## 248, 249

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Vishay Spectrol

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



QUICK REFERENCE DATA			
Multiple module	No		
Switch module	n/a		
Detent module	n/a		
Special electrical laws	A: linear, L: logarithmic		
Sealing level	IP 50		
Lifespan	10K cycles		

#### FEATURES

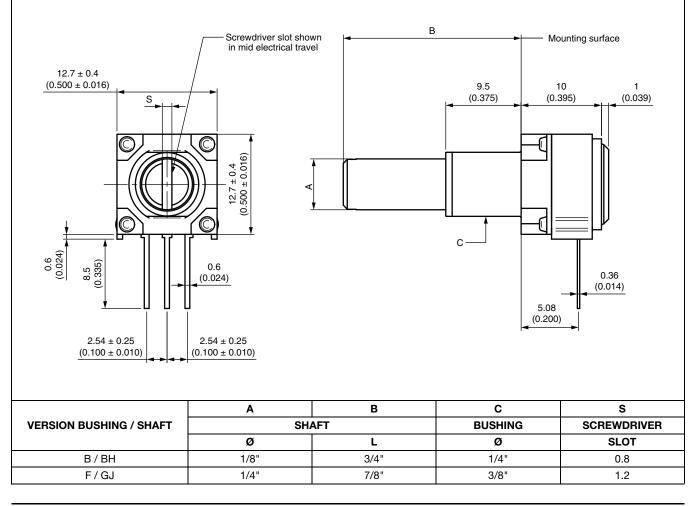
Model 248: 0.5 W at 70 °C (conductive plastic element)



COMPLIANT

- 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 <u>www.vishay.com/doc?99912</u>

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



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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 %)		
	0.5 W at 70 °C	1.0 W at 70 °C		
Power rating Linear	0.5 N N N N N N N N N N N N N	AMBIENT TEMPERATURE IN °C		
Circuit diagram	(1) (1) (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2			
Temperature coefficient of resistance (typical)	± 500 ppm/°C	± 150 ppm/°C		
Linearity (typical)	± 5 % independent			
Limiting element voltage	30	00 V		
Contact resistance variation (typical)	5 % of the total resistance			
Insulation resistance	1000 MΩ minimum, 500 V <sub>DC</sub>			
Dielectric strength	750 V <sub>RMS</sub> minimum 50 Hz / 60 Hz			
End resistance	2 Ω maximum each end			
Effective electrical travel				

MECHANICAL SPECIFICATIONS				
Mechanical travel	295° ± 5°			
Operating torque	0.1 Ncm to 2 Ncm			
End stop torque	35 Ncm (50 ozinch)			
Max. tightening torque	150 Ncm			
Weight	8.3 g (0.29 oz.) (1/4" x 7/8" FMF metal shaft)			

ENVIRONMENTAL SPECIFICATIONS			
Temperature range -55 °C to +125 °C			
Climatic category	55 / 125 / 4		
Sealing	IP 50		

#### MARKING

- · Vishay model
- Vishay logo
- Variation law
- SAP code for ohmic value
- Tolerance in %
- Date code (4 digits)
- Terminal identification "3" for lead 3

#### PACKAGING

• In box of 25 pieces, code BO25

#### Note

• Hardware supplied in separate bags

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PERFORMANCE					
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS FOR 249			
12515		∆ <b>R⊺/R⊺ (%)</b>	∆ <b>R<sub>1-2</sub>/R<sub>1-2</sub> (%)</b>	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: > $10^4 M\Omega$	
Change of temperature	5 cycles, -55 °C at +125 °C	±1%	-	$\Delta V_{1-2}/V_{1-3} \le \pm 2 \%$	
Mechanical endurance	10 000 cycles	± 3 %	-	Contact res. variation: $\leq$ 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 <i>g</i> 's during 6 h	±1%	-	$\Delta V_{1-2}/V_{1-3} \le \pm 2 \%$	

#### Note

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

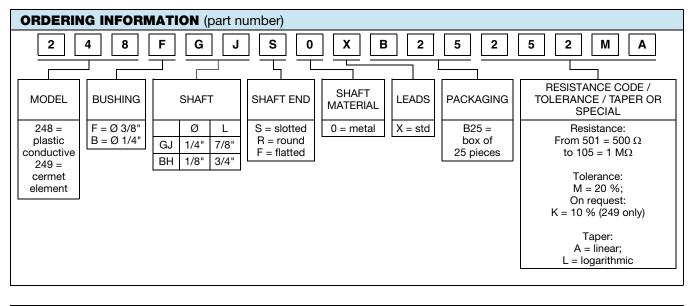
STANDADD	248 LINEAR TAPER			249 LINEAR TAPER		
STANDARD RESISTANCE VALUES	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CURRENT	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CURRENT
Ω	w	V	mA	W	v	mA
500	0.5	15.8	32	1	22.4	45
1K	0.5	22.4	22	1	31.6	32
2K	0.5	31.6	16	1	44.7	22
2.5K	0.5	35.4	14	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

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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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