

Metal Oxide Resistors, Special Purpose, High Voltage



FEATURES

- Low TCR; ± 200 ppm/ $^{\circ}\text{C}$ standard; ± 100 ppm/ $^{\circ}\text{C}$, ± 50 ppm/ $^{\circ}\text{C}$ available
- Tolerance: $\pm 1\%$; $\pm 2\%$; $\pm 5\%$; $\pm 10\%$
- High Voltage (up to 45 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


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 (2) V | RESISTANCE RANGE (3) Ω | TOLERANCE $\pm \%$ | TEMPERATURE COEFFICIENT \pm ppm/ $^{\circ}\text{C}$ |
| | | $P_{25^{\circ}\text{C}}$ W (1) | $P_{70^{\circ}\text{C}}$ W (1) | $P_{125^{\circ}\text{C}}$ W (1) | | | | |
| ROX050 | ROX-1/2 | 2.0 | 1.4 | 1.0 | 2K | 1M to 100M | 1, 2, 5, 10 | 50 |
| | | | | | | 1K to 100M | 1, 2, 5, 10 | 100 |
| | | | | | | 1K to 1G | 1, 2, 5, 10 | 200 |
| ROX075 | ROX-3/4 | 3.0 | 2.16 | 1.5 | 5K | 1M to 100M | 1, 2, 5, 10 | 50 |
| | | | | | | 1K to 500M | 1, 2, 5, 10 | 100 |
| | | | | | | 1K to 3G | 1, 2, 5, 10 | 200 |
| ROX100 | ROX-1 | 4.0 | 2.88 | 2.0 | 7.5K | 100 to 1M | 1, 2, 5, 10 | Non-inductive (4) |
| | | | | | | 1M to 100M | 1, 2, 5, 10 | 50 |
| | | | | | | 1K to 500M | 1, 2, 5, 10 | 100 |
| ROX150 | ROX-1-1/2 | 5.0 | 3.6 | 2.5 | 11K | 1K to 3G | 1, 2, 5, 10 | 200 |
| | | | | | | 100 to 1M | 1, 2, 5, 10 | Non-inductive (4) |
| | | | | | | 1M to 100M | 1, 2, 5, 10 | 50 |
| ROX200 | ROX-2 | 6.0 | 4.32 | 3.0 | 15K | 1K to 500M | 1, 2, 5, 10 | 50 |
| | | | | | | 1K to 1G | 1, 2, 5, 10 | 100 |
| | | | | | | 1K to 3G | 1, 2, 5, 10 | 200 |
| ROX300 | ROX-3 | 10.0 | 7.2 | 5.0 | 22.5K | 100 to 1M | 1, 2, 5, 10 | Non-inductive (4) |
| | | | | | | 1M to 500M | 1, 2, 5, 10 | 50 |
| | | | | | | 1K to 1G | 1, 2, 5, 10 | 100 |
| ROX400 | ROX-4 | 12.0 | 8.64 | 6.0 | 30K | 1K to 3G | 1, 2, 5, 10 | 200 |
| | | | | | | 400 to 10M | 1, 2, 5, 10 | Non-inductive (4) |
| | | | | | | 1M to 500M | 1, 2, 5, 10 | 50 |
| ROX500 | ROX-5 | 16.0 | 11.52 | 8.0 | 37.5K | 1K to 1G | 1, 2, 5, 10 | 100 |
| | | | | | | 1K to 3G | 1, 2, 5, 10 | 200 |
| | | | | | | 500 to 10M | 1, 2, 5, 10 | Non-inductive (4) |
| ROX600 | ROX-6 | 20.0 | 14.4 | 10.0 | 45K | 1M to 500M | 1, 2, 5, 10 | 50 |
| | | | | | | 1K to 1G | 1, 2, 5, 10 | 100 |
| | | | | | | 1K to 3G | 1, 2, 5, 10 | 200 |
| | | | | | | 500 to 10M | 1, 2, 5, 10 | Non-inductive (4) |

Notes

- All resistance values are calibrated at 100 V_{DC}. Calibration at other voltages available.
- $\pm 1\%$ not available above 1 G Ω
- Part marking: Print marked - Dale, model, value, tolerance, temperature coefficient, date code
- (1) Increase wattage by 40 % for 0.040" (1.02 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 ± 200 ppm/ $^{\circ}\text{C}$ TCR only

| TECHNICAL SPECIFICATIONS | | | | | | | | | | |
|----------------------------|--------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|
| PARAMETER | UNIT | ROX050 | ROX075 | ROX100 | ROX150 | ROX200 | ROX300 | ROX400 | ROX500 | ROX600 |
| Insulation Resistance | Ω | $\geq 10^{11}$ | | | | | | | | |
| Category Temperature Range | $^{\circ}\text{C}$ | Epoxy coated = - 55/+ 180; Silicone coated = - 55/+ 230 | | | | | | | | |

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: ROX300100MGNF5 (preferred part numbering format)

R O X 3 0 0 1 0 0 M G N F 5

| GLOBAL MODEL (See Electrical Specifications table) | RESISTANCE VALUE R = Ω K = kΩ M = MΩ G = GΩ 910R = 910 Ω 10M0 = 10 MΩ 1G00 = 1.0 GΩ | TOLERANCE CODE F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % | TEMP. COEFFICIENT H = 50 ppm K = 100 ppm N = 200 ppm | PACKAGING (1) EL = Lead (Pb)-free, lacer (all, except 3, 4, 5, 6) EE = Lead (Pb)-free, T/R (1/2, 3/4, 1 only) EM = Lead (Pb)-free, foam (3, 4, 5, 6 only) LB = Tin/lead, lacer (all, except 3, 4, 5, 6) RF = Tin/lead, T/R (1/2, 3/4, 1 only) F5 = Tin/lead, foam (3, 4, 5, 6 only) | CONSTRUCTION (Up to 2 digits) Blank = Standard N = Non-inductive P = 0.040 Ø leads S = Solid body, axial T = Threaded terminals Y = One end axial, one threaded terminal | SPECIAL Blank = Standard (Dash number) (Up to 3 digits) From 1 to 999 as applicable |
|---|--|---|---|---|---|--|
|---|--|---|---|---|---|--|

Historical Part Number example: ROX-3100MGN (will continue to be accepted)

| | | | | | |
|------------------|--------------|------------------|----------------|-------------------|-----------|
| ROX-3 | | 100M | G | N | F05 |
| 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).

DIMENSIONS in inches (millimeters)



| GLOBAL MODEL | STYLE N, P, S | | STYLE T | STYLE Y |
|--------------|-------------------------------|----------------|-------------------------------|----------------|
| | A | B | C | C MAX. |
| ROX050 | 0.550 ± 0.032 (13.97 ± 0.81) | 0.700 (17.78) | N/A | N/A |
| ROX075 | 0.800 ± 0.032 (20.32 ± 0.81) | 0.900 (22.86) | 1.168 ± 0.022 (29.66 ± 0.56) | 1.050 (26.67) |
| ROX100 | 0.920 ± 0.032 (23.37 ± 0.81) | 1.020 (25.91) | 1.288 ± 0.022 (32.72 ± 0.56) | 1.170 (29.72) |
| ROX150 | 1.550 ± 0.032 (39.37 ± 0.81) | 1.650 (41.91) | 1.918 ± 0.022 (48.72 ± 0.56) | 1.800 (45.72) |
| ROX200 | 2.050 ± 0.032 (52.07 ± 0.81) | 2.150 (54.61) | 2.418 ± 0.022 (61.42 ± 0.56) | 2.300 (58.42) |
| ROX300 | 3.050 ± 0.032 (77.47 ± 0.81) | 3.150 (80.01) | 3.418 ± 0.022 (86.82 ± 0.56) | 3.300 (83.82) |
| ROX400 | 4.050 ± 0.032 (102.87 ± 0.81) | 4.150 (105.41) | 4.418 ± 0.022 (112.22 ± 0.56) | 4.300 (109.22) |
| ROX500 | 5.050 ± 0.032 (128.27 ± 0.81) | 5.150 (130.81) | 5.418 ± 0.022 (137.62 ± 0.56) | 5.300 (134.62) |
| ROX600 | 6.050 ± 0.032 (153.67 ± 0.81) | 6.150 (156.21) | 6.418 ± 0.022 (163.02 ± 0.56) | 6.300 (160.02) |



| MECHANICAL SPECIFICATIONS | |
|---------------------------|---|
| Terminal Strength | 10 pound pull test |
| Solderability | Continuous satisfactory coverage when tested in accordance with MIL-STD-202, Method 208 |

| MATERIAL SPECIFICATIONS | |
|-------------------------|---|
| Element | High temperature fired cermet film |
| Core | High purity 96 % alumina, tubular or solid |
| Coating | Blue flame-retardant epoxy on ROX050 thru ROX200. Black flameproof silicone on ROX300 thru ROX600 |
| Termination | Standard lead material is solder-coated copper; solderable and weldable. 0.032" (0.813 mm) style P 0.040" (1.02 mm) available |





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JONHON

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