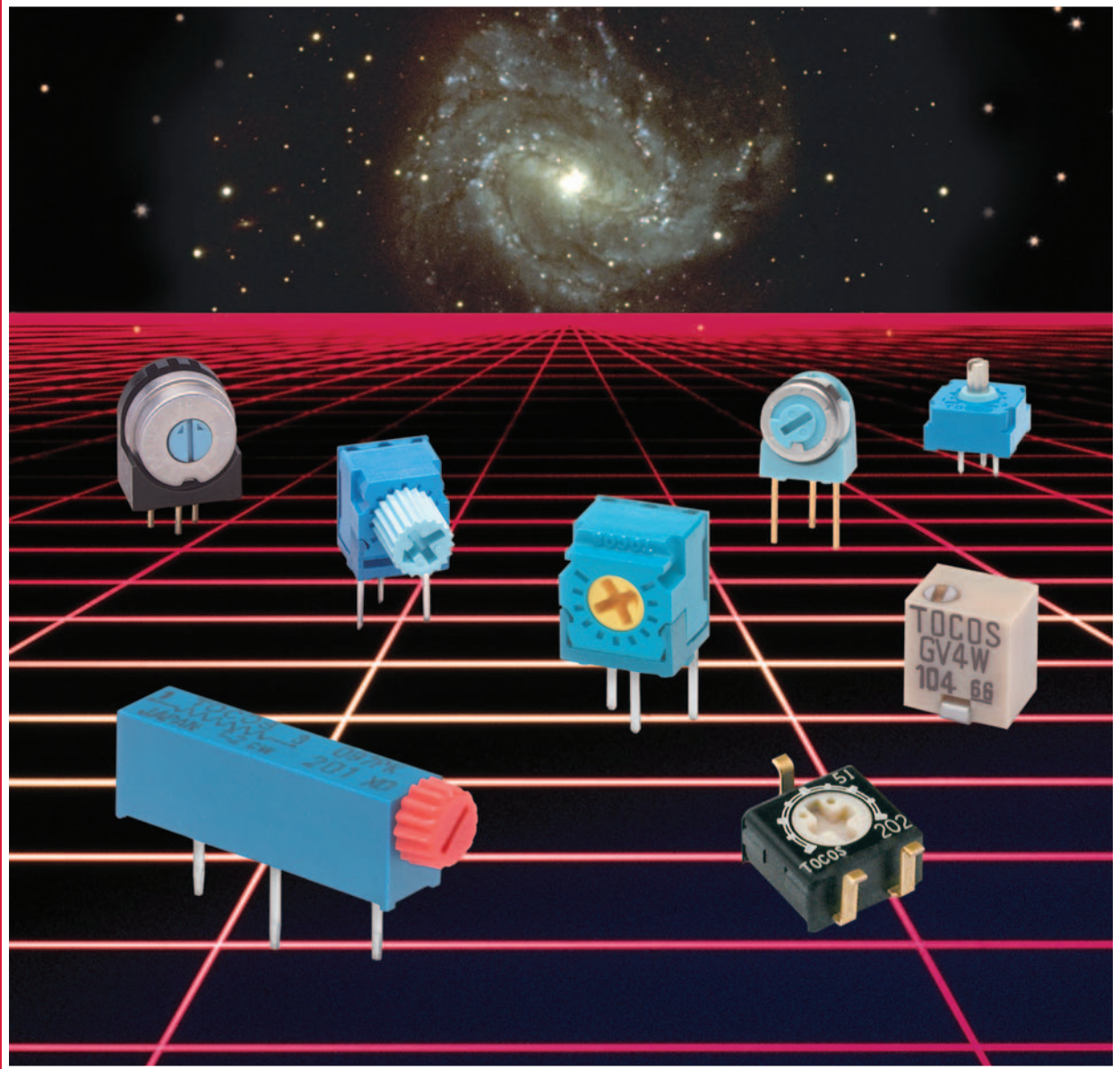


# TOCOS<sup>®</sup>

POTENTIOMETERS

## SEALED TRIMMERS



# SELECTION GUIDE



[www.tocos.com](http://www.tocos.com)

## Surface Mount Single-Turn Trimmers

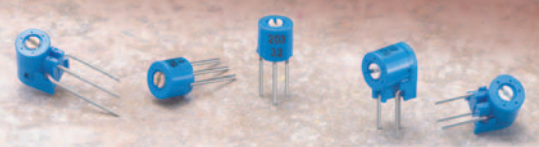

Series	G32 Series	G43 Series
Model Examples		
Nominal Size and Construction	3mm Square Sealed SMD	4mm Square Sealed SMD
Resistive Element	Cermet	Cermet
Adjustment Travel	Single-Turn: 220° ± 10°	Single-Turn: 210° ± 10°
Adjustment Type	Top Adjust Cross-Slot (Single-Slot Available as Special Order)	Top, Side and Bottom Adjust Cross-Slot
Terminal Style	Gold-plated J-Hook: A Gold-plated Gull-Wing: B	Gold-plated J-Hook: A, D, SA Gold-plated Gull-Wing: B, E, BF
Resistance Range	50Ω to 2MΩ (Standard 1, 2 and 5 Sequence)	10Ω to 2MΩ (Standard 1, 2 and 5 Sequence)
Resistance Tolerance	± 20% Standard	± 20% Standard
Power Rating	0.125 W at +70°C 0 W at +125°C	0.25 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	Automatic Adjust Cross-Slot Design Meets EIA, EIAJ, IPC and VECI Design Standards Embossed Tape and Reel <b>RoHS Compliant:</b> Pb-Free and Cd-Free	Automatic Adjust Cross-Slot Design Meets EIA, EIAJ, IPC and VECI Design Standards Embossed Tape & Reel <b>RoHS Compliant:</b> Pb-Free and Cd-Free

## Surface Mount Multi-Turn Trimmers


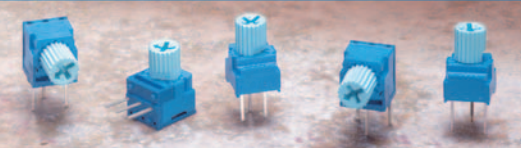
## Through-Hole Single-Turn

Series	GV4 Series	G43C Series
Model Examples		
Nominal Size and Construction	4mm Square Sealed SMD	4mm Square Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Multi-Turn: 12 Turns ± 2	Single-Turn: 200° ± 10°
Adjustment Type	Top and Side Adjust Single-Slot Flush with Housing	Top and Bottom Adjust Cross-Slot
Terminal Style	J-Hook: W and J Gull-Wing: G	Gold-plated Through-Hole Triangular Footprint: C and CF
Resistance Range	10Ω to 2MΩ (Standard 1, 2 and 5 Sequence)	50Ω to 2MΩ (Standard 1, 2 and 5 Sequence)
Resistance Tolerance	± 10% Standard	± 20% Standard (± 10% Optional for 100Ω to 1MΩ)
Power Rating	0.25 W at +85°C 0 W at +150°C	0.25 W at +70°C 0 W at +125°C
Temperature Range	-65°C to +150°C	-55°C to +125°C
Other Features	Excellent Adjustability, High Temperature Meets EIA, EIAJ, IPC and VECI Design Standards Embossed Tape and Reel <b>RoHS Compliant:</b> Pb-Free and Cd-Free	Through-Hole Versions of SMD G43 Series High Setting Accuracy, Zero Backlash Meets EIA, EIAJ, IPC and VECI Design Standards <b>RoHS Compliant:</b> Pb-Free and Cd-Free


## Through-Hole Single-Turn Trimmers

Series	GF04 Series	RJC06 Series
Model Examples		
Nominal Size and Construction	4mm Round Sealed Through-Hole	1/4" Round Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Single-Turn: 190°	Single-Turn: 240° ±10°
Adjustment Type	Top and Side Adjust Single-Slot	Top, Side and Bottom Adjust Single-Slot
Terminal Style	Triangular Footprint: W and S In-Line Footprint: U and V	Triangular Footprint: 15mmℓ leads for P and W, 5mmℓ leads for S and X, and 8mmℓ leads for F
Resistance Range	100Ω to 1MΩ	10Ω to 1MΩ
Resistance Tolerance	±10% and ±20%	±10% and ±20%
Power Rating	0.5 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	Excellent Stability, Low Noise and Low TC High Power Rating Space-Saving Size <b>RoHS Compliant:</b> Pb-Free and Cd-Free	Excellent Adjustability and Stability Low CRV and Low TC Gold Plated Terminals for Superior Solderability <b>RoHS Compliant:</b> Pb-Free and Cd-Free

## Through-Hole Single-Turn Trimmers



Series	GF063 Series	GF063-K Series
Model Examples		
Nominal Size and Construction	1/4" Square Sealed Through-Hole	1/4" Square Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Single-Turn: 210° ±10°	Single-Turn: 210° ±10°
Adjustment Type	Top and Side Adjust Cross-Slot	Top Knob and Side Knob Adjust
Terminal Style	Triangular Footprint: P, P1, P2, W, Y, Y1, S, S1, X and X1 In-Line Footprint: U, U1, V and V1	Triangular Footprint: PK, P1K, W, SK, S1K, XK and X1K In-Line Footprint: UK, VK and V1K
Resistance Range	10Ω to 5MΩ	10Ω to 5MΩ
Resistance Tolerance	±10% and ±20%	±10% and ±20%
Power Rating	0.5 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	18 Models Available Precious Metal, Multi-Contact Wiper Tape & Reel or Ammo Box <b>RoHS Compliant:</b> Pb-Free and Cd-Free	Same as GF063 Series with Knurled Knob Precious Metal, Multi-Contact Wiper Tape & Ammo Box for PK, P1K and UK Models <b>RoHS Compliant:</b> Pb-Free and Cd-Free

## Through-Hole Single-Turn Trimmers

Series	GF12 Series	G12 Series
Model Examples		
Nominal Size and Construction	12mm Square Sealed Through-Hole	1/2" Round Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Single-Turn: 270° ± 10°	Single-Turn: 270° ± 10°
Adjustment Type	Top and Side Adjust: Flush Single-Slot, 5 or 10mm Metal Shafts, or Knurled Plastic Shaft	Top and Side Adjust, Flush Cross-Slot Dial Markings for Quick Adjust
Terminal Style	Through-Hole Triangular Footprint: P, S, X and R	Through-Hole Triangular Footprint: P, S and X
Resistance Range	10Ω to 1MΩ	10Ω to 1MΩ
Resistance Tolerance	±10% and ±20%	±10% and ±20%
Power Rating	0.75 W at +70°C 0 W at +125°C	1.0 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	Available in 4 Adjustment Styles Stable, Infinite Resolution Unique 5,000 Cycle Rotational Life <b>RoHS Compliant:</b> Pb-Free and Cd-Free	Excellent Stability 1.0 Watt Power Rating Low Noise and Low TC <b>RoHS Compliant:</b> Pb-Free and Cd-Free

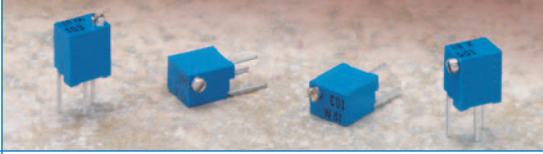
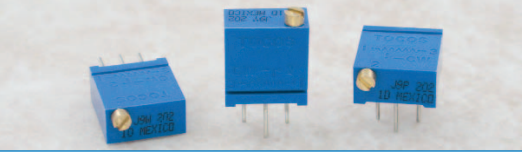
## Through-Hole Single-Turn Trimmers

## Through-Hole Multi-Turn Square

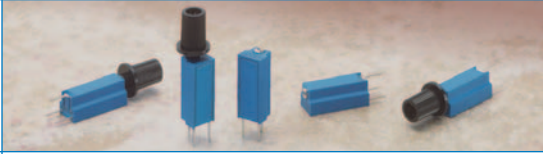
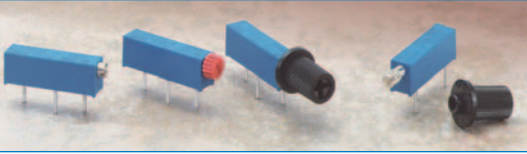
Series	RA12 Series (Wirewound)	GV6 Series
Model Examples		
Nominal Size and Construction	12mm Round Sealed Through-Hole	1/4" Square Sealed Through-Hole
Resistive Element	Wirewound	Cermet
Adjustment Travel	Single-Turn: 270° ± 10°	Multi-Turn: 2 Turns (735° ± 10°)
Adjustment Type	Top and Side Adjust Flush Single-Slot	Top and Side Adjust Flush Single-Slot
Terminal Style	Gold-Plated Through-Hole Triangular Footprint: P, S and X	Triangular Footprint: P & S In-Line Footprint: U & V
Resistance Range	10Ω to 20kΩ	10Ω to 1MΩ
Resistance Tolerance	±10% Standard	±10% and ±20%
Power Rating	0.5 W at +70°C 0 W at +125°C	0.5 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	High Setting Stability, Long Rotational Life Low Equivalent Noise Resistance Low Temperature Coefficient <b>RoHS Compliant:</b> Pb-Free and Cd-Free	Space-Saving, Low Profile Design Excellent Stability and Adjustability, Low Noise Tape & Reel or Ammo Box <b>RoHS Compliant:</b> Pb-Free and Cd-Free



## Through-Hole Multi-Turn Square Trimmers

Series	RJC26 Series	J9 Series
Model Examples		
Nominal Size and Construction	1/4" Square Sealed Through-Hole	3/8" Square Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Multi-Turn: 8.5 Turns $\pm$ 1	Multi-Turn: 20 Turns nominal
Adjustment Type	Top and Side Adjust Single-Slot	Top and Side Adjust Single-Slot
Terminal Style	Through-Hole Triangular Footprint: W and X	Triangular Footprint: P, Y and Z In-Line Footprint: W and X
Resistance Range	100 $\Omega$ to 5M $\Omega$	10 $\Omega$ to 2M $\Omega$
Resistance Tolerance	$\pm$ 10% and $\pm$ 20% ( $\leq$ 2M $\Omega$ ); +30%, -20% ( $\geq$ 3M $\Omega$ )	$\pm$ 10% ( $\pm$ 20% for $\leq$ 50M $\Omega$ )
Power Rating	0.25 W at +70°C 0 W at +125°C	0.5 W at +85°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	11-Turn Mechanical Travel, High Setting Accuracy State-of-the-Art Brush Contact Design Stop-Clutch Action at Ends of Element <b>RoHS Compliant:</b> Pb-Free and Cd-Free	20-Turn Design for High Setting Accuracy Precious Metal, Multi-Contact Wiper Excellent Stability and Low Noise <b>RoHS Compliant:</b> Pb-Free and Cd-Free

## Through-Hole Multi-Turn Rectilinear Trimmers

Series	RJC07R Series	RJC097 Series
Model Examples		
Nominal Size and Construction	3/4" Rectilinear Sealed Through-Hole	3/4" Rectilinear Sealed Through-Hole
Resistive Element	Cermet	Cermet
Adjustment Travel	Multi-Turn: 13 Turns $\pm$ 3	Multi-Turn: 15 Turns $\pm$ 3
Adjustment Type	Top Adjust Single-Slot, Short Shaft or Extended Cross-Slot Knob	Side Adjust, Single-Slot Short Shaft, Small or Large Permanent Knobs or Shaft with Removable Knob
Terminal Style	Triangular Footprint: R (without knob) and RK2 (with permanent knob)	Triangular Footprint: P (without knob); PK (small knob); PK1 (removable knob); PK2 (permanent knob)
Resistance Range	10 $\Omega$ to 1M $\Omega$	10 $\Omega$ to 1M $\Omega$
Resistance Tolerance	$\pm$ 10% and $\pm$ 20%	$\pm$ 10% and $\pm$ 20%
Power Rating	0.75 W at +40°C 0 W at +125°C	0.75 W at +70°C 0 W at +125°C
Temperature Range	-55°C to +125°C	-55°C to +125°C
Other Features	Space-Saving, Vertical Mount Design High Performance, Excellent Stability Knurled Knob Style for Fingertip Control <b>RoHS Compliant:</b> Pb-Free and Cd-Free	Excellent Stability and Low Noise State-of-the-Art Brush Contact Design Selection of Adjustment Styles Available <b>RoHS Compliant:</b> Pb-Free and Cd-Free

**Surface Mount Single-Turn Cermet Trimmers**
**3mm Square, Single-Turn, Sealed**

B.I. Technologies (Beckman)		Bourns		Murata	Nidec Copal		Vishay/Sfernice	TOCOS <sup>®</sup>
– Slot		– Slot	+ Slot	+ Slot	+ Slot		– Slot	+ Slot
22A		3313J-1	3313J-2	PVG3A*	ST-32ETA		TS3Y-J	G32A
				PVG3G*	ST-32ETB			G32B

\* Indicates parts that are Not Flow solderable.

**4mm Square, Single-Turn, Sealed**

B.I. Technologies (Beckman)		Bourns		Murata	Nidec Copal		Vishay/Sfernice	TOCOS <sup>®</sup>
– Slot		– Slot	+ Slot	+ Slot	– Slot	+ Slot	+ Slot	+ Slot
23A		3314J-1	3314J-2	PVM4	ST-4EA	ST-42EA	TS4 YJ, ST53 YJ	G43A
23B		3314G-1	3314G-2		ST-4EB	ST-42EB	TS4 YL, ST53 YL	G43B
		3314H-1	3314H-2		ST-4EC	ST-42EC		G43C
23S, 23Z		3314S-1, 3314Z-3	3314S-2, 3314Z-4		ST-4EG	ST-42EG		G43SA

**Surface Mount Multi-Turn Cermet Trimmers**
**4mm Square, Multi-Turn, Sealed**

B.I. Technologies (Beckman)		Bourns		Murata	Nidec Copal		Vishay/Sfernice	TOCOS <sup>®</sup>
9-Turn	15-Turn	11-Turn	5-Turn	11-Turn	11-Turn	5-Turn	11-Turn	12-Turn
44J	45J	3224J	3214J	PVG5H	SM-42A	SM-43A	TSM4 ZJ, TSM43 ZJ	GV4J
44G	45G	3224G	3214G		SM-42B	SM-43B	TSM4 ZL, TSM43 ZL	GV4G
44W	45W	3224W	3214W	PVG5A	SM-42W	SM-43W	TSM4 YJ, TSM43 YJ	GV4W

**Through-Hole Single-Turn Cermet Trimmers**
**1/4" and 3/8" Square, Single-Turn, Sealed**

B.I. Technologies (Beckman)		Bourns		Nidec Copal	Vishay/Sfernice	Vishay/Spectrol	TOCOS <sup>®</sup>
1/4"	3/8"	1/4"	3/8"	1/4"	1/4"	3/8"	1/4"
25P		3362P		CT-6EP, FT-63EP			GF063P
				CT-6EP, FT-63EP	T73YE		GF063P1
	72P	3362R	3386P	CT-6ER	T73YP	63P	GF063P2
25W		3362H		CT-6EW	T73YB		GF063W
25U		3362U	3386U	CT-6EV, FT-63EV	T73YU		GF063U
	72PL		3386T				GF063U1
			3386Y				GF063Y
	72PM		3386F			63M	GF063Y1
25X	72RX	3362X	3386H	CT-6EN, FT-63EN	T73XH		GF063X
25RX	72X	3362W	3386X	CT-6EX, FT-63EX	T73XX	63X	GF063X1
25S		3362S	3386V	CT-6ES, FT-63ES			GF063S
		3362Z					GF063S1
25V	72RXL	3362M	3386W	CT-6EH, FT-63EH	T73XW		GF063V
	72XL		3386C			63S	GF063V1
		3362P		CT-6ETP, FT-63ETP			GF063PT
25UTR/AP		3362U		CT-6ETV, FT-63ETV			GF063UT, UT2
25VTR/AP		3362M		CT-6ETH, FT-63ETH			GF063VT, VT2

This Cross Reference Guide does not infer exact interchangeability in all instances. For further information concerning product substitutes, contact Tocos at 847-884-6664 or your Tocos representative.

## Through-Hole Single-Turn Cermet Trimmers (Continued)

### 4mm Round, Single-Turn, Sealed

B.I. Technologies (Beckman)	Bourns	Murata	Nidec Copal	Vishay/Sfernice	TOCOS®
24W			RJ-4EW		GF04W
24S			RJ-4EWS		GF04S
					GF04V
24U					GF04U
					GF04VT
24UTR					GF04UT

### 1/4" Round, Single-Turn, Sealed

B.I. Technologies (Beckman)	Bourns	Murata	Nidec Copal	Vishay/Sfernice	TOCOS®
62M, (82M)	3329P	PV32P	RJ-6P	T7YA	RJC06P
62P, (82P)	3329H	PV32H	RJ-6W	T7YB	RJC06W
(82PA)	3329W	PV32N	RJ-6X		RJC06X
	3329S	PV32S	RJ-6S		RJC06S
62B			RJ-6F		RJC06F

### 1/2" Round, Single-Turn, Sealed

B.I. Technologies (Beckman)	Bourns	Murata	Nidec Copal	Vishay/Sfernice	TOCOS®
93P (Reverse Pin-out)			RJ-13P		G12P
			RJ-13S		G12S
					G12X

## Through-Hole Multi-Turn Cermet Trimmers

### 1/4" Square, 2-Turn, Sealed

B.I. Technologies (Beckman)	Bourns	Murata	Nidec Copal	Vishay/Sfernice	TOCOS®
	3339P (4-Turn)	PV12P (4-Turn)	TM-7EP		GV6P
	3339S (4-Turn)	PV12S (4-Turn)	TM-17ES		GV6S

### 1/4" Square, 11-Turn, Sealed

B.I. Technologies (Beckman)	Bourns	Murata	Nidec Copal	Vishay/Sfernice	TOCOS®
64W	3262W, 3266W	PV37W	RJ-5EW	T63YB	RJC26W
64X	3262X, 3266X	PV37X	RJ-5EX	T63XB	RJC26X

### 3/8" Square, 20-Turn, Sealed

B.I. Technologies (Beckman)	Bourns		Murata	Nidec Copal		Vishay/Sfernice	Vishay/Spectrol	TOCOS®
67P	3296P	3299P*	PV36P	CT-94EP	CT-9EP*	T93Z	64P	J9P
67W	3296W	3299W*	PV36W	CT-94EW	CT-9EW*	T93YA	64W	J9W
67X	3296X	3299X*	PV36X	CT-94EX	CT-9EX*	T93XA	64X	J9X
67Y	3296Y	3299Y*	PV36Y	CT-94EY		T93YB	64Y	J9Y
67Z	3296Z	3299Z*	PV36Z	CT-94EZ		T93XB	64Z	J9Z

\* Wider body size, same pin-out.

### 3/4" Rectilinear, 15-Turn, Sealed

B.I. Technologies (Beckman)	Bourns	Murata	Nidec Copal	Vishay/Sfernice	TOCOS®
89P	3006P	PV23P*	CT-20EP	T18	RJC097P
89X	3006Y	PV23Y*	CT-20EX		RJC097X

\* Murata is phasing out PV23.

# Sealed Models List of Trimmer Part Numbers

# TOCOS<sup>®</sup>

POTENTIOMETERS

Surface Mount Single-Turn	Surface Mount Multi-Turn					
		RJC06S	GF063S	GF063P1KT2	GF12X10S	GV6S
		RJC06X	GF063ST	GF063WK	GF12X8.2SK	GV6V
G32A	GV4W	RJC06F	GF063ST2	GF063UK	GF12R0S	GV6VT
G32AT	GV4WT		GF063S1	GF063UKT2	GF12R5S	GV6VT2
G32B	GV4J	GF063P	GF063S1T	GF063SK	GF12R10S	
G32BT	GV4JT	GF063PT	GF063S1T2	GF063S1K	GF12R8.2SK	RJC26W
	GV4G	GF063PT2	GF063X	GF063XK		RJC26X
G43A	GV4GT	GF063P1	GF063XT2	GF063X1K	G12P	
G43AT		GF063P1-3*	GF063X1	GF063VK	G12S	J9P
G43D	Through-Hole Single-Turn	GF063P1-LM*	GF063X1T2	GF063V1K	G12X	J9W
G43DT		GF063P1T	GF063V			J9Y
G43B	G43C	GF063P1T2	GF063V-3*	GF12P0S	RA12P	J9X
G43BT	G43CF	GF063P2 (3/8")	GF063VT	GF12P5S	RA12S	J9Z
G43E		GF063W	GF063VT2	GF12P10S	RA12X	
G43ET	GF04W	GF063U	GF063V1	GF12P8.2SK		RJC07R
G43SA	GF04U	GF063U (16)*	GF063V1T	GF12S0S	Through-Hole Multi-Turn	RJC07RK2
G43SAT1	GF04S	GF063UT	GF063V1T2	GF12S5S		
G43BF	GF04V	GF063UT2		GF12S10S	GV6P	RJC097P
		GF063U1 (3/8")	GF063PK	GF12S8.2SK	GV6U	RJC097PK
	RJC06P	GF063Y (3/8")	GF063PKT2	GF12X0S	GV6UT	RJC097PK1
	RJC06W	GF063Y1 (3/8")	GF063P1K	GF12X5S	GV6UT2	RJC097PK2

\*Special Order Products

## Definitions for Part Numbering Codes

<b>A</b> Top Adjust J-Hook, SMD G32 and G43 Series	<b>J</b> J-Hook, Side Adjust GV4 Series	<b>T, T1</b> Tape & Reel Packaging	<b>Z</b> Side Adjust, Triangular 3-Lead Through-Hole, J9 Series
<b>B</b> Top Adjust Gull-Wing, SMD G32 and G43 Series	<b>K</b> Knurled Knob (K1 & K2 indicate knob variations)	<b>T2</b> Tape & Ammo Box Packaging	<b>-3</b> 3mm Lead Length available as Special Order for GF063P1 or GF063V
<b>C</b> Top Adjust, Through-Hole G43C Series	<b>P, P1</b> Triangular 3-Lead, Top Adjust Through-Hole Series	<b>U</b> Top Adjust, Inline 3-Lead Through-Hole Series	<b>-LM</b> 6.5mm Lead Length available as Special Order for GF063P1
<b>CF</b> Bottom Adjust, Through-Hole G43C Series	<b>P2</b> Triangular 3-Lead, Top Adjust Through-Hole Series (3/8")	<b>U1</b> Top Adjust, Triangular 3-Lead Through-Hole Series (3/8")	<b>Notes</b> (16) indicates 16mm lead length available as special order. (3/8") indicates variation in housing size for several top adjust GF063 through-hole models.
<b>D</b> Reverse Markings on SMD J-Hook G43 Models	<b>R</b> Triangular 3-Lead, Side Adjust Through-Hole GF12 Series Only	<b>V, V1</b> Side Adjust, Inline 3-Lead Through-Hole Series	
<b>E</b> Reverse Markings on SMD Gull-Wing G43 Models	<b>S, S1</b> Triangular 3-Lead, Side Adjust Through-Hole Series	<b>W</b> Top Adjust, J-Hook SMD GV4 Series or Triangular 3-Lead Through-Hole Series	
<b>F</b> Bottom Adjust	<b>SA</b> Side Adjust J-Hook, SMD G43 Series	<b>X, X1</b> Side Adjust, Triangular 3-Lead Through-Hole Series	
<b>G</b> Gull-Wing, Side Adjust SMD GV4 Series	<b>_S</b> Shaft Length, Through-Hole GF12 Series Only	<b>Y, Y1</b> Top Adjust, Triangular 3-Lead Through-Hole Series (3/8")	

## Part Numbering System for Trimmer Potentiometers

Series Name	Style	Shaft Length	Knob	Packaging	Taper	Resistance Code	Resistance Tolerance
TOCOS offers 16 standard trimmer series. Examples: G32, GV4 RA12, GF063 RJC07R	See List of Trimmer Part Numbers for Standard Style Codes. These codes indicate adjustment type as well as varied pin-out configurations.	<i>For GF12 Series Only</i> 0S = No Shaft, Rotor Flush with Housing 5S = 5mm Metal Shaft 10S = 10mm Metal Shaft 8.2S = 8.2mm Knurled Plastic Shaft	K = With Knob (K1, K2 indicate knob variations) <i>Use K for GF12 series 8.2mm knurled shaft.</i> Blank = No Knob	T = Tape & Reel T1 = Tape & Reel T2 = Tape & Ammo Box Blank = Bulk	B = Linear	Expressed in ohms. A three digit code: the first two digits are significant figures, the third digit indicates the number of zeros. (i.e., 103 = 10,000Ω)	M = ±20% K = ±10% <i>For RJC26 Series Only</i> Blank = +30%, -20% for 3MΩ and 5MΩ nominal resistance.

Part Number Examples for Trimmers: **GF063P1KT2 B 103 K**; **GF12P8.2SK B 504 K**

Visit our web site at [www.tocos.com](http://www.tocos.com) for drawings and additional product information.

Affiliated With



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