

Bulk Metal[®] Foil Technology

Precision Trimming Potentiometers, 1/4 Inch Square, RJ26 Style, Designed to Meet or Exceed The Requirements of Mil-PRF-39035, Char. H



Product may not
be to scale

FEATURES

- Temperature Coefficient of Resistance (TCR): $\pm 10\text{ppm}/^\circ\text{C}$. (-55°C to $+150^\circ\text{C}$ Ref. @ $+25^\circ\text{C}$); Through the wiper³; $\pm 25\text{ppm}/^\circ\text{C}$ (see table 2 for low values)
- Load Life Stability: 0.1% Typical ΔR , 1.0% Maximum ΔR under Full Rated Power @ $+85^\circ\text{C}$ for 10,000 hours
- Settability: 0.05% Typical; 0.1% Maximum
- Setting Stability: 0.1% Typical; 0.5% Maximum, ΔSS
- Power Rating: 0.25 watts @ $+85^\circ\text{C}$
- Resistance Range: 5Ω to $10\text{K}\Omega$

TABLE 1 - MODEL SELECTION*

MODEL	TERMINATION STYLE	AVERAGE WEIGHT (g)	STANDARD RESISTANCE VALUES (in Ω)	STANDARD TOLERANCE	POWER RATING @ $+85^\circ\text{C}$ AMBIENT	NO. OF TURNS
1240	W-Edge Mount, Top Adjust	0.4	5, 10	± 10	0.25W	21 ± 2
	X-Edge Mount, Side Adjust		20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	± 5		
	P-Horizontal Mount, Side Adjust					

*See Figure 1, next page.

TABLE 2 - 1240 (RJ26) SERIES ELECTRICAL SPECIFICATIONS

Temperature Coefficient of Resistance (TCR) 50 Ω to 10K End-to-End ²	$\pm 10\text{ppm}/^\circ\text{C}$ Maximum (-55°C to $+25^\circ\text{C}$) $\pm 10\text{ppm}/^\circ\text{C}$ Maximum ($+25^\circ\text{C}$ to $+150^\circ\text{C}$)
Temperature Coefficient of Resistance 5,10 and 20 Ω Through the Wiper ³	$\pm 20\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$
Stability Load Life @ 10,000 Hours	0.1% Typical ΔR 1.0 % Maximum ΔR (Under Full Rated Power of 0.25 watts @ $+85^\circ\text{C}$)
Power Rating ⁴	0.25 watts @ $+85^\circ\text{C}$
Settability	0.05% Typical; 0.1% Maximum
Setting Stability	0.1% Typical; 0.5% Maximum ΔSS
Contact Resistance Variation – CRV (noise) ⁵	3 Ω Typical 10 Ω Maximum
Hop -off	0.25% Typical; 1.0% Maximum
High-Frequency Operation Rise/Decay Time Inductance Capacitance	To 100MHz 10ns @ 1K Ω 0.08 μH Typical 0.5pF Typical
Operating Temperature Range	-55°C to $+150^\circ\text{C}$

Refer to last page in this data sheet for footnotes.

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TABLE 3 - MECHANICAL SPECIFICATIONS

Adjustment Turns	21 ± 2
Mechanical Stops	Wiper Idles – No Discontinuity
Internal Terminations	All Welded – No Flux
Case Material	1240X – Diallyl-Phthalate: Green (DAP) 1240W – Diallyl-Phthalate: Green (DAP) 1240P – Thermoplastic: Black
Shaft Torque	3 oz.in. Maximum
Backlash	0.005% Typical

TABLE 4 - ORDERING INFORMATION - 1240 SERIES PARTS

Please specify Vishay Model 1240 Precision Trimming Potentiometers as follows:

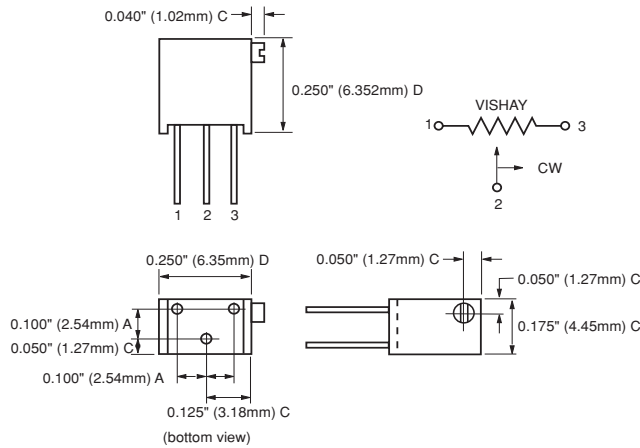
Example:

1240	W	100R	5%
MODEL NO.	TERMINATION STYLE	RESISTANCE VALUE	TOLERANCE

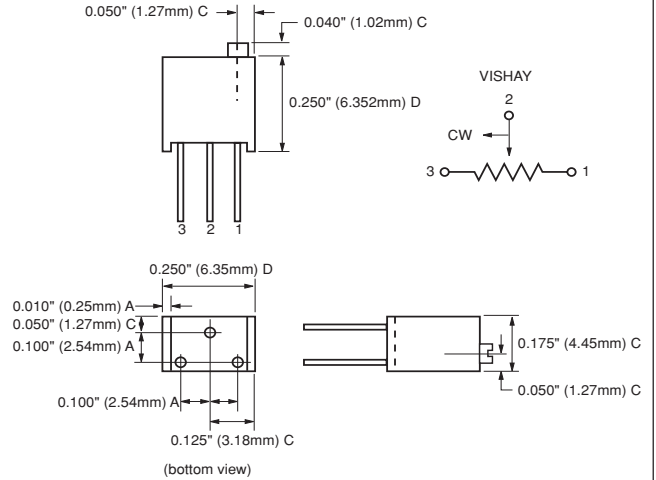
See Table 1 for details. See Figure 1, next page for Standard Marking designation.

FIGURE 1 - SCHEMATIC AND DIMENSIONS in inches (millimeters)

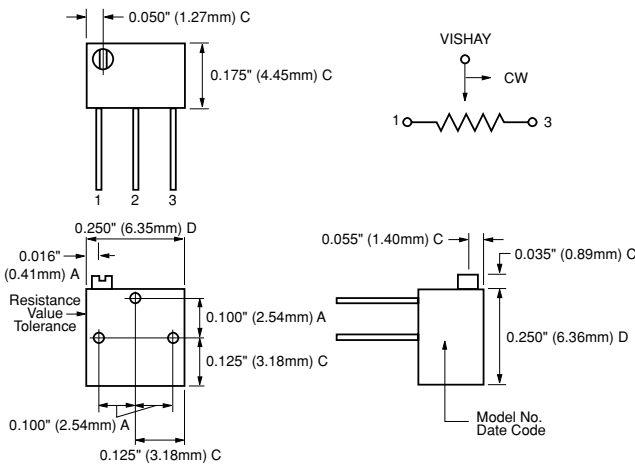
1240X



1240W



1240P



TOLERANCES

- A = ± 0.005" (0.13mm)
- C = ± 0.010" (0.25mm)
- D = ± 0.020" (0.51mm)

STANDARD MARKING

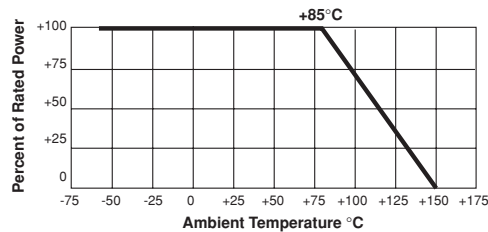
- Model No.
- Date Code
- Resistance Value
- Tolerance

NOTES

Adjustment screw 0.080" (2.03mm) diameter with 0.025" (0.64mm) X 0.030" (0.76mm) slot. Tolerance on screw dimensions is ±0.005" (0.13mm). Model 1240 has gold plated terminal pins 0.016" (0.41mm) ±0.001" (0.03mm) diameter, 0.200" (5.08mm) length minimum.

TRIMMERS

FIGURE 2 - POWER DERATING CURVE



**TABLE 5 - COMPARISON**

	MIL-PRF-39035/3 CHARACTERISTIC H ⁶	MODEL 1240 MAXIMUM (Worst Case)
TEST GROUP I Conditioning Contact Resistance Variation – CRV (noise) Immersion	± 1.0 % ± 3.0% or 3Ω ⁷ No continuous stream of bubbles	± 0.5 % 3Ω Typical, 10Ω Maximum No continuous stream of bubbles
TEST GROUP I a Visual and Mechanical Actual Effective Electrical Travel End Resistance Dielectric Withstanding Voltage – DWV (Atmospheric and Barometric Pressure) Insulation Resistance Shaft Torque Thermal Shock Setting Stability	No Failures 10 to 25 Turns 2% or 2Ω ⁷ Per MIL-Std-202, Methods 301 and 105 ≥ 1000 Megohms 3 oz. in. Maximum ± 1.0% ± 1.0%	No Failures 21 ± 2 Turns 2Ω for Values ≤ 1KΩ; 5Ω for Values ≥ 2KΩ; Per MIL-Std-202, Methods 301 and 105 > 1000 Megohms 3oz. in. Maximum ± 0.5% ± 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% (± 50ppm/°C) ± 1.0% 3.0% or 3Ω ⁷	± 0.001% (± 10ppm/°C) ± 0.5% 3Ω Typical, 10Ω 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 3Ω ⁷ No Corrosion	± 0.1% ± 0.5% ± 0.5% ± 0.5% ± 0.5% 3Ω Typical, 10Ω 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% or 3Ω ⁷ No Loosening or Breakage	± 0.1% ± 0.5% ± 0.5% ± 0.5% ± 0.5% ± 0.5% 3Ω Typical, 10Ω Maximum No Loosening or Breakage
TEST GROUP VI Rotational Life (200 Cycles) Contact Resistance Variation – CRV (noise) Terminal Strength	± 2.0% 3% or 3Ω ⁷ 2lbs.	± 2.0% 3Ω Typical, 10Ω Maximum 2lbs.
TEST GROUP VII Life (2,000 Hours) @ +85°C Life (10,000 Hours) @ +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

VISHAY TRIMMERS ARE INSPECTED

100% For:

- Short-time overload
(6.25 x rated power for 5 seconds on;
and for 30 seconds off – 3 cycles)
- Immersion
- Resistance tolerance check
- End Resistance
- Visual-Mechanical
- Dynamic tests for Continuity, CRV

By Sample For:

- TCR
- DWV

NOTES:

1. Maximum is 1.0% A.Q.L. standard for all specifications except TCR. (For TCR information, see notes 2 and 3.) "Typical" is a designers reference which represents that 85% of the lots supplied, over a long period of time, will be at least the figure stated or better.
2. Maximum TCR applies to the 3 σ (sigma) limit or 99.73% of a production lot. (Measured end-to-end with wiper off the element.)
3. 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 σ distribution typifying the behavior of the device when used with 40% or more of the total resistance in use.
4. Derated linearly for full power @ + 85°C to zero (0) watts @ + 150°C. See Figure 2 on previous page..
5. Independent of resistance value. 3 ohms maximum available on special request.
6. All ΔR's are measured to the tolerance specified + 0.01ohms
7. Whichever is greater.

Special Available Options:

- Special marking
- Burn-in and screening operations

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