

# Metal Oxide Resistors, Special Purpose, High Voltage



## FEATURES

- Low TCR:  $\pm 200$  ppm/ $^{\circ}\text{C}$  standard;  $\pm 100$  ppm/ $^{\circ}\text{C}$ ;  $\pm 50$  ppm/ $^{\circ}\text{C}$  available
- Tolerance:  $\pm 1\%$  standard to 1 G $\Omega$ ;  $\pm 5\%$  above 1 G $\Omega$ ;  $\pm 0.5\%$  available in  $\pm 50$  ppm/ $^{\circ}\text{C}$  only. Special tolerance and/or temperature coefficient matching available.
- High voltage (up to 8 kV)
- For oil bath or open air operation
- Matched sets available
- Special testing available upon request
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS\***  
COMPLIANT

### Note

\* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

| STANDARD ELECTRICAL SPECIFICATIONS |                  |  |  |   |   |   |                      |  |
|------------------------------------|------------------|--|--|---|---|---|----------------------|--|
| GLOBAL MODEL                       | HISTORICAL MODEL | POWER RATING                                 |  |   | MAXIMUM WORKING VOLTAGE <sup>(2)</sup><br>V | RESISTANCE RANGE <sup>(3)</sup><br>$\Omega$ | TOLERANCE<br>$\pm\%$ | TEMPERATURE COEFFICIENT<br>$\pm$ ppm/ $^{\circ}\text{C}$ |
|                                    |                  | $P_{25^{\circ}\text{C}}$ <sup>(1)</sup><br>W | $P_{70^{\circ}\text{C}}$ <sup>(1)</sup><br>W | $P_{125^{\circ}\text{C}}$ <sup>(1)</sup><br>W |   |   |                      |  |
| RNX025                             | RNX-1/4          | 0.5  | 0.36   | 0.25  | 750   | 1M to 22M                                   | 0.5, 1, 2, 5, 10     | 50   |
|                                    |                  |  |  |   |   | 1K to 100M                                  | 1, 2, 5, 10          | 100, 200   |
|                                    |                  |  |  |   |   | 100 to 100K                                 | 1, 2, 5, 10          | Non-inductive <sup>(4)</sup>                             |
| RNX038                             | RNX-3/8          | 1.0  | 0.72   | 0.5   | 1.5K  | 1M to 50M                                   | 0.5, 1, 2, 5, 10     | 50   |
|                                    |                  |  |  |   |   | 1K to 100M                                  | 1, 2, 5, 10          | 100  |
|                                    |                  |  |  |   |   | 1K to 1G                                    | 1, 2, 5, 10          | 200  |
| RNX050                             | RNX-1/2          | 1.2  | 0.86   | 0.6   | 2K  | 100 to 100K                                 | 1, 2, 5, 10          | Non-inductive <sup>(4)</sup>                             |
|                                    |                  |  |  |   |   | 1M to 100M                                  | 0.5, 1, 2, 5, 10     | 50   |
|                                    |                  |  |  |   |   | 1K to 250M                                  | 1, 2, 5, 10          | 100  |
| RNX075                             | RNX-3/4          | 2.0  | 1.44   | 1.0   | 3K  | 1K to 2G                                    | 1, 2, 5, 10          | 200  |
|                                    |                  |  |  |   |   | 100 to 100K                                 | 1, 2, 5, 10          | Non-inductive <sup>(4)</sup>                             |
|                                    |                  |  |  |   |   | 1M to 100M                                  | 0.5, 1, 2, 5, 10     | 50   |
| RNX100                             | RNX-1            | 2.5  | 1.8  | 1.25  | 4K  | 1K to 500M                                  | 1, 2, 5, 10          | 100  |
|                                    |                  |  |  |   |   | 1K to 2G                                    | 1, 2, 5, 10          | 200  |
|                                    |                  |  |  |   |   | 100 to 1M                                   | 1, 2, 5, 10          | Non-inductive <sup>(4)</sup>                             |
| RNX125                             | RNX-1-1/4        | 3.0  | 2.16   | 1.5   | 5K  | 1K to 500M                                  | 1, 2, 5, 10          | 100  |
|                                    |                  |  |  |   |   | 1K to 2G                                    | 1, 2, 5, 10          | 200  |
|                                    |                  |  |  |   |   | 100 to 1M                                   | 1, 2, 5, 10          | Non-inductive <sup>(4)</sup>                             |
| RNX150                             | RNX-1-1/2        | 4.0  | 2.88   | 2.0   | 6K  | 1K to 500M                                  | 1, 2, 5, 10          | 100  |
|                                    |                  |  |  |   |   | 1K to 2G                                    | 1, 2, 5, 10          | 200  |
|                                    |                  |  |  |   |   | 100 to 1M                                   | 1, 2, 5, 10          | Non-inductive <sup>(4)</sup>                             |
| RNX200                             | RNX-2            | 5.0  | 3.6  | 2.5   | 8K  | 1K to 500M                                  | 1, 2, 5, 10          | 100  |
|                                    |                  |  |  |   |   | 1K to 2G                                    | 1, 2, 5, 10          | 200  |
|                                    |                  |  |  |   |   | 100 to 1M                                   | 1, 2, 5, 10          | Non-inductive <sup>(4)</sup>                             |

### Notes

- All resistance values are calibrated at 100 V<sub>DC</sub>. Calibration at other voltages available.
  - Part marking: Print marked - DALE, model, value, tolerance, TCR, date code (model and date omitted on RNX-1/4)
  - Special modifications:
    - Special preconditioning (power aging, temperature cycling etc.) to customer specifications
    - Non-helixed resistors can be supplied for critical high frequency applications (non-inductive)
- (1) Increase wattage by 25 % for 0.032" (0.813 mm) diameter leads  
 (2) Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less.  
 (3) For resistance values above and below those listed please contact us  
 (4) Non-inductive  $\pm 200$  ppm/ $^{\circ}\text{C}$  TCR only

| TECHNICAL SPECIFICATIONS   |                    |   |        |        |        |        |        |        |                |  |
|----------------------------|--------------------|---|--------|--------|--------|--------|--------|--------|----------------|--|
| PARAMETER                  | UNIT               | RNX025  | RNX038 | RNX050 | RNX075 | RNX100 | RNX125 | RNX150 | RNX200         |  |
| Insulation Resistance      | $\Omega$           |   |        |        |        |        |        |        | $\geq 10^{11}$ |  |
| Category Temperature Range | $^{\circ}\text{C}$ | Epoxy coated = - 55/+ 150; silicone coated = - 55/+ 225 |        |        |        |        |        |        |                |  |

### GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: **RNX05010K0KKLB** (preferred part numbering format)

R
N
X
0
5
0
1
0
K
0
K
K
L
B
 
 
 
 

| GLOBAL MODEL<br>(See Standard Electrical Specifications table) | RESISTANCE VALUE  | TOLERANCE CODE   | TEMP. COEFFICIENT                        | PACKAGING <sup>(1)</sup>   | CONSTRUCTION  | SPECIAL   |
|--|---|--|--|--|---|---|
|  | R = $\Omega$<br>K = $\text{k}\Omega$<br>M = $\text{M}\Omega$<br>G = $\text{G}\Omega$<br><b>910R</b> = 910 $\Omega$<br><b>10M0</b> = 10 $\text{M}\Omega$<br><b>1G00</b> = 1.0 $\text{G}\Omega$ | D = $\pm 0.5\%$<br>F = $\pm 1\%$<br>G = $\pm 2\%$<br>J = $\pm 5\%$<br>K = $\pm 10\%$ | H = 50 ppm<br>K = 100 ppm<br>N = 200 ppm | EL = Lead (Pb)-free, lacer<br>EE = Lead (Pb)-free, T/R (1/4, 3/8, 1/2, 3/4, 1 only)<br>LB = Tin/lead, lacer<br>RC = Tin/lead, T/R (1/4, 3/8, 1/2, 3/4, 1 only) | Blank = Standard<br>N = Non-inductive<br>P = 0.032" $\varnothing$ leads | Blank = Standard (Dash number) (Up to 3 digits) From 1 to 999 as applicable |

Historical Part Number example: **RNX-1/210K0KK** (will continue to be accepted)

|                  |              |                  |                |                   |           |
|------------------|--------------|------------------|----------------|-------------------|-----------|
| RNX-1/2          |              | 10K0             | K              | K                 | L05       |
| HISTORICAL MODEL | CONSTRUCTION | RESISTANCE VALUE | TOLERANCE CODE | TEMP. COEFFICIENT | PACKAGING |

**Notes**

- (1) Some packaging codes are model specific
- For additional information on packaging, refer to the Through-Hole Resistor Packaging document ([www.vishay.com/doc?31544](http://www.vishay.com/doc?31544)).

### DIMENSIONS in inches (millimeters)

$1.50 \pm 0.125$  (38.10  $\pm$  3.18)  
 $0.025 \pm 0.002$  <sup>(1)</sup> (0.64  $\pm$  0.05)  
 $0.140 \pm 0.015 - 0.010$  (3.56  $\pm$  0.38 - 0.25)

| GLOBAL MODEL | L                                    | L <sub>1</sub> MAX. |
|--------------|--------------------------------------|---------------------|
| RNX025       | 0.290 $\pm$ 0.020 (7.37 $\pm$ 0.51)  | 0.358 (9.09)        |
| RNX038       | 0.420 $\pm$ 0.020 (10.67 $\pm$ 0.51) | 0.470 (11.94)       |
| RNX050       | 0.540 $\pm$ 0.020 (13.72 $\pm$ 0.51) | 0.595 (15.11)       |
| RNX075       | 0.790 $\pm$ 0.020 (20.07 $\pm$ 0.51) | 0.845 (21.46)       |
| RNX100       | 1.040 $\pm$ 0.020 (26.42 $\pm$ 0.51) | 1.100 (27.94)       |
| RNX125       | 1.290 $\pm$ 0.020 (32.77 $\pm$ 0.51) | 1.350 (34.29)       |
| RNX150       | 1.540 $\pm$ 0.020 (39.12 $\pm$ 0.51) | 1.600 (40.64)       |
| RNX200       | 2.040 $\pm$ 0.020 (51.82 $\pm$ 0.51) | 2.100 (53.34)       |

**Note**

- (1) Available with 0.032" (0.813 mm) leads  $\pm 0.002$ " (0.051 mm)



| MATERIAL SPECIFICATIONS |   |
|-------------------------|---|
| Element                 | High temperature fired cermet film  |
| Core                    | High purity 96 % alumina  |
| Coating                 | Flame-retardant epoxy on RNX025 and RNX038, flameproof silicone on RNX050 to RNX200 |
| Termination             | Standard lead material is solder-coated copper. Solderable and weldable.            |

| MECHANICAL SPECIFICATIONS |   |
|---------------------------|---|
| Terminal Strength         | 5 pound pull test   |
| Solderability             | Continuous satisfactory coverage when tested in accordance with MIL-STD-202, method 208 |





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