)}$ EXCEPT WHERE NOTED

Top Adjustment (Standard J-Hook Style)

Part Number	Power Rating (W)	Number of Turns (Effective Rotation Angle)	Mechanical Rotation Angle	Total Resistance Value	TCR (ppm/°C)
PVG3A100C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	10 ohm ± 20%	±150
PVG3A200C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	20 ohm ± 20%	±150
PVG3A500C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	50 ohm ± 20%	±150
PVG3A101C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	100 ohm ± 20%	±150
PVG3A201C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	200 ohm ± 20%	±150
PVG3A501C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	500 ohm ± 20%	±150
PVG3A102C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	1k ohm ± 20%	±150
PVG3A202C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	2k ohm ± 20%	±150
PVG3A502C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	5k ohm ± 20%	±150
PVG3A103C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	10k ohm ± 20%	±150
PVG3A203C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	20k ohm ± 20%	±150
PVG3A503C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	50k ohm ± 20%	±150
PVG3A104C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	100k ohm ± 20%	±150
PVG3A204C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	200k ohm ± 20%	±150
PVG3A504C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	500k ohm ± 20%	±150
PVG3A105C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	1M ohm ± 20%	±150
PVG3A205C01	0.25 (70 °C)	1 (210 ° ± 10 °)	250 ± 10 °	2M ohm ± 20%	±150

Operating Temperature Range: -55 to +125 °C
Soldering Method: Reflow / Soldering Iron



WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar. 31, 2015 and Annex.
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Top Adjustment (Gull-Wing Style)

Part Number	Power Rating (W)	Number of Turns (Effective Rotation Angle)	Mechanical Rotation Angle	Total Resistance Value	TCR (ppm/°C)
PVG3G100C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	10 ohm ± 20%	±150
PVG3G200C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	20 ohm ± 20%	±150
PVG3G500C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	50 ohm ± 20%	±150
PVG3G101C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	100 ohm ± 20%	±150
PVG3G201C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	200 ohm ± 20%	±150
PVG3G501C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	500 ohm ± 20%	±150
PVG3G102C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	1k ohm ± 20%	±150
PVG3G202C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	2k ohm ± 20%	±150
PVG3G502C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	5k ohm ± 20%	±150
PVG3G103C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	10k ohm ± 20%	±150
PVG3G203C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	20k ohm ± 20%	±150
PVG3G503C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	50k ohm ± 20%	±150
PVG3G104C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	100k ohm ± 20%	±150
PVG3G204C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	200k ohm ± 20%	±150
PVG3G504C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	500k ohm ± 20%	±150
PVG3G105C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	1M ohm ± 20%	±150
PVG3G205C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	2M ohm ± 20%	±150

Operating Temperature Range: -55 to +125 °C
Soldering Method: Reflow / Soldering Iron

Rear Adjustment (Reverse Gull-Wing Style)

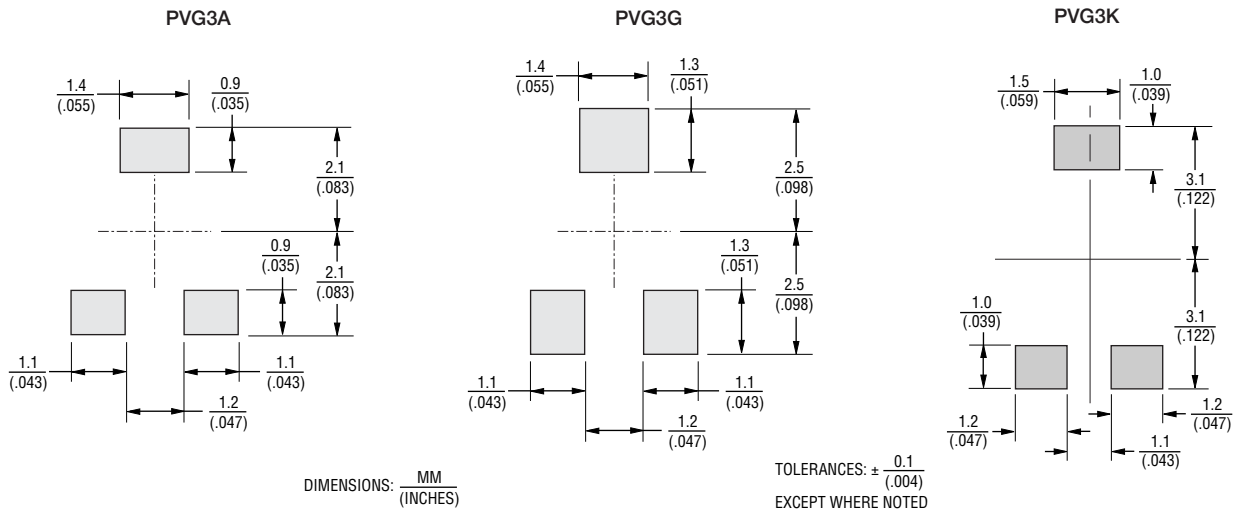
Part Number	Power Rating (W)	Number of Turns (Effective Rotation Angle)	Mechanical Rotation Angle	Total Resistance Value	TCR (ppm/°C)
PVG3K100C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	10 ohm ± 20%	±150
PVG3K200C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	20 ohm ± 20%	±150
PVG3K500C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	50 ohm ± 20%	±150
PVG3K101C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	100 ohm ± 20%	±150
PVG3K201C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	200 ohm ± 20%	±150
PVG3K501C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	500 ohm ± 20%	±150
PVG3K102C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	1k ohm ± 20%	±150
PVG3K202C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	2k ohm ± 20%	±150
PVG3K502C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	5k ohm ± 20%	±150
PVG3K103C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	10k ohm ± 20%	±150
PVG3K203C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	20k ohm ± 20%	±150
PVG3K503C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	50k ohm ± 20%	±150
PVG3K104C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	100k ohm ± 20%	±150
PVG3K204C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	200k ohm ± 20%	±150
PVG3K504C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	500k ohm ± 20%	±150
PVG3K105C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	1M ohm ± 20%	±150
PVG3K205C01	0.25 (70 °C)	1 (210 ° ±10 °)	250 ± 10 °	2M ohm ± 20%	±150

Operating Temperature Range: -55 to +125 °C
Soldering Method: Reflow / Soldering Iron

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Standard Land Patterns



Characteristics

Temperature Cycle	$\Delta\text{TR} : \pm 2\%$ $\Delta\text{V.S.S.} : \pm 1\%$
Humidity	$\Delta\text{TR} : \pm 2\%$ IR : 10M ohm min.
Vibration (20G)	$\Delta\text{TR} : \pm 1\%$ $\Delta\text{V.S.S.} : \pm 1\%$
Shock (100G)	$\Delta\text{TR} : \pm 1\%$ $\Delta\text{V.S.S.} : \pm 1\%$
Temperature Load Life	$\Delta\text{TR} : \pm 3\%$ or 3 ohm max., whichever is greater $\Delta\text{V.S.S.} : \pm 1\%$
Low Temperature Exposure	$\Delta\text{TR} : \pm 2\%$ $\Delta\text{V.S.S.} : \pm 2\%$
High Temperature Exposure	$\Delta\text{TR} : \pm 3\%$ $\Delta\text{V.S.S.} : \pm 2\%$
Rotational Life	$\Delta\text{TR} : R \leq 100 \text{ kohm}$ $\pm 3\%$ or 2 ohm max., whichever is greater $R > 100 \text{ kohm}$ +0/-10% (50 cycles)

ΔTR : Total Resistance Change
 $\Delta\text{V.S.S.}$: Voltage Setting Stability
 IR : Insulation Resistance

Part Numbering

PV G3 A 103 C01 R00

Product ID _____
 PV = Trimming Potentiometer

Series _____
 G3 = SMD Sealed 3 mm Square, Single-Turn

Pin Style _____
 A = J-Hook
 G = Gull-Wing
 K = Reverse Gull-Wing

Total Resistance _____
 Expressed by three figures.
 The first and second figures are significant digits; the third figure expresses the number of zeros that follow.

Resistance (Ohms)	Resistance Code
10	100
20	200
50	500
100	101
200	201
500	501
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105
2,000,000	205

Popular distribution values listed in boldface.
 Special resistances available.

Individual Specification _____
 C01 = Standard Type

Packaging _____
 R00 = Tape and Reel (1,000 pcs./7" reel)

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