Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Bulk Metal® Foil Technology Ultra High Precision Trimming Potentiometers, 1/4" Square, RJ26 Style, Designed to Meet or Exceed The Requirements of MIL-PRF-39035, Char. H with a Smooth and Unidirectional Output

FEATURES

- Temperature coefficient of resistance (TCR): ± 10 ppm/°C. (- 55 °C to + 150 °C ref. at + 25 °C); through the wiper (3); ± 25 ppm/°C (see table 2 for low values)
- A smooth and unidirectional resistance with leadscrew adjustment
- Load life stability: 0.1 % typical ΔR, 1.0 % maximum ΔR 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, DSS
- Power rating: 0.25 W at + 85 °C
- Resistance range: 5 Ω to 10 kΩ
- Tolerance: ± 5 %, ± 10 %
- Electrostatic discharge (ESD) at least to 25 kV
- Terminal finish: gold plated (tin/lead finish is available on request)

Pb-free

RoHS COMPLIANT

INTRODUCTION

Vishay Foil Resistors' (VFR) 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.

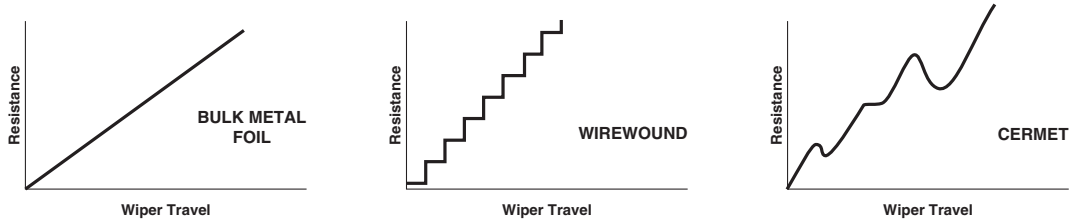


TABLE 1 - MODEL SELECTION

MODEL	TERMINATION STYLE	AVERAGE WEIGHT (g)	POWER RATING at + 85 °C AMBIENT	NO. OF TURNS
1240	W-edge mount, top adjust	0.4	0.25 W	21 ± 2
	X-edge mount, side adjust			
	P-horizontal mount, side adjust			

Note

• See Figure 1, next page

TABLE 2 - 1240 (RJ26) SERIES ELECTRICAL SPECIFICATIONS

Temperature Coefficient of Resistance (TCR) 50 Ω to 10 kΩ End-to-end (2)	± 10 ppm/°C maximum (- 55 °C to + 150 °C, + 25 °C ref.)
Temperature Coefficient of Resistance 5, 10 and 20 Ω	± 20 ppm/°C
Through the wiper (3)	± 25 ppm/°C
Stability Load life at 10 000 h End-to-end (2)	0.1 % typical ΔR 1.0 % maximum ΔR (under full rated power of 0.25 W at + 85 °C)
Power Rating (4)	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) (5)	3 Ω typical; 10 Ω maximum
Hop-off	0.25 % typical; 1.0 % maximum
High-Frequency Operation Rise time Inductance Capacitance	 1.0 ns without ringing 0.08 µH typical 0.5 pF typical
Operating Temperature Range	- 55 °C to + 150 °C

TABLE 3 - VALUES VS. TOLERANCES

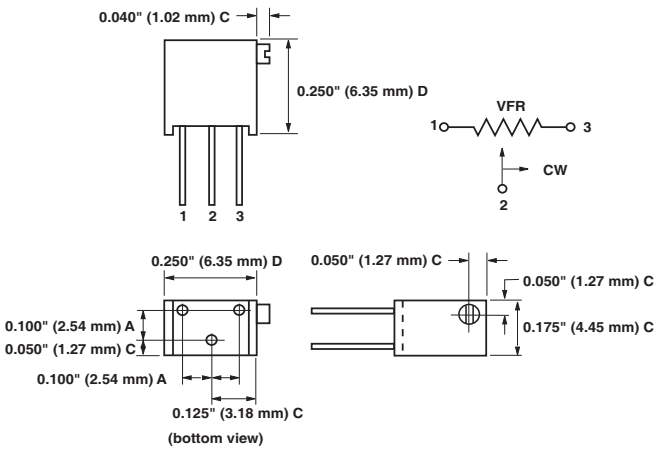
STANDARD RESISTANCE VALUES (in Ω)	STANDARD TOLERANCE
5, 10	± 10 %
20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	± 5 %

TABLE 4 - MECHANICAL SPECIFICATIONS

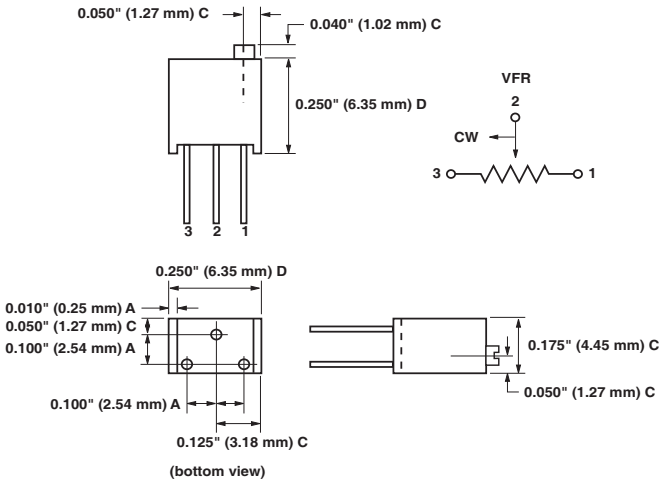
Adjustment Turns	21 ± 2
Mechanical Stops	Wiper idles - no discontinuity
Internal Terminations	All welded - no flux
Case Material	1240X - diallyl-phthalate: green (DAP) 1240W - diallyl-phthalate: green (DAP) 1240P - thermoplastic: black
Shaft Torque	3 oz. in. maximum
Backlash	0.005 % typical

FIGURE 1 - SCHEMATIC AND DIMENSIONS in Inches (Millimeters)

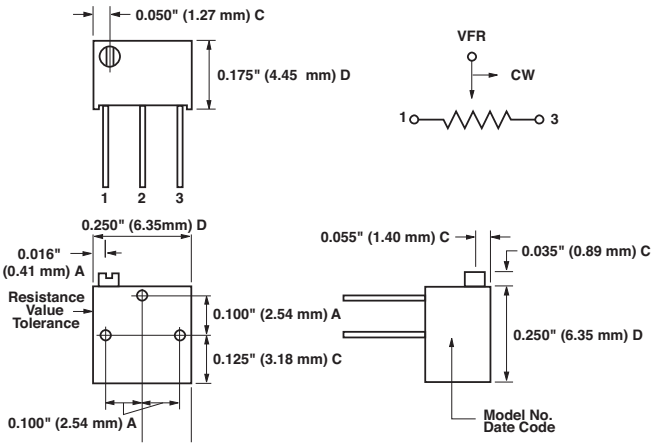
1240X



1240W



1240P



TOLERANCES:

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

STANDARD MARKING:

Model No.
Date Code
Resistance Value
Tolerance

NOTES:

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

FIGURE 2 - POWER DERATING CURVE

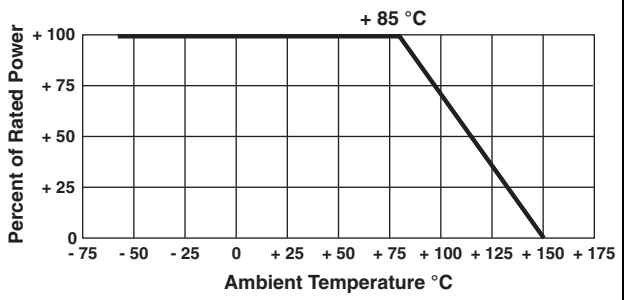


FIGURE 3 - 1240W 10 kΩ LOAD LIFE, 20 UNITS, 10 000 h at 0.25 W, + 85 °C (Wiper at CW)

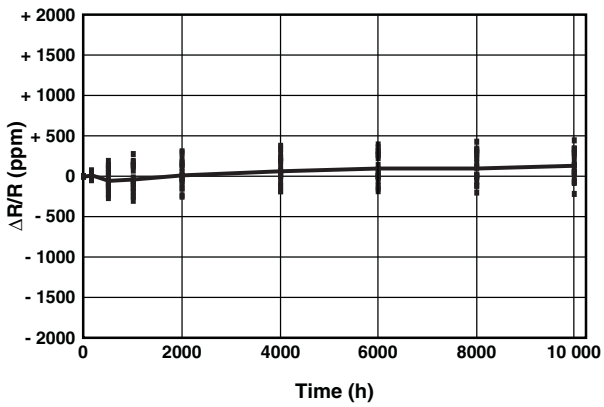


TABLE 5 - COMPARISON		
	MIL-PRF-39035/3 CHARACTERISTIC H	MODEL 1240 MAXIMUM[6]
TEST GROUP I		
Conditioning	± 1.0 %	± 0.5 %
Contact resistance variation - CRV (noise)	± 3.0 % or 3 Ω [7]	3 Ω typical, 10 Ω maximum
Immersion	No continuous stream of bubbles	No continuous stream of bubbles
TEST GROUP I a		
Visual and mechanical	No failures	No failures
Actual effective electrical travel	10 to 25 turns	21 ± 2 turns
End resistance	2 % or 2 Ω [7]	2 Ω for values ≤ 1 kΩ; 5 Ω for values ≥ 2 kΩ;
Dielectric withstanding voltage - DWV Per MIL-STD-202, methods 301 and 105		
Atmospheric pressure	600 V_{AC}, 1 min	600 V_{AC}, 1 min
Barometric pressure	250 V_{AC}, 1 min	250 V_{AC}, 1 min
Insulation resistance	≥ 1000 MΩ	> 1000 MΩ
Shaft torque	3 oz. in. maximum	3 oz. in. maximum
Thermal shock	± 1.0 %	± 0.5 %
Setting stability	± 1.0 %	± 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	± 0.005 %/°C (± 50 ppm/°C)	± 0.001 %/°C (± 10 ppm/°C)
Moisture resistance	± 1.0 %	± 0.5 %
Contact resistance variation - CRV (noise)	3.0 % or 3 Ω [7]	3 Ω typical, 10 Ω maximum
TEST GROUP IV		
Settability	± 1.0 %	± 0.1 %
Shock	± 1.0 %	± 0.5 %
Setting stability	± 1.0 %	± 0.5 %
Vibration	± 1.0 %	± 0.5 %
Setting stability	± 1.0 %	± 0.5 %
Contact resistance variation - CRV (noise)	3.0 % or 3 Ω [7]	3 Ω typical, 10 Ω maximum
Salt spray	No corrosion	No corrosion
TEST GROUP V		
Solder heat	± 1.0 %	± 0.1 %
Low-temperature operation	± 1.0 %	± 0.5 %
Setting stability	± 2.0 %	± 0.5 %
Low-temperature storage	± 1.0 %	± 0.5 %
High-temperature exposure	± 3.0 %	± 0.5 %
Setting stability	± 2.0 %	± 0.5 %
Contact resistance variation - CRV (noise)	3 % or 3 Ω [7]	3 Ω typical, 10 Ω maximum
Integrity of shaft	No loosening or breakage	No loosening or breakage
TEST GROUP VI		
Rotational life (200 cycles)	± 2.0 %	± 2.0 %
Contact resistance variation - CRV (noise)	3 % or 3 Ω [7]	3 Ω typical, 10 Ω maximum
Terminal strength	2 lbs.	2 lbs.
TEST GROUP VII		
Life (2000 h) at + 85 °C	± 3.0 %	± 0.1 % typical, ± 1.0 % maximum
Life (10 000 h) at + 85 °C	± 5.0 %	± 0.1 % typical, ± 1.0 % maximum
TEST GROUP VIII		
Solvent resistance	No failures	No failures

Notes

(1) Maximum is 1.0 % A.Q.L. standard for all specifications except TCR. (For TCR information, see notes 2 and 3.)

(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 s 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 at + 85 °C to zero power at + 150 °C. See Figure 2 on previous page.

(5) Independent of resistance value. 3 Ω maximum available on special request.

(6) All ΔR's are measured to the tolerance specified + 0.01 Ω.

(7) Whichever is greater.

Special Available Options:
- Special marking
- Burn-in and screening operations.

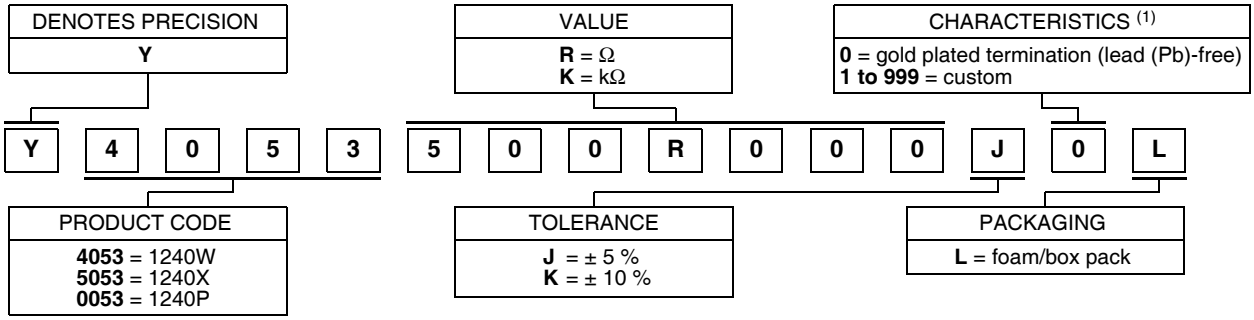
VFR TRIMMERS ARE INSPECTED

100 % for:
- Immersion
- Resistance tolerance check
- End resistance
- Visual-mechanical
- Dynamic tests for continuity, CRV

By sample for:
- TCR
- DWV

TABLE 6 - GLOBAL PART NUMBER INFORMATION

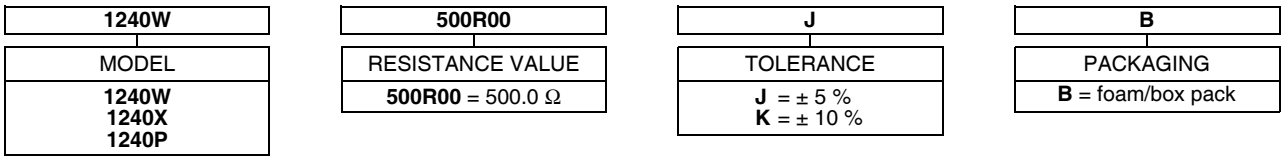
NEW GLOBAL PART NUMBER: Y4053500R000J0L (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y4053 500R000 J 0 L:

TYPE: 1240W
VALUE: 500.0 Ω
ABSOLUTE TOLERANCE: ± 5.0 %
TERMINATION: gold plated termination (lead (Pb)-free)
PACKAGING: foam/box pack

HISTORICAL PART NUMBER: 1240W 500R00 J B (will continue to be used)



Note

(1) For non-standard requests, please contact application engineering.

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