

Bulk Metal[®] Foil Technology RNC90Z to MIL-PRF-55182/9



Product may not
be to scale

FEATURES

- TCR breakthrough: $\pm 2\text{ppm}/^\circ\text{C}$
- -55°C to $+175^\circ\text{C}$
- Resistance Range: 100Ω to $121\text{K}\Omega$
- Tolerance to: $\pm 0.01\%$
- "R" level high reliability resistor qualified to MIL-PRF-55182/9

The RNC90Y has been the benchmark for high precision established reliability discrete resistors since 1982. In 2000, Vishay achieved a technological breakthrough with the introduction of the commercial ultra precision low TCR Z201 resistor. This breakthrough has now allowed Vishay to introduce an established reliability "R" level very low TCR resistor. The RNC90Z TCR limit of $\pm 2\text{ppm}/^\circ\text{C}$ over the extended range of -55°C to $+175^\circ\text{C}$ is a significant improvement over the existing RNC90Y specification.

The RNC90Z is a direct replacement for the RNC90Y.

FIGURE 1 - COMPARISON OF RNC90Y TO RNC90Z TEMPERATURE COEFFICIENT OF RESISTANCE

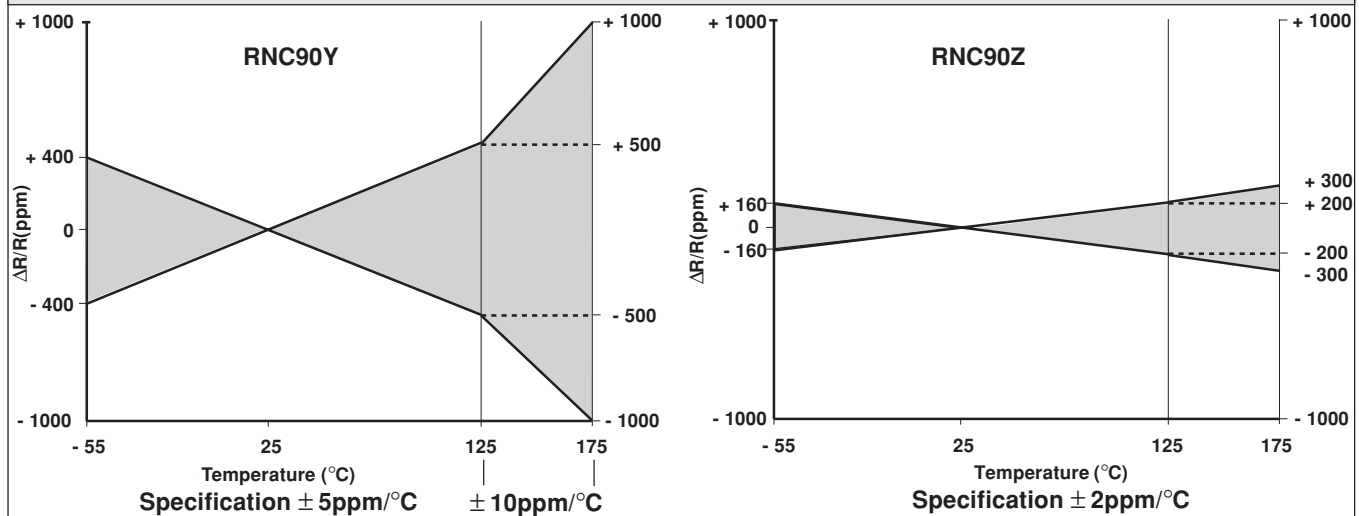


TABLE 1 - SPECIFICATIONS COMPARISON

SPECIFICATION	MIL-PRF-55182/9 CHARACTERISTIC Y LIMITS QUALIFIED RNC90Y	MIL-PRF-55182/9 CHARACTERISTIC Z LIMITS QUALIFIED RNC90Z
Temperature Coefficient of Resistance	$\pm 5\text{ppm}/^\circ\text{C}$ (-55°C to $+125^\circ\text{C}$) $\pm 10\text{ppm}/^\circ\text{C}$ ($+125^\circ\text{C}$ to $+175^\circ\text{C}$)	$\pm 2\text{ppm}/^\circ\text{C}$ (-55°C to $+125^\circ\text{C}$) $\pm 2\text{ppm}/^\circ\text{C}$ ($+125^\circ\text{C}$ to $+175^\circ\text{C}$)
Resistance Range	4R99 to 121K Ω	100R to 121K Ω
Failure Rate	Level R	Level R
Load Life Stability, 0.3W @ $+125^\circ\text{C}$ at 2000 Hours at 10000 Hours	$\pm 0.05\%$ Maximum ΔR $\pm 0.5\%$ Maximum ΔR	$\pm 0.05\%$ Maximum ΔR $\pm 0.5\%$ Maximum ΔR
Voltage Coefficient	0.0005%/V	0.0005%/V
Working Voltage	300 Volts Maximum	300 Volts Maximum

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TABLE 2 - MODEL SELECTION

MODEL NUMBER	RESISTANCE RANGE (Ω)	STANDARD RESISTANCE TOLERANCE		FAILURE RATE	AMBIENT POWER RATING		AVERAGE WEIGHT IN GRAMS
		TIGHTEST %	LOOSEST %		@ + 70°C	@ + 125°C	
RNC90Z	100Ω to 121KΩ	± 0.01	± 1.0	R	0.6 Watts	0.3 Watts	0.6

FIGURE 2 - IMPRINTING AND DIMENSIONS

RNC90Z Military Approved Resistors				DIMENSIONS	
				INCHES	MILLIMETERS
				W: 0.105 ± 0.010	2.67 ± 0.25
				L: 0.300 ± 0.010	7.62 ± 0.25
				H: 0.326 ± 0.010	8.28 ± 0.25
				ST: 0.015 ± 0.005	0.381 ± 0.13
				SW: 0.040 ± 0.006	1.02 ± 0.13
				LL: 1.000 ± 0.125	25.4 ± 3.18
				LS: 0.150 ± 0.005	3.81 ± 0.13

FIGURE 3 - POWER DERATING CURVE

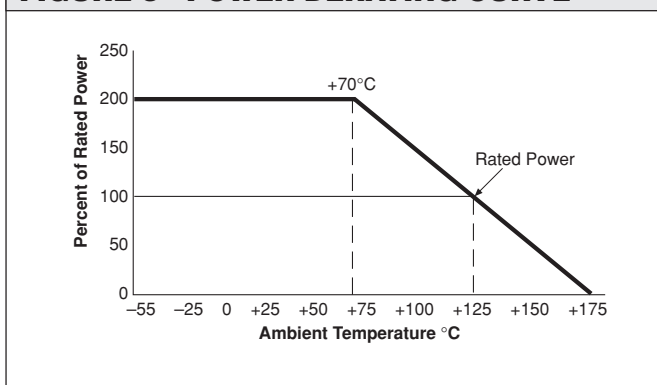


TABLE 3 - RESISTANCE TOLERANCE

TOLERANCE	SYMBOL
± 0.01%	T
± 0.05%	A
± 0.1%	B
± 0.5%*	D
± 1.0%*	F

*± 0.5% and ± 1.0% resistors available only in standard values per MIL-PRF-55182.

TABLE 4 - LIFE FAILURE RATE (LFR)

LFR	SYMBOL
± 0.01%	R
± 0.1%	P
± 1.0%	M

TABLE 5 - ORDERING INFORMATION RNC90Z SERIES PARTS

Please specify Vishay RNC90Z Series Resistors as follows: (See Table 2, 3 and 4 for further details.)

Example: RNC90Z 100R01 B R
MODEL NO. RESISTANCE VALUE TOLERANCE CODE LIFE FAILURE RATE CODE

Resistance value, in ohms, is expressed by a series of 6 characters, 5 of which represent significant digits while the 6th is a dual purpose letter that designates both the multiplier and the location of the decimal point.

For Military approved resistors with improved performance testing a unique 3XXXXX part number will be assigned.

RESISTANCE RANGE	LETTER DESIGNATOR	MULTIPLIER FACTOR
100Ω to < 1KΩ	R	x 1
1KΩ to 121KΩ	K	x 10 ³

CAGE #18612

"Commercial and Government Entity" Formerly "FSCM".

EXAMPLE: 100R01 = 100.01Ω
15K231 = 15,231Ω

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