1 5/16" (33.3 mm) Industrial Single Turn, Bushing Mount, Conductive Plastic Potentiometer

FEATURES

- Center tap available
- Continuous rotation and mechanical stops both standard
- Suitable model for all types of industrial applications
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, conductive plastic
Output type	Output by turrets
Market appliance	Industrial
Dimensions	1 5/16" (33.3 mm)

ELECTRICAL SPECIFICATIONS

PARAMETER	MIL-PRF-39023 TEST PROCEDURES APPLY	
	STANDARD	**SPECIAL**
Ohmic Value Range	1 kΩ to 50 kΩ	1 kΩ to 50 kΩ
Tolerance	± 10 %	± 5 %
Linearity (independent)	**STANDARD**	**BEST PRACTICAL**
	± 0.5 %	± 0.25 %
Output Smoothness	0.1 % maximum	
Power Rating	40 °C ambient 2 W derated to zero at 125 °C	
Electrical Angle Continuous Stops	 345° ± 4° 340° ± 5°	
Insulation Resistance	1000 MΩ minimum at 500 V_{DC}	
Dielectric Strength	1000 V_{RMS}, 60 Hz	
Absolute Minimum Resistance	1.0 % of total resistance	
Minimum Voltage	0.5 % maximum	
Temperature Coefficient of Resistance	± 600 ppm/°C maximum	

MATERIAL SPECIFICATIONS

Housing	Molded glass filled thermoplastic
Rear Lid	Glass filled thermoset plastic
Shaft	Stainless steel, non-magnetic
Terminals	Brass, plated for solderability, non-passivated
Mount Hardware Lockwasher Internal Tooth: Panel nut:	 Steel, nickel plated Brass, nickel plated

ENVIRONMENTAL SPECIFICATIONS

Vibration	15 *g* thru 2000 Hz
Shock	50 *g*
Salt Spray	48 h
Rotational Life Shaft Revolutions	2 million
Operating Temperature Range	-55 °C to +125 °C

Note

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

ORDERING INFORMATION

1	3	8	B	2	0	5	0	2	X	X	X	X

MODEL	STYLE	MECHANICAL OPTIONS	FEATURES	VALUE	SPECIAL REQUEST
138	**B**: bushing	**0** = continuous **2** = stops	**0** = standard **1** = center tap	**470** = 47 Ω **222** = 2.200 Ω **103** = 10 kΩ For ohmic value range see electrical specification	Custom reference

For technical questions, contact: sferprecisionpot@vishay.com

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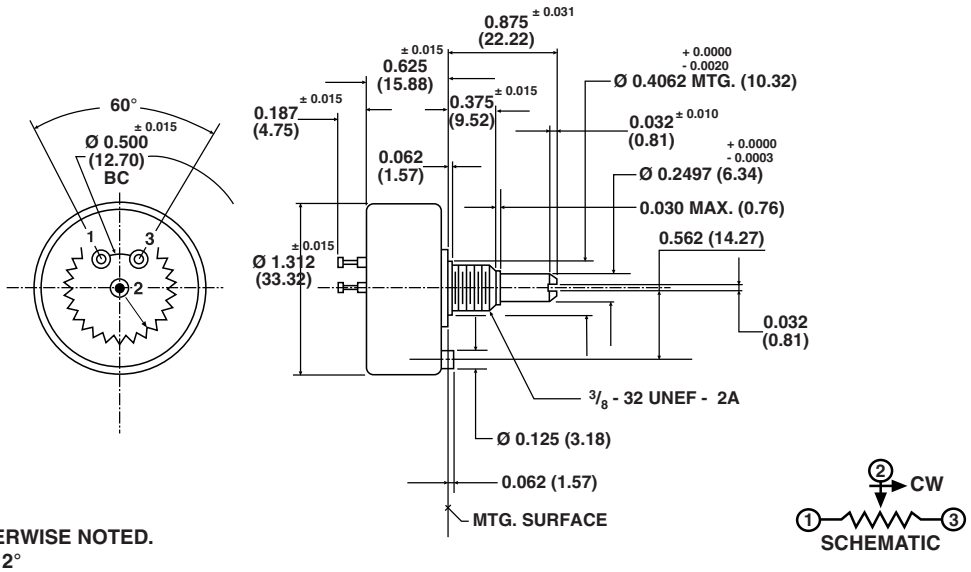
PART NUMBER DESCRIPTION (for information only)

138-	2-	1-	502	xxxx
MODEL	MECHANICAL OPTIONS	FEATURES	OHMIC VALUE	SPECIAL

DIMENSIONS in inches (millimeters)

MODEL 138B/138-...

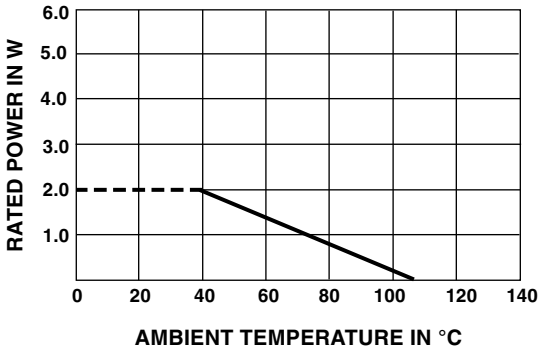


TOLERANCES: UNLESS OTHERWISE NOTED.
DECIMALS ± 0.005 ANGLES ± 2°

MECHANICAL SPECIFICATIONS

PARAMETER		
Rotation	360° (continuous) 340° ± 5° stops	
Bearing Type	Sleeve	
Torque (maximums)	**STARTING** 1.0 oz. - in (72 g - cm)	**RUNNING** 0.7 oz. - in (50.40 g - cm)
Runouts (maximums)		
Shaft Runout (TIR)	0.002" (0.05 mm)	
Pilot Dia. Runout (TIR)	0.003" (0.08 mm)	
Lateral Runout (TIR)	0.005" (0.13 mm)	
Shaft End Play	0.008" (0.20 mm)	
Shaft Radial Play	0.003" (0.08 mm)	
Weight	1.0 oz. maximum (28.35 g)	
Stop Strength	8.0 in - lbs (9.21 kg - cm) (stops version only)	

POWER RATING CHART



MARKING

Unit Identification	Units shall be marked with Vishay Spectrol name, model number, resistance and tolerance, linearity, terminal identification, and data code Applicable test procedures: MIL-R-39023 Example of a marking for a standard part: 138-2-0-502

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