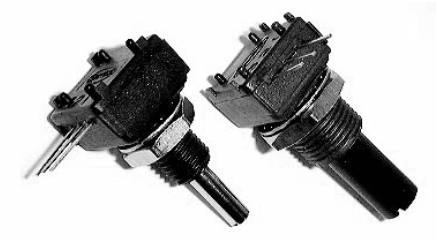
1/2" (12.7 mm) Conductive Plastic and Cermet Potentiometers



FEATURES

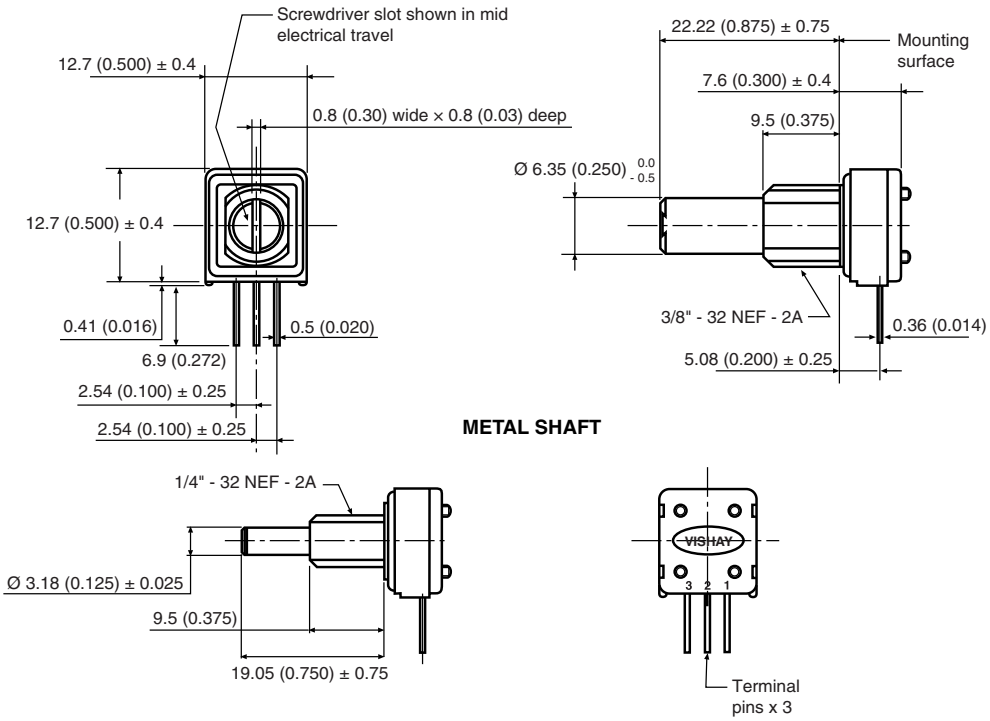
- Model 248: 0.5 W at 70 °C (conductive plastic element)
- Model 249: 1 W at 70 °C (cermet element)
- Cost effective panel potentiometer
- PCB mounting
- Tests according to CECC 41000 or IEC 60393-1
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

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

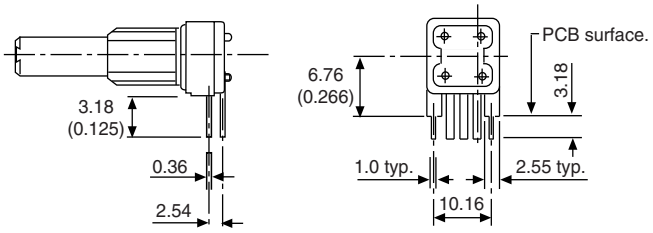
X = Standards leads

METAL OR PLASTIC SHAFTS

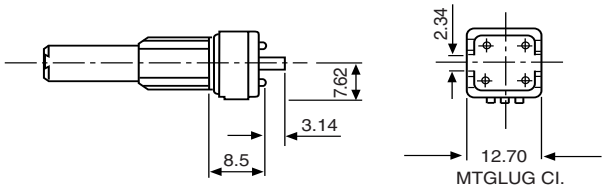


METAL SHAFT

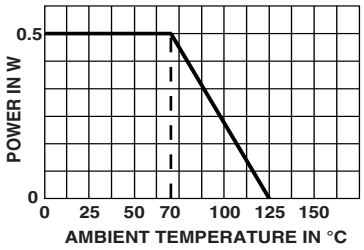
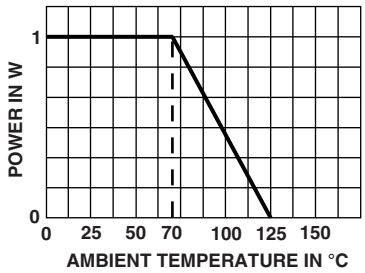
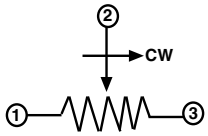
E = Rear stand off



D = Rear locating lugs



ELECTRICAL SPECIFICATIONS

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

MECHANICAL SPECIFICATIONS

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

MARKING

- Vishay trademark
- Part number
- Tolerance
- Date code
- Terminal identification

ENVIRONMENTAL SPECIFICATIONS

Temperature range	-55 °C to +125 °C
Climatic category	55/125/4
Sealing	IP50

PACKAGING

- In box of 50 pieces, code B25 (BO50)

PERFORMANCE

TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS FOR 249		
		$\Delta R_T/R_T$ (%)	$\Delta R_{1\text{-}2}/R_{1\text{-}2}$ (%)	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_{RMS} Insulation resistance: > 10^4 MΩ
Change of temperature	5 cycles, -55 °C at +125 °C	± 1 %	-	$\Delta V_{1\text{-}2}/V_{1\text{-}3} \leq$ ± 2 %
Mechanical endurance	10 000 cycles	± 3 %	-	Contact res. variation: ≤ 2 % Rn
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 %	-	$\Delta V_{1\text{-}2}/V_{1\text{-}3} \leq$ ± 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

248 = plastic conductive
249 = cermet element

BUSHING

F = Ø 3/8"
B = Ø 1/4"

SHAFT

	Ø	L	Old codes
GJ	1/4"	7/8"	7 and 9
BH	1/8"	3/4"	8
AP	Custom shaft		

SHAFT END

S = slotted
R = round
F = flatted
D = custom

SHAFT MATERIAL

0 = metal (old codes 8 and 9)
P = plastic (old code 7)

LEADS

D
E
X = std

PACKAGING

B25 = Box 50 pieces

RESISTANCE CODE/TOLERANCE/TAPER OR SPECIAL

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

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

APPLICATION NOTES	
Potentiometers and Trimmers	www.vishay.com/doc?51001
Guidelines for Vishay Sfernice Resistive and Inductive Components	www.vishay.com/doc?52029

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