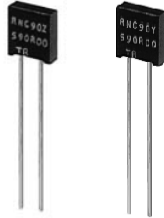




### Bulk Metal® Foil Technology RNC90Y and RNC90Z to MIL-PRF-55182/9



#### Any value available within resistance range

Vishay Military Established Reliability resistors are available in resistance values from 4.99 Ω through 121 kΩ and for tolerances from ± 0.005 % to ± 1.0 %. The same resistors are also available as a non-qualified product for customers desiring higher or lower resistance values and the same or better performance capabilities. (See Table 2) Both the qualified and the non-qualified version are manufactured on the same production line facilities and are subjected to the same process, lot control, conditioning, and GRP A (100 %) screening. Qualified versions receive additional MIL Group B and C testing.

#### FEATURES

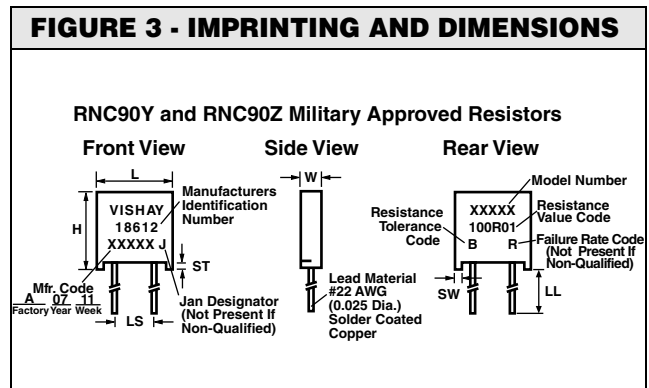
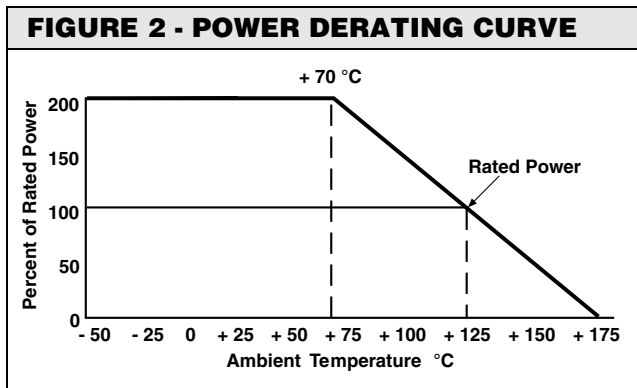
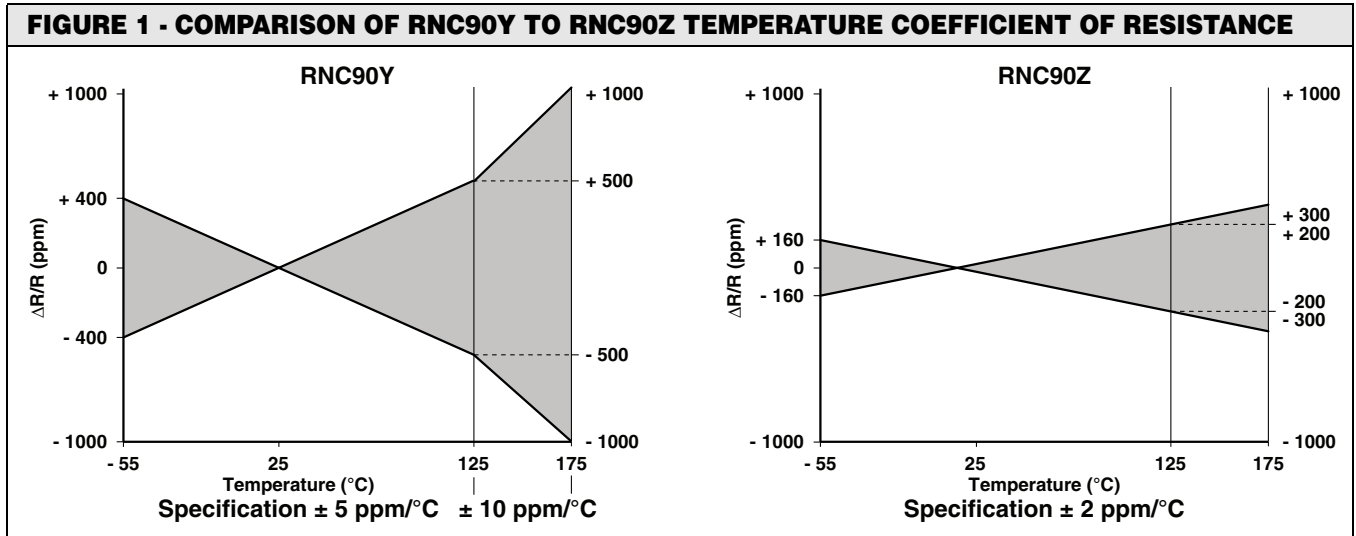
- QPL product with established reliability
- Load Life Stability: ± 0.005 % typical ΔR for 2000 hours at + 125 °C
- TCR: ± 2 ppm/°C max (- 55 °C to + 175 °C)
- Thermal EMF: < 0.1 μV/°C
- Qualified Resistance Range: 4.99 Ω to 121 kΩ [RNC90Y]  
30.1 Ω to 121 kΩ [RNC90Z]
- Resistance Tolerance: to ± 0.005 %
- Specially conditioned non-QPL resistors available  
See data sheet “Improved Performance Tested”

**TABLE 1 - SPECIFICATIONS COMPARISON**

SPECIFICATION	RNC90Y (QUALIFIED) MIL-PRF-55182/9 CHARACTERISTIC Y LIMITS	RNC90Z (QUALIFIED) MIL-PRF-55182/9 CHARACTERISTIC Z LIMITS	S555 (NON-QUALIFIED) VISHAY PERFORMANCE LIMITS	Z555 (NON-QUALIFIED) VISHAY PERFORMANCE LIMITS
<b>Temperature Coefficient of Resistance</b>	± 5 ppm/°C (- 55 °C to + 125 °C) ± 10 ppm/°C (+ 125 °C to + 175 °C)	± 2 ppm/°C (- 55 °C to + 175 °C)	± 5 ppm/ °C <sup>1)</sup> (- 55 °C to + 125 °C)	± 2 ppm/°C <sup>1)</sup> (- 55 °C to + 125 °C)
<b>Resistance Range</b>	4.99 Ω to 121 kΩ	30.1 Ω to 121 kΩ	1 Ω to 150 kΩ	4.99 Ω to 121 kΩ
<b>Failure Rate</b>	Level R	Level R	Not Specified	Not Specified
<b>Load-Life Stability</b> 0.3 W at + 125 °C at 2000 hours at 10 000 hours	± 0.05 % Maximum ΔR ± 0.5 % Maximum ΔR	± 0.05 % Maximum ΔR ± 0.5 % Maximum ΔR	± 0.015 % Maximum ΔR <sup>2)</sup> ± 0.05 % Maximum ΔR <sup>2)</sup>	± 0.015 % Maximum ΔR <sup>2)</sup> ± 0.05 % Maximum ΔR <sup>2)</sup>
<b>Current Noise</b>	Not Specified	Not Specified	- 40 dB Minimum	- 40 dB Minimum
<b>High-Frequency Operation</b> Rise Time Inductance <sup>3)</sup> (L)  Capacitance (C)  Reactance	Not Specified Not Specified  Not Specified  Not Specified	Not Specified Not Specified  Not Specified  Not Specified	1.0 ns at 1 kΩ 0.1 μH Maximum 0.08 μH Typical 1.0 pF Maximum 0.5 pF Typical < 1 %	1.0 ns at 1 kΩ 0.1 μH Maximum 0.08 μH Typical 1.0 pF Maximum 0.5 pF Typical < 1 %
<b>Voltage Coefficient</b>	0.0005 %/V	0.0005 %/V	0.0001 %/V	0.0001 %/V
<b>Working Voltage<sup>4)</sup></b>	300 V Maximum	300 V Maximum	300 V Maximum	300 V Maximum
<b>Thermal EMF<sup>5)</sup></b>	Not Specified	Not Specified	0.1 μV/°C Maximum 1 μV/W Maximum	0.1 μV/°C Maximum 1 μV/W Maximum

#### Notes

1. Maximum TCR spread from nominal (Vishay maximum TCR): spread is defined as the 3 σ (99.73 % of a production lot) limit of a nominal Gaussian distribution which is within a band centered on the nominal curve. TCR is somewhat higher for resistance values < 80 Ω. For these values consult Vishay Applications Engineering.
2. Load life ΔR Maximum can be reduced by 80 % through Enhanced Reliability Testing (ERT). Consult Vishay Applications Engineering for details.
3. Inductance (L) due mainly to the leads.
4. Not to exceed power rating of resistor.
5. μV/°C relates to EMF due to lead temperature differences and μV/W due to power applied to the resistor.



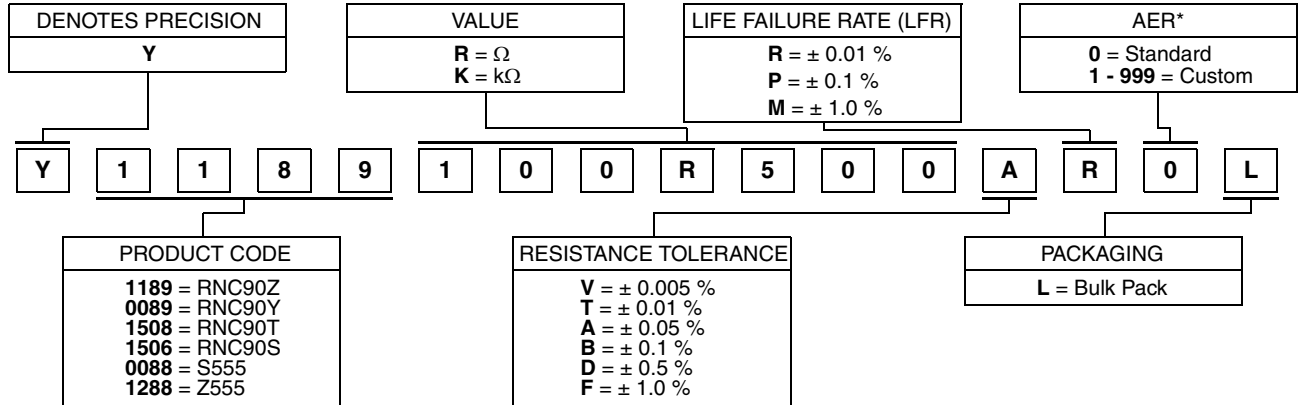
**TABLE 2 - MODEL SELECTION**

MODEL NUMBER	RESISTANCE RANGE (Ω)	STANDARD RESISTANCE TOLERANCE		FAILURE RATE	AMBIENT POWER RATING		AVERAGE WEIGHT IN GRAMS	DIMENSIONS	
		TIGHTEST %	LOOSEST %		at + 70 °C	at + 125 ° C		INCHES	mm
RNC90Y	30.1 to 121K	± 0.005	± 1.0	M, P, R (See Table 3)	0.6 W	0.3 W	0.6		
	16.2 to 30.0	± 0.05	± 1.0						
	4.99 to 16.0	± 0.1	± 1.0						
RNC90Z	30.1 to 121K	± 0.01	± 1.0		0.6 W	0.3 W	0.6		
S555 (NON QPL)	30.1 to 121K	± 0.005	± 1.0	-	0.6 W	0.3 W	0.6	W: 0.105 ± 0.010 L: 0.300 ± 0.010 H: 0.326 ± 0.010 ST: 0.015 ± 0.005 SW: 0.040 ± 0.005 LL: 1.000 ± 0.125 LS: 0.150 ± 0.005	2.67 ± 0.25 7.62 ± 0.25 8.28 ± 0.25 0.38 ± 0.13 1.02 ± 0.13 25.4 ± 3.18 3.81 ± 0.13
	20 to < 30.1	± 0.01	± 1.0						
	5 to < 20	± 0.05	± 1.0						
	2 to < 5	± 0.1	± 1.0						
	1 to < 2	± 0.5	± 1.0						
	> 121K to 150K	± 0.005	± 1.0	-	0.4 W	0.2 W	0.6		
Z555 (NON QPL)	30.1 to 121K	± 0.005	± 1.0	-	0.6 W	0.3 W	0.6		
	20 to < 30.1	± 0.01	± 1.0						
	4.99 to < 20R	± 0.05	± 1.0						



**TABLE 3 - GLOBAL PART NUMBER INFORMATION**

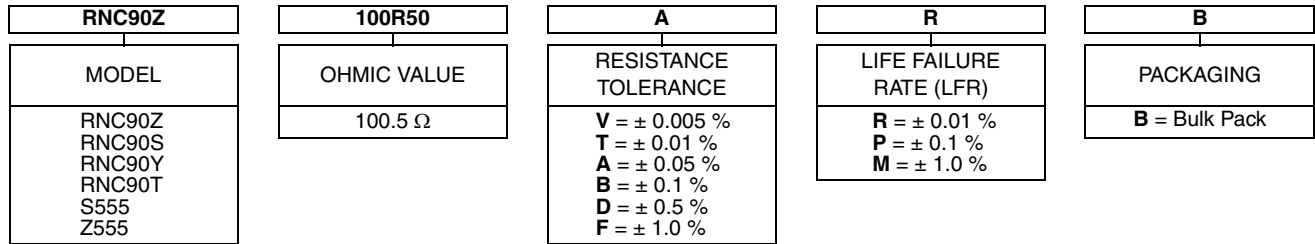
NEW GLOBAL PART NUMBER: Y1189100R500AR0L (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y1189 100R500 A R 0 L:

TYPE: RNC90Z  
VALUE: 100.5 Ω  
ABSOLUTE TOLERANCE: ± 0.05 %  
LIFE FAILURE RATE (LFR): ± 0.01 %  
AER: Standard  
PACKAGING: Bulk Pack

HISTORICAL PART NUMBER: RNC90Z 100R50 A R B (will continue to be used)



**Note**

\* For non-standard requests, please contact Application Engineering.

**CAGE #18612**

"Commercial and Government Entity"  
Formerly "FSCM".



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