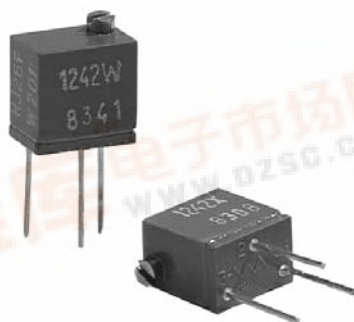




## Bulk Metal® Foil Technology

### Precision Trimming Potentiometers, QPL Approved 1/4 Inch Square, Qualified to MIL-PRF-22097, Char. F, RJ26



#### FEATURES

- Temperature coefficient of resistance (TCR):  $\pm 10$  ppm/°C maximum<sup>4)</sup> (- 55 °C to + 150 °C ref. at + 25 °C); through the wiper<sup>5)</sup>;  $\pm 25$  ppm/°C
- Load life stability: 0.1 % typical  $\Delta R$ , 1.0 % maximum  $\Delta R$  under full rated power of 0.25 W at 85 °C for 1000 h
- Settability: 0.05 % typical; 0.1 % maximum
- Setting stability: 0.1 % typical; 0.5 % maximum,  $\Delta SS$
- Power rating: 0.25 W at + 85 °C
- Resistance range: 50  $\Omega$  to 5 k $\Omega$
- Resistance tolerance:  $\pm 10$  %
- Terminal finish: gold plated

**TABLE 1 - MODEL SELECTION\***

MODEL	TERMINATION STYLE	AVERAGE WEIGHT (g)	STANDARD RESISTANCE VALUES (in $\Omega$ ) <sup>1)</sup>	STANDARD TOLERANCE <sup>2)</sup>	POWER RATING at + 85 °C AMBIENT	NO. OF TURNS
1242 (RJ26)	W-edge mount, top adjust	0.4	50, 100, 200, 500, 1K, 2K, 5K	$\pm 10$ %	0.25 W	21 $\pm$ 2
	X-edge mount, side adjust					

**Note**

\* See figure 1

**TABLE 2 - 1242 (RJ26) SERIES ELECTRICAL SPECIFICATIONS<sup>3)</sup>**

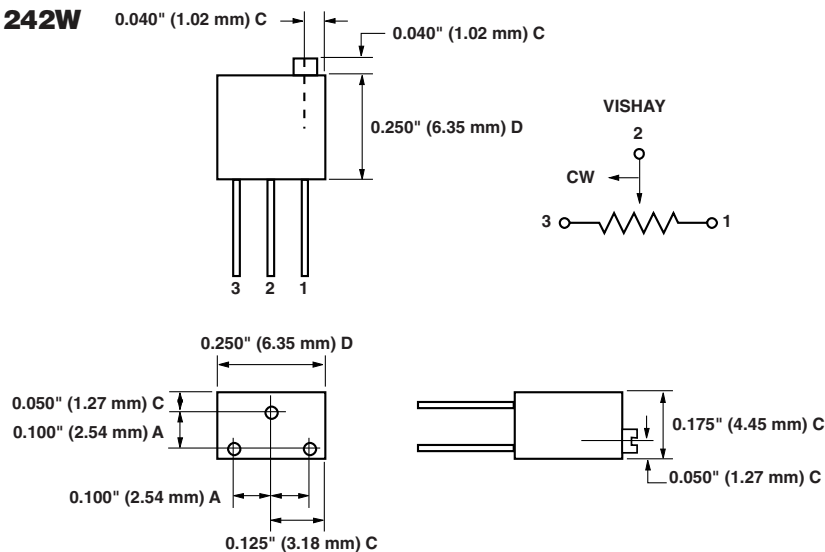
Temperature Coefficient of Resistance (TCR) End-to-end <sup>4)</sup> Through the wiper <sup>5)</sup>	$\pm 10$ ppm/°C maximum (- 55 °C to + 150 °C, 25 °C ref.) $\pm 25$ ppm/°C
Stability Load life at 1000 h	0.1 % typical $\Delta R$ 1.0 % maximum $\Delta R$ (under full rated power of 0.25 W at + 85 °C)
Power Rating (at + 85 °C) <sup>6)</sup>	0.25 W
Settability	0.05 % typical; 0.1 % maximum
Setting Stability	0.1 % typical; 0.5 % maximum $\Delta SS$
Contact Resistance Variation - CRV (noise)	$\pm 3$ % or 3 $\Omega$ <sup>7)</sup>
Hop-off	0.25 % typical; 1.0 % maximum
High-Frequency Operation Rise time Inductance Capacitance	1.0 ns without ringing 0.08 $\mu H$ typical 0.5 pF typical
Operating Temperature Range	- 55 °C to + 150 °C

**Note**

• See page 3 for footnotes

**TABLE 3 - MECHANICAL SPECIFICATIONS**

Adjustment Turns	21 $\pm$ 2
Mechanical Stops	Wiper idles - no discontinuity
Internal Terminations	All welded - no flux
Case Material	Diallyl-phthalate: green (DAP)
Shaft Torque	3 oz. in. maximum
Backlash	0.005 % typical

**FIGURE 1 - SCHEMATIC AND DIMENSIONS** in inches (millimeters)**1242W****STANDARD MARKING:**

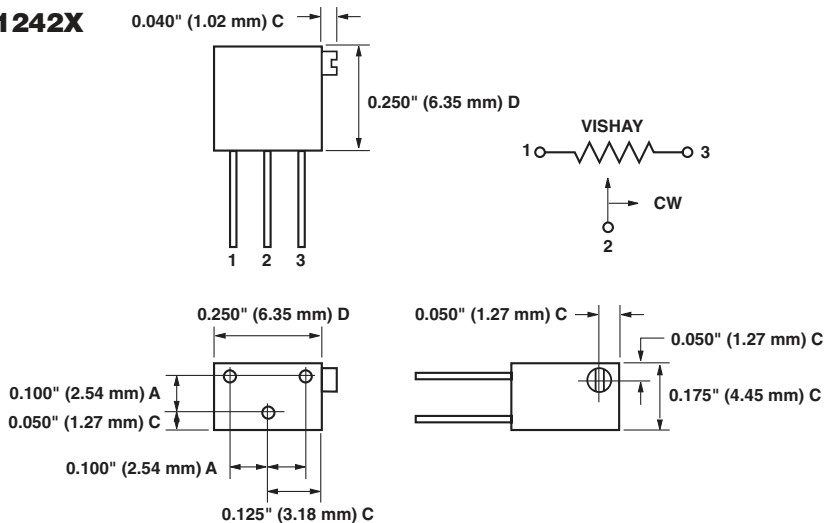
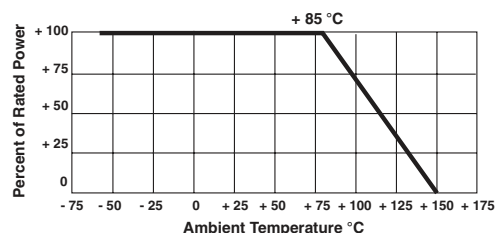
Model No.  
Date Code  
Resistance Value  
Tolerance

**NOTES:**

Adjustment screw 0.070" (1.78 mm) diameter with 0.020" (0.51 mm) X 0.020" (0.51 mm) slot. Model 1242 has gold plated terminal pins 0.016" (0.41 mm)  $\pm$  0.001" (0.03 mm) diameter, 0.200" (5.08 mm) length minimum.

**TOLERANCES:**

A =  $\pm$  0.005" (0.13)  
C =  $\pm$  0.010" (0.25)  
D =  $\pm$  0.020" (0.51)

**1242X****FIGURE 2 - POWER DERATING CURVE**



Bulk Metal® Foil Technology  
Precision Trimming Potentiometers, QPL Approved 1/4 Inch  
Square, Qualified to MIL-PRF-22097, Char. F, RJ26

## Vishay Foil Resistors

**TABLE 4 - COMPARISON**

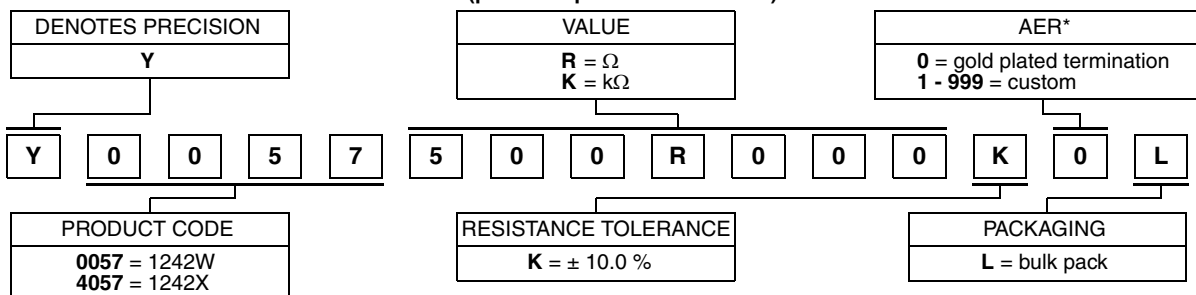
	MIL-PRF-22097/5 CHARACTERISTIC F <sup>8)</sup>	(RJ26) 1242 SPECIFICATIONS
<b>TEST GROUP I</b>		
Visual and mechanical	No failures	No failures
Total resistance	± 10 %	± 10 %
Actual effective electrical travel	10 to 25 turns	21 ± 2 turns
End resistance	± 2 % or 20 Ω <sup>7)</sup>	2 Ω (values ≤ 1 kΩ) ; 5 Ω (values ≥ 2 kΩ)
Contact resistance variation - CRV (noise)	± 3.0 % or 3 Ω <sup>7)</sup>	± 3.0 % or 3 Ω <sup>7)</sup>
Dielectric withstanding voltage - DWV (atmospheric and barometric pressure)	Per MIL-STD-202, methods 301 and 105	Per MIL-STD-202, methods 301 and 105
Insulation resistance	> 1000 MΩ	> 1000 MΩ
Shaft torque	3 oz. in. maximum	3 oz. in. maximum
Thermal shock	± 1.0 %	0.1 % typical; 0.5 % maximum
<b>TEST GROUP II</b>		
Resistance temperature characteristic - TCR	± 0.01 % (± 100 ppm/°C)	± 0.001 % (10 ppm/°C)
Moisture resistance	± 1.0 %	± 0.5 %
Contact resistance variation - CRV (noise)	± 3.0 % or 3 Ω <sup>7)</sup>	± 3.0 % or 3 Ω <sup>7)</sup>
<b>TEST GROUP III</b>		
Shock (specified pulse)	± 1.0 %	± 0.5 %
Vibration (high-frequency)	± 1.0 %	± 0.5 %
Contact resistance variation - CRV (noise)	± 3.0 % or 3 Ω <sup>7)</sup>	± 3.0 % or 3 Ω <sup>7)</sup>
Salt spray	No corrosion	No corrosion
<b>TEST GROUP IV</b>		
Solder heat	± 1.0 %	± 0.1 %
Life (1000 h at 85 °C)	± 2.0 %	± 1.0 %
Contact resistance variation - CRV (noise)	± 3.0 % or 3 Ω <sup>7)</sup>	± 3.0 % or 3 Ω <sup>7)</sup>
<b>TEST GROUP V</b>		
Low-temperature operation	± 1.0 %	± 0.5 %
High-temperature exposure	± 2.0 %	± 0.5 %
Contact resistance variation - CRV (noise)	± 3.0 % or 3 Ω <sup>7)</sup>	± 3.0 % or 3 Ω <sup>7)</sup>
<b>TEST GROUP VI</b>		
Rotational life	± 2.0 %	± 2.0 %
Contact resistance variation - CRV (noise)	± 3.0 % or 3 Ω <sup>7)</sup>	± 3.0 % or 3 Ω <sup>7)</sup>
Terminal strength	2 lbs.	2 lbs.
<b>TEST GROUP VII</b>		
Solderability	MIL-STD-202 method 208	MIL-STD-202 method 208
Immersion	No continuous stream of bubbles	No continuous stream of bubbles
<b>TEST GROUP VIII</b>		
Fungus	MIL-STD-810 method 508	MIL-STD-810 method 508
	No mechanical damage	No mechanical damage

**Notes**

1. 5 Ω, 10 Ω, and 20 Ω resistance values available on special order.
2. 5 % resistance tolerance available on special order.
3. Maximum is 1.0 % A.Q.L. standard for all specifications except TCR. (For TCR information, see notes 4 and 5.) "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 shown or better.
4. 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.)
5. 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.
6. Derated linearly for full power at + 85 °C to zero (0) W at + 150 °C. See figure 2 on previous page.
7. Whichever is greater.
8. All ΔR's are measured to the tolerance specified + 0.01 Ω.

**TABLE 5 - GLOBAL PART NUMBER INFORMATION**

NEW GLOBAL PART NUMBER: Y0057500R000K0L (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y0057 500R000 K 0 L:

TYPE: 1242W

VALUE: 500.0  $\Omega$ ABSOLUTE TOLERANCE:  $\pm 10.0\%$ 

TERMINATION: gold plated

PACKAGING: bulk pack

HISTORICAL PART NUMBER: RJ26 F W 501 (will continue to be used)

RJ26	F	W	501
MODEL	CHARACTERISTIC	MOUNTING TYPE	RESISTANCE VALUE
RJ26	Having specifications per table 1 of MIL-PRF-22097 (i.e., TCR of 100 ppm/°C, power rating of 0.25 W at + 85 °C and improved environmental specifications)	W, PC pins (edge mount, top adjust)  X, PC pins (edge mount, side adjust)	First 2 digits significant, last digit represents the number of zeros (i.e., 501 = 500 $\Omega$ )

**Note**

\* Application engineering release: for non-standard requests, please contact application engineering.



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