

# 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)

|                                                                                                                                                                                                                                 |                                                                                          |  |                                                                  |                                          |                                                                                                                                                                    |  |                                                             |  |                                                                             |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--|------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------|--|-----------------------------------------------------------------------------|--|--|--|--|--|--|--|
| <div><div>R</div><div>N</div><div>X</div><div>0</div><div>5</div><div>0</div><div>1</div><div>0</div><div>K</div><div>0</div><div>K</div><div>K</div><div>L</div><div>B</div><div></div><div></div><div></div><div></div></div> |                                                                                          |  |                                                                  |                                          |                                                                                                                                                                    |  |                                                             |  |                                                                             |  |  |  |  |  |  |  |
| GLOBAL MODEL                                                                                                                                                                                                                    | RESISTANCE VALUE                                                                         |  | TOLERANCE CODE                                                   | TEMP. COEFFICIENT                        | PACKAGING (1)                                                                                                                                                      |  | CONSTRUCTION                                                |  | SPECIAL                                                                     |  |  |  |  |  |  |  |
| (See Standard Electrical Specifications table)                                                                                                                                                                                  | R = Ω<br>K = kΩ<br>M = MΩ<br>G = GΩ<br><br>910R = 910 Ω<br>10M0 = 10 MΩ<br>1G00 = 1.0 GΩ |  | D = ± 0.5 %<br>F = ± 1 %<br>G = ± 2 %<br>J = ± 5 %<br>K = ± 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><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" Ø 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)

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

**Notes**

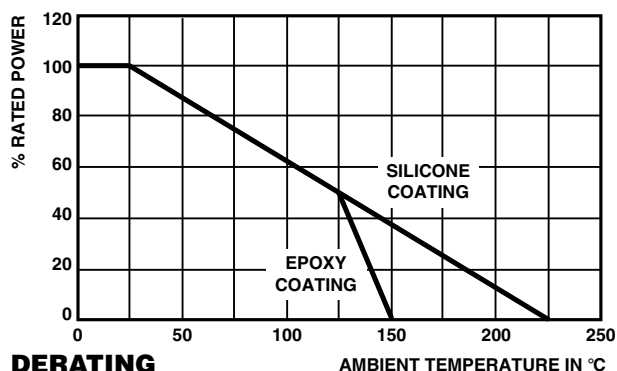
- (1) Some packaging codes are model specific
- For additional information on packaging, refer to the Through-Hole Resistor Packaging document ([www.vishay.com/doc?31544](http://www.vishay.com/doc?31544)).

**DIMENSIONS** in inches (millimeters)

|  |                     |                                      |                           |
|--|---------------------|--------------------------------------|---------------------------|
|  | <b>GLOBAL MODEL</b> | <b>L</b>                             | <b>L<sub>1</sub> MAX.</b> |
|  | 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**

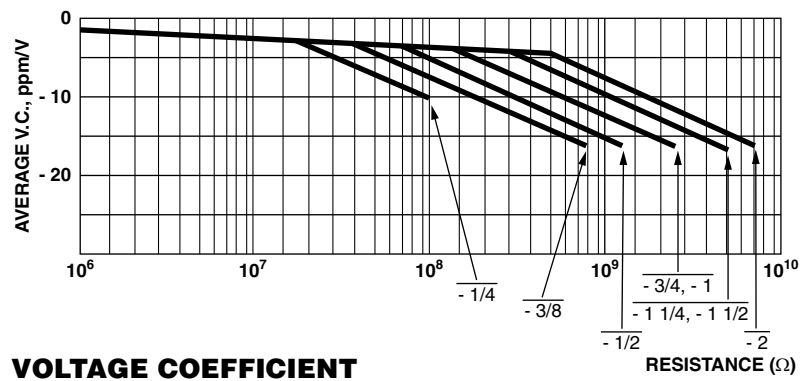
- (1) Available with 0.032" (0.813 mm) leads  $\pm$  0.002" (0.051 mm)

**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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