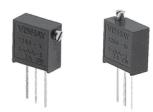




# Bulk Metal® Foil Ultra High Technology Precision Trimming Potentiometers, <sup>3</sup>/<sub>8</sub>" Square, RJ24 Style, Designed to Meet or Exceed the Requirements of MIL-PRF-39035, Char. H with a Smooth and Unidirectional Output

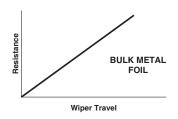


#### INTRODUCTION

Vishay Foil precision trimmers have the Bulk Metal® Foil resistive element which possesses a unique inherent temperature and load life stability. Plus, their advanced virtually back lash-free adjustment mechanism makes them easy to set quickly and accurately and keeps the setting exactly on target.

#### **FEATURES**

- Temperature coefficient of resistance (TCR):
   ± 10 ppm/°C (- 55 °C to + 150 °C ref. at + 25 °C); through the wiper (2);
   ± 25 ppm/°C (see table 2 for low values)
- A smooth and unidirectional resistance with leadscrew adjustment
- • Load life stability: 0.1 % typical  $\Delta R$ , 1.0 % maximum  $\Delta R$  under full rated power at + 85 °C for 10 000 h
- Settability: 0.05 % typical; 0.1 % maximum
- Setting stability: 0.1 % typical; 0.5 % maximum
- Power rating: 0.25 W at + 85 °C
- Resistance range: 5  $\Omega$  to 10 k $\Omega$
- Resistance tolerance: ± 5 %, ± 10 %
- "O"-ring prevents ingress of fluids during any board cleaning operation
- Electrostatic discharge (ESD) up to 25 000 V
- Terminal finish: tin/lead





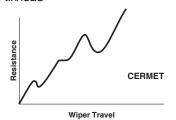


TABLE 1 - MODEL SELECTION						
MODEL	TERMINATION STYLE	AVERAGE WEIGHT (g)	POWER RATING at + 85 °C AMBIENT	NO. OF TURNS		
1260	W-edge mount, top adjust	0.4	0.25 W	21 ± 2		
	X-edge mount, side adjust	0.4	0.25 W			

#### Note

• See figure 1

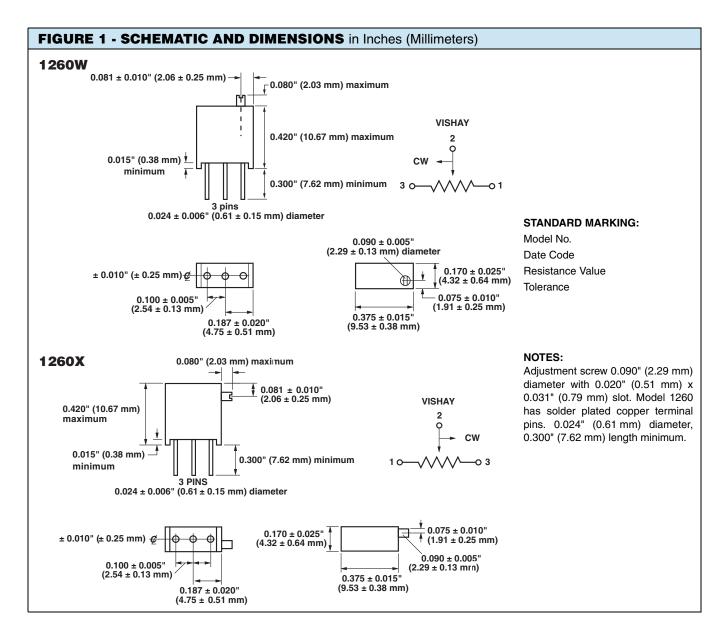
TABLE 2 - 1260 (RJ24 STYLE) SERIES ELECTRICAL SPECIFICATIONS					
Temperature Coefficient of Resistance (TCR) 50 $\Omega$ to 10 k $\Omega$ End-to-end <sup>(1)</sup>	± 10 ppm/°C maximum (- 55 °C to + 150 °C, + 25 °C ref.)				
Temperature Coefficient of Resistance (TCR) 5 $\Omega$ , 10 $\Omega$ and 20 $\Omega$ Through the wiper $^{(2)}$	± 20 ppm/°C ± 25 ppm/°C				
Stability Load life at 10 000 h	0.1 % typical $\Delta R$ 1.0 % maximum $\Delta R$ (under full rated power of 0.25 W at + 85 °C)				
Power Rating (3)	0.25 W at + 85 °C				
Settability	0.05 % typical; 0.1 % maximum				
Setting Stability	0.1 % typical; 0.5 % maximum				
Contact Resistance Variation - CRV (noise)	$3 \Omega$ typical; $10 \Omega$ maximum				
Hop-off	0.25 % typical; 1.0 % maximum				
High-Frequency Operation Rise/decay time Inductance Capacitance	1 ns without ringing 0.08 µH typical 0.5 pF typical				
Operating Temperature Range	- 55 °C to + 150 °C				

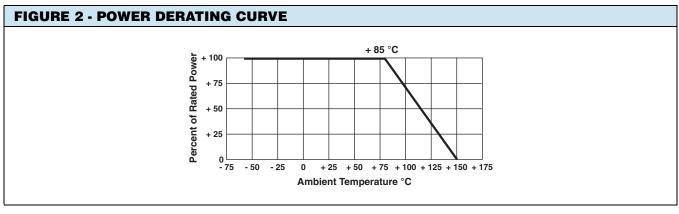
TABLE 3 - VALUES VS. TOLERANCES				
STANDARD RESISTANCE VALUES (in $\Omega$ )	STANDARD TOLERANCE			
5, 10	± 10 %			
20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	± 5 %			

TABLE 4 - MECHANICAL SPECIFICATIONS				
Adjustment Turns	21 ± 2			
Mechanical Stops	Wiper idles - no discontinuity			
Internal Terminations	All welded - no flux			
Case Material	Diallyl-phthalate: black (DAP)			
Shaft Torque	3 oz. in. maximum			
Backlash	0.005 % typical			

Document Number: 63054 Revision: 24-Mar-10 For any questions, contact: foil@vishaypq.com







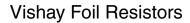




TABLE 5 - COMPARISON					
	MIL-PRF-39035/2 CHARACTERISTIC H (4)	1260 MAXIMUM			
TEST GROUP I Conditioning Contact resistance variation - CRV (noise) Immersion	$\pm$ 1.0 % $\pm$ 3.0 % or 3 $\Omega$ $^{(5)}$ No continuous stream of bubbles	$\pm$ 0.5 % $3~\Omega$ typical, 10 $\Omega$ maximum No continuous stream of bubbles			
TEST GROUP Ia Visual and mechanical Actual effective electrical travel End resistance	No failures 10 to 25 turns 2 % or 2 $\Omega$ $^{(5)}$	No failures 21 $\pm$ 2 turns 2 $\Omega$ for values $\leq$ 1 $k\Omega$ ; 5 $\Omega$ for values $\geq$ 2 $k\Omega$ :			
Dielectric withstanding voltage - DWV Per MIL-STD-202, methods 301 and 105 Atmospheric pressure Barometric pressure Insulation resistance Shaft torque Thermal shock Setting stability	$600 \text{ V}_{\text{AC}}$ , 1 min $250 \text{ V}_{\text{AC}}$ , 1 min $≥ 1000 \text{ M}Ω$ 3 oz. in. maximum $± 1.0 \%$ $± 1.0 \%$	$600 \text{ V}_{AC}$ , 1 min $250 \text{ V}_{AC}$ , 1 min $> 1000 \text{ M}\Omega$ 3 oz. in. maximum $\pm 0.5 \%$ $\pm 0.5 \%$			
TEST GROUP II Solderability	Per MIL-STD-202, method 208	Per MIL-STD-202, method 208			
TEST GROUP III Resistance temperature characteristic - TCR Moisture resistance Contact resistance variation - CRV (noise)	± 0.005 %/°C (± 50 ppm/°C) ± 1.0 % 3.0 % or 3 Ω <sup>(5)</sup>	$\pm$ 0.001 %/°C ( $\pm$ 10 ppm/°C) $\pm$ 0.5 % 3 $\Omega$ typical, 10 $\Omega$ maximum			
TEST GROUP IV Settability Shock Setting stability Vibration Setting stability Contact resistance variation - CRV (noise) Salt spray	± 1.0 % ± 1.0 % ± 1.0 % ± 1.0 % ± 1.0 % 3.0 % or 3 Ω <sup>(5)</sup> No corrosion	$\pm$ 0.1 % $\pm$ 0.5 % $\pm$ 0.5 % $\pm$ 0.5 % $\pm$ 0.5 % 3 $\Omega$ typical, 10 $\Omega$ maximum No corrosion			
TEST GROUP V Solder heat Low-temperature operation Setting stability Low-temperature storage High-temperature exposure Setting stability Contact resistance variation - CRV (noise) Integrity of shaft	± 1.0 % ± 1.0 % ± 2.0 % ± 1.0 % ± 3.0 % ± 2.0 % 3.0 % or 3 Ω <sup>(5)</sup> No loosening or breakage	± 0.1 % ± 0.5 % ± 0.5 % ± 0.5 % ± 0.5 % ± 0.5 % 3 Ω typical, 10 Ω maximum No loosening or breakage			
TEST GROUP VI Rotational life (200 cycles) Contact resistance variation - CRV (noise) Terminal strength	± 2.0 % 3.0 % or 3 Ω <sup>(5)</sup> 2 lbs.	$\pm$ 2.0 % 3 $\Omega$ typical, 10 $\Omega$ maximum 2 lbs.			
TEST GROUP VII Life (2000 h) at + 85 °C Life (10 000 h) at + 85 °C	± 3.0 % ± 5.0 %	± 0.1 % typical, ± 1.0 % maximum ± 0.1 % typical, ± 1.0 % maximum			
TEST GROUP VIII Solvent resistance	No failures	No failures			

#### Notes

- $^{(1)}$  Maximum TCR applies to the 3  $\sigma$  (sigma) limit or 99.73 % of a production lot. (Measured end-to-end with wiper off the element.)
- (2) Measurements of TCR through the wiper are influenced more by setting stability and the percentage of the total resistance in use (at the wiper) than by fundamental resistance change due to temperature alone. The parameter shown in table 2 is a 2 s distribution typifying the behavior of the device when used with 40 % or more of the total resistance in use.
- $^{(3)}$  Derated linearly for full power at + 85  $^{\circ}\text{C}$  to zero power at + 150 °C. See figure 2.
- $^{(4)}$  All  $\Delta R$  's are measured to the tolerance specified + 0.01  $\Omega.$
- (5) Whichever is greater.

Special available options:

Special marking
Power conditioning and screening operations.

#### **VISHAY TRIMMERS ARE INSPECTED**

100 % for:

- Immersion
- · Resistance tolerance check
- · End resistance
- Visual-mechanical
- · Dynamic tests for continuity, CRV

By sample for:

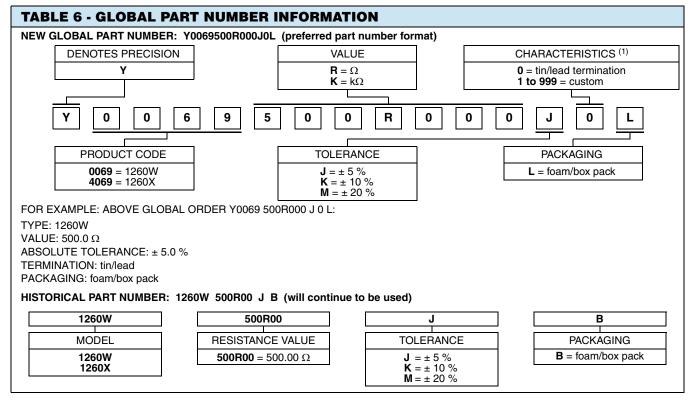
- TCR
- DWV

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For any questions, contact: foil@vishaypg.com

## Vishay Foil Resistors





#### Note

<sup>(1)</sup> For non-standard requests, please contact application engineering.

# **Legal Disclaimer Notice**



Vishay Precision Group

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