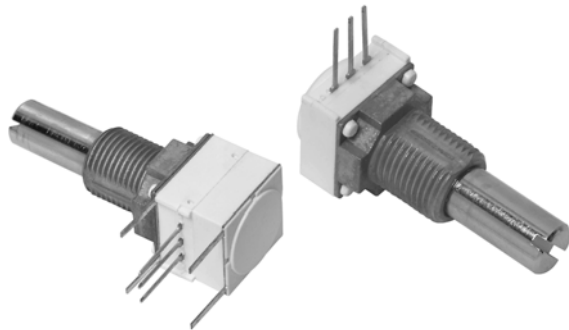


# 1/2" (12.7 mm) Conductive Plastic and Cermet Potentiometers



## FEATURES

- Robust construction
- High rotational life (50 000 cycles)
- Up to three sections PC support plates
- Rotary switches and solder lug terminals available
- Compliant to RoHS directive 2002/95/EC since date code 0414



**RoHS**  
COMPLIANT

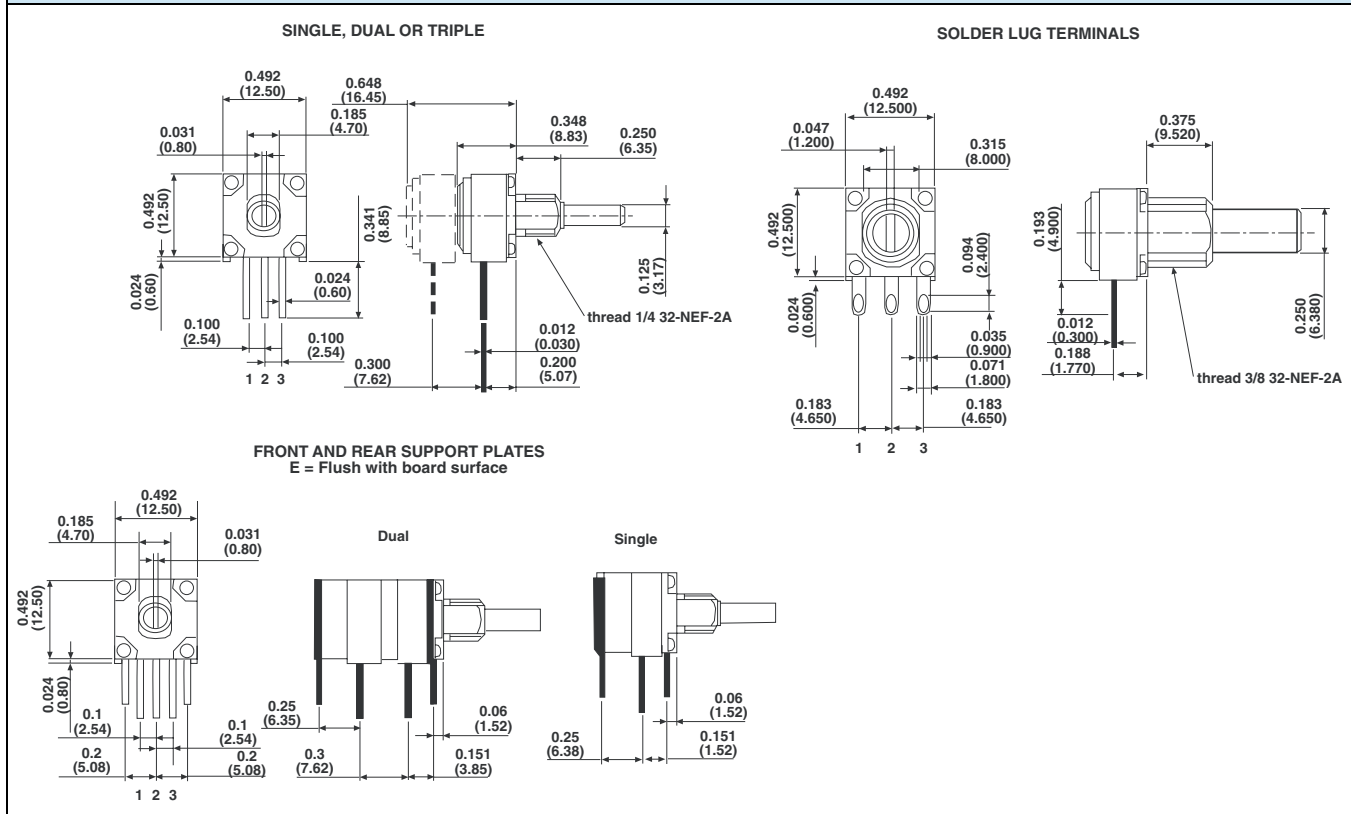
## 148 FEATURES

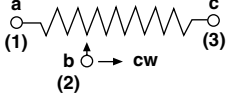
- Conductive plastic element
- Quiet electrical output

## 149 FEATURES

- Cermet element
- Low temperature coefficient ( $\pm 150$  ppm/ $^{\circ}$ C)

### DIMENSIONS in inches (millimeters) $\pm 0.02$ ( $\pm 0.5$ )



<b>ELECTRICAL SPECIFICATIONS</b>		
PARAMETER		
		<b>148</b>
		<b>149</b>
Resistance Range	Linear	1 k $\Omega$ to 1 M $\Omega$
	Non-Linear	500 $\Omega$ to 500 k $\Omega$
Tolerance	Linear	10 %
	Non-Linear	20 % on request 10 %
Linearity (Typical)		$\pm 5$ % independent
End Resistance		4 $\Omega$ maximum each end
Power Rating		0.5 W at 70 °C 0 W at 120 °C
		1 W at 70 °C 0 W at 150 °C
		Non-Linear or PC mount, derate 50 %
Circuit Diagram		
Effective Rotation		270° $\pm$ 10° without rotary switch 240° $\pm$ 10° with rotary switch
Contact Resistance Variation		1.5 % of total resistance
		3 % of total resistance
Maximum Continuous Working Voltage		350 V <sub>AC</sub> across end terminals, but within power rating
Dielectric Withstanding Voltage		Sea Level - 750 V <sub>AC</sub>

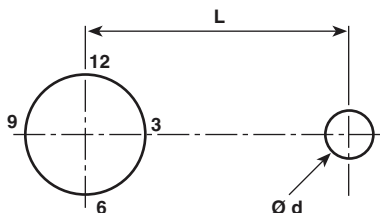
<b>MECHANICAL SPECIFICATIONS</b>		
Mechanical Travel		300° $\pm$ 5°
Operating Torque (Typical)		Single section 0.2 to 3.0 oz. - in dual or triple section 0.3 to 4.5 oz.-in
End Stop Torque	Bushing A and B	2.1 in-lbs max.
	Bushing F	6.8 in-lbs max.
Weight (approx.)	Single	0.19 oz.
	Dual	0.27 oz.
	Triple	0.35 oz.
Terminals	Electrical Elements	e3: Pure Sn
	Switch Elements	e4: Gold plated

<b>ENVIRONMENTAL SPECIFICATIONS</b>		
	<b>148</b>	<b>149</b>
Operating Temperature	- 40 °C to + 120 °C	- 40 °C to + 125 °C
Storage Temperature	- 55 °C to + 120 °C	- 55 °C to + 150 °C
Temperature Cycling (5 Cycles)	- 40 °C to + 120 °C (4 % $\Delta R_T$ )	- 40 °C to + 150 °C (3 % $\Delta R_T$ )
Load Life (1000 h Rated Load at 70 °C)	10 % $\Delta R_T$	5 % $\Delta R_T$
Rotational Load Life		50 000 cycles
TCR (Typical)	$\pm 500$ ppm/°C	$\pm 150$ ppm/°C
Sealing		IP64

**LOCATING PEGS (Anti-Rotation Lug)**

The locating peg is provided by a plate mounted on the bushing and positioned by the module sides. Four set positions are available, clock face orientation: 12, 3, 6, 9.

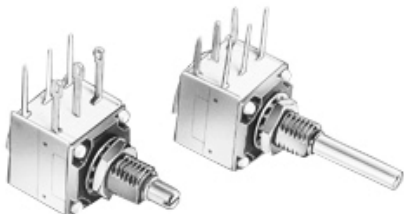
All 148, 149 bushings have a double flat. When panel mounting holes have been punched accordingly, an anti-rotation lug is not necessary.



CODE	VERSION	BUSHING A, B	BUSHING F	EFFECTIVE HIGH PEG
A	Ø d mm	2	2	0.7
	L mm	6.2	6.2	-
B	Ø d mm	2	2	0.7
	L mm	7.75	7.75	-
C	Ø d mm	-	3.5	1.1
	L mm	-	13.5	-

Locating pegs are supplied in separate bags with nuts and washers

**RSID OPTION: ROTARY SWITCH MODULES**



- Rotary switches
- Current up to 2 A
- SPDT: Single pole, changeover switch in CCW position - 3 pins

**MODULES: RS ON/OFF SWITCH  
RSI CHANGEOVER SWITCH**

The position of each module is free. RS and RSI rotary switches are housed in a standard 148, 149 module size 12.7 mm x 12.7 mm x 5.08 mm (0.5" x 0.5" x 0.2"). They have the same terminal styles as the assembled electrical modules.

An assembly can comprise 1 or more switch modules.

Switch actuation is described as seen from the shaft end. D: means actuation in maximum CCW position

The switch actuation travel is 25° with a total mechanical travel of 300° ± 5° and electrical travel of electrical module is 238° ± 10°.

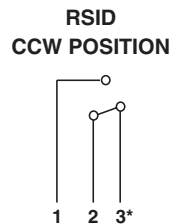
**RSID SINGLE POLE CHANGEOVER**

In full CCW position, the contact is made between 3 and 2 and open between 3 and 1. Switch actuation (CW direction) reverses these positions.

**SWITCH SPECIFICATIONS**

Switching Power Maximum	62.5 VA v 15 VA =	
Switching Current Maximum	0.25 A 250 V v 0.5 A 30 V =	
Maximum Current Through Element	2 A	
Contact Resistance	30 mΩ	
Dielectric Strength	Terminal to Terminal	1000 V <sub>RMS</sub>
	Terminal to Bushing	2000 V <sub>RMS</sub>
Maximum Voltage Operation	250 V v 30 V =	
Insulation Resistance Between Contacts	10 <sup>6</sup> MΩ	
Life at P <sub>max</sub> .	10 000 actuations	
Minimal Travel	25°	
Operating Temperature	- 40 °C to + 85 °C	

**ELECTRICAL DIAGRAM**

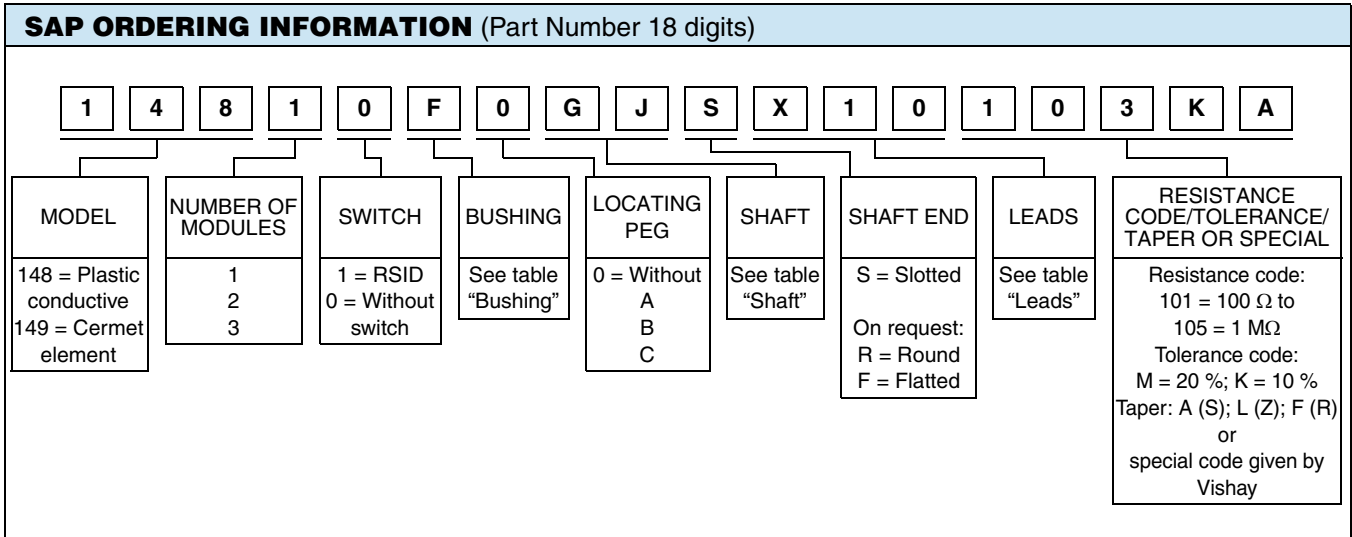


- Note**
- Common



1/2" (12.7 mm) Conductive Plastic and Cermet Potentiometers

Vishay Spectrol



BUSHING			
	Φ	L	OLD CODES
A	1/4"	1/4"	N
B	1/4"	3/8"	J
F	3/8"	3/8"	G

SHAFT			
	Φ	L	OLD CODES
BB	1/8"	1/2"	32
BG	1/8"	5/8"	40
BH	1/8"	3/4"	48
BJ	1/8"	7/8"	56
GB	1/4"	1/2"	32
GG	1/4"	5/8"	40
GH	1/4"	3/4"	48
GJ	1/4"	7/8"	56
GL	1/4"	1"	64
GN	1/4"	1 1/4"	80

LEADS				
	TYPE	PIN SPACING	SPACE BETWEEN MODULES	OLD CODES
X10	PCB pins	2.54 mm (0.100")	N/a	P
X13			7.62 mm (0.300")	
A10	PCB pins and support plates	2.54 mm (0.100")	N/a	E
A13			7.62 mm (0.300")	
Y00	Sold, lugs	4.65 mm (0.183")	N/a	S
Y03			7.62 mm (0.300")	

PART NUMBER DESCRIPTION (for information only)														
148	1	0	F	0	GJ	S	X10	BO50	10K	10%	A			e3
MODEL	MODULES	SWITCH	BUSHING	LOCATING PEG	SHAFT	SHAFT	LEADS	PACK.	VALUE	TOL.	TAPER	SPECIAL	SPECIAL	LEAD FINISH



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