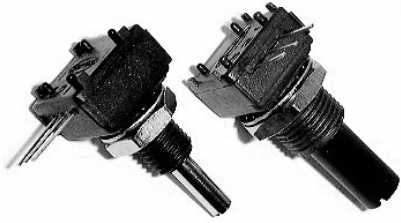


# 1/2" (12.7 mm) Conductive Plastic and Cermet Potentiometers



## FEATURES

- Model 248: 0.5 W at 70 °C (conductive plastic element)
- Model 249: 1 W at 70 °C (cermet element)
- Cost effective panel potentiometer
- PCB mounting
- Tests according to CECC 41000 or IEC 60393-1
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

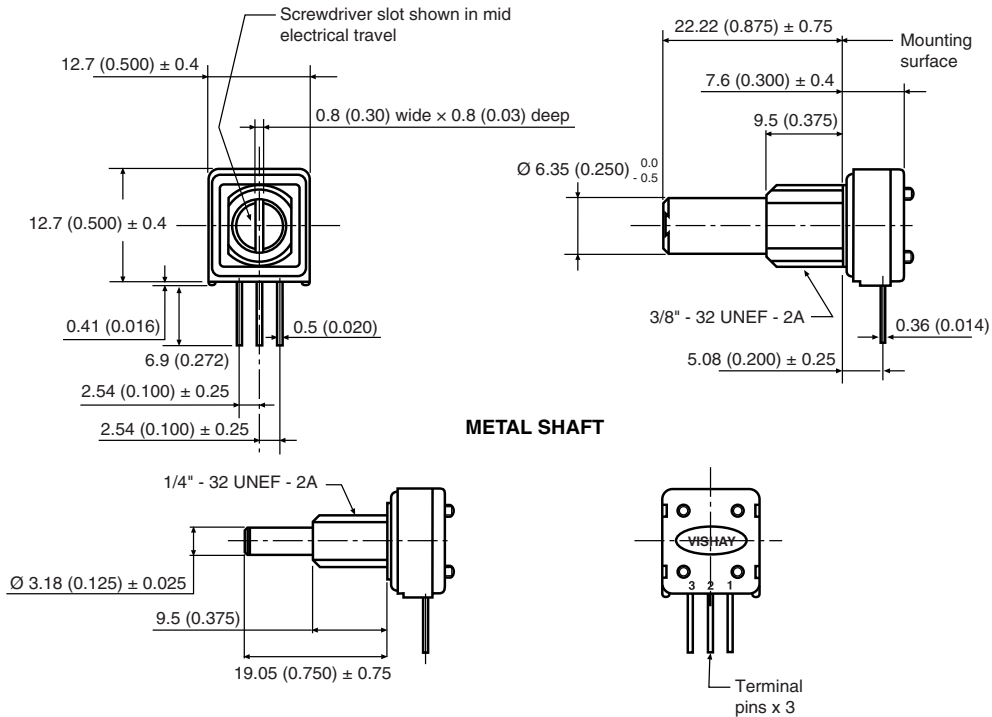


RoHS COMPLIANT

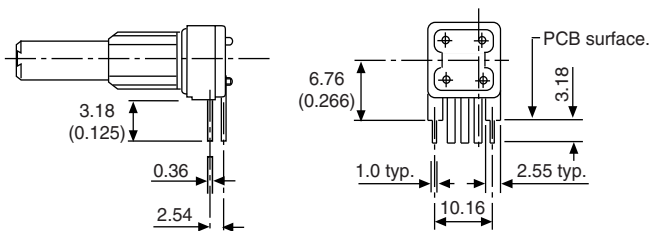
## DIMENSIONS in millimeters (inches) ± 0.5 mm (± 0.02")

X = Standards leads

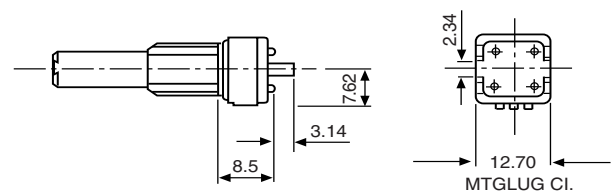
### METAL OR PLASTIC SHAFTS



### E = Rear stand off



### D = Rear locating lugs



<b>ELECTRICAL SPECIFICATIONS</b>		
<b>PARAMETER</b>	<b>MODEL 248</b>	<b>MODEL 249</b>
Element type	Conductive plastic	Cermet
Total resistance range	500 $\Omega$ to 1 M $\Omega$	
Standard series	1, 2, 5	
Resistance tolerance	$\pm 20\%$	$\pm 20\%$ (on request $\pm 10\%$ )
Power rating	0.5 W at 70 °C	1.0 W at 70 °C
Circuit diagram		
Temperature coefficient of resistance (typical)	$\pm 500$ ppm/°C	$\pm 150$ ppm/°C
Linearity (typical)	$\pm 5\%$ independent	
Limiting element voltage	300 V	
Contact resistance variation (typical)	5 % of the total resistance	
Insulation resistance	1000 M $\Omega$ minimum, 500 V <sub>DC</sub>	
Dielectric strength	750 V <sub>RMS</sub> minimum 50 Hz/60 Hz	
End resistance	2 $\Omega$ maximum each end	
Effective electrical travel	265° $\pm$ 5°	

<b>MECHANICAL SPECIFICATIONS</b>	
Mechanical travel	295° $\pm$ 5°
Operating torque	0.1 Ncm to 2 Ncm
End stop Torque	35 Ncm (50 oz.-inch)
Max. tightening Torque	50 Ncm
1/4" Bush	
3/8" Bush	70 Ncm
Weight	8.3 g (0.29 oz.) (1/4" x 7/8" FMF metal shaft)

<b>ENVIRONMENTAL SPECIFICATIONS</b>	
Temperature range	-55 °C to +125 °C
Climatic category	55/125/4
Sealing	IP50

<b>MARKING</b>
<ul style="list-style-type: none"> <li>Vishay trademark</li> <li>Part number</li> <li>Tolerance</li> <li>Date code</li> <li>Terminal identification</li> </ul>

<b>PACKAGING</b>
- In box of 50 pieces, code B25 (BO50)



PERFORMANCE				
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS FOR 249		
		$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	OTHER
Electrical endurance	1000 h at rated power 90°/30° - ambient temp. 70 °C	± 3 %	± 5 %	Contact res. variation: < 1 %
Damp heat, steady state	4 days 40 °C 93 % HR	± 2 %	-	Dielectric strength: 1000 V <sub>RMS</sub> Insulation resistance: > 10 <sup>4</sup> MΩ
Change of temperature	5 cycles, -55 °C at +125 °C	± 1 %	-	$\Delta V_{1-2}/V_{1-3} \leq \pm 2 \%$
Mechanical endurance	10 000 cycles	± 3 %	-	Contact res. variation: ≤ 2 % R <sub>n</sub>
Shock	50 g's at 11 ms 3 successive shocks in 3 directions	± 1 %	± 2 %	-
Vibration	10 Hz to 55 Hz, 0.75 mm or 10 g's during 6 h	± 1 %	-	$\Delta V_{1-2}/V_{1-3} \leq \pm 2 \%$

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability.

STANDARD RESISTANCE ELEMENT DATA						
STANDARD RESISTANCE VALUES	248 LINEAR TAPER			249 LINEAR TAPER		
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CURRENT	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CURRENT
Ω	W	V	mA	W	V	mA
500	0.5	15.8	32	1	22.4	45
1K	0.5	22.4	22	1	31.6	32
2K	0.5	31.6	16	1	44.7	22
2.5K	0.5	35.4	14	1	50.0	20
5K	0.5	50.0	10	1	70.7	14
10K	0.5	70.7	7	1	100	10
20K	0.5	100	5.0	1	141	7
25K	0.5	112	4.5	1	158	6
50K	0.5	158	3.2	1	224	4
100K	0.5	224	2.2	0.90	300	3.0
200K	0.45	300	1.50	0.45	300	1.5
250K	0.36	300	1.20	0.36	300	1.2
500K	0.18	300	0.60	0.18	300	0.6
1M	0.09	300	0.30	0.09	300	0.3



ORDERING INFORMATION (part number)																
2	4	8	F	G	J	S	P	X	B	2	5	2	5	2	M	A
MODEL	BUSHING	SHAFT			SHAFT END	SHAFT MATERIAL	LEADS	PACKAGING	RESISTANCE CODE/TOLERANCE/TAPER OR SPECIAL							
248 = plastic conductive 249 = cermet element	F = Ø 3/8" B = Ø 1/4"	Ø	L	Old codes	S = slotted R = round F = flatted D = custom	0 = metal (old codes 8 and 9) P = plastic (old code 7)	D E X = std	B25 = Box 50 pieces	Resistance: From 501 = 500 Ω to 105 = 1 MΩ  Tolerance: M = 20 %; On request : K = 10 % (249 only)  Taper: A = linear; L = logarithmic (old code J) or special code given by Vishay							
		GJ	1/4"	7/8"	7 and 9											
		BH	1/8"	3/4"	8											
		AP	Custom shaft													

PART NUMBER DESCRIPTION (for information only)												
248	F	GJ	S	P	X	BO50	2K5	20 %	A			e3
MODEL	BUSHING	SHAFT	SHAFT END	SHAFT MATERIAL	LEADS	PACKAGING	VALUE	TOLERANCE	TAPER	SPECIAL	SPECIAL	LEAD FINISH

RELATED DOCUMENTS	
<b>APPLICATION NOTES</b>	
Potentiometers and Trimmers	<a href="http://www.vishay.com/doc?51001">www.vishay.com/doc?51001</a>
Guidelines for Vishay Sfernice Resistive and Inductive Components	<a href="http://www.vishay.com/doc?52029">www.vishay.com/doc?52029</a>



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