Metal Oxide Resistors, Special Purpose, High Voltage

The ROX is an excellent choice for high voltage systems with the advantage of high wattage and space saving dimensions.

FEATURES

Pb Available

e3 RoHS* Available

- Low TCR: ± 200 ppm/°C standard; ± 100 ppm/°C, ± 50 ppm/°C available; non-inductive only available with TC of ± 200 ppm/°C
- Tolerance: ± 1 %; ± 2 %; ± 5 %; ± 10 %
- High Voltage (up to 45 kV)
- For oil bath or open air operation
- Standard ROX product is coated; optional uncoated version of the ROX product is available on request
- Matched sets available
- Special testing available upon request
- Applications: HV power supplies; laboratory equipment; power control; aeronautical
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING			MAXIMUM WORKING VOLTAGE (1)	RESISTANCE RANGE (2)	TOLERANCE	TEMPERATURE COEFFICIENT (3)
		$P_{25\ °C}$ W	$P_{70\ °C}$ W	$P_{125\ °C}$ W	V	Ω	± %	± ppm/°C
ROX050	ROX-1/2	2	1.4	1	2K	1M to 100M	1, 2, 5, 10	50
						1k to 100M	1, 2, 5, 10	100
						100 to 1G	1, 2, 5, 10	200
ROX050..P	ROX-1/2P	2.8	1.96	1.4	2K	1M to 100M	1, 2, 5, 10	50
						1k to 100M	1, 2, 5, 10	100
						100 to 1G	1, 2, 5, 10	200
ROX075	ROX-3/4	3	2.16	1.5	5K	1M to 100M	1, 2, 5, 10	50
						1k to 500M	1, 2, 5, 10	100
						100 to 3G	1, 2, 5, 10	200
ROX075..N	ROX-3/4N	3	2.16	1.5	5K	100 to 1M	1, 2, 5, 10	200
ROX075..P	ROX-3/4P	4.2	3.02	2.1	5K	1M to 100M	1, 2, 5, 10	50
						1k to 500M	1, 2, 5, 10	100
						100 to 3G	1, 2, 5, 10	200
ROX075..NP	ROX-3/4NP	4.2	3.02	2.1	5K	100 to 1M	1, 2, 5, 10	200
ROX100	ROX-1	4	2.88	2	7.5K	1M to 100M	1, 2, 5, 10	50
						1k to 500M	1, 2, 5, 10	100
						150 to 3G	1, 2, 5, 10	200
ROX100..N	ROX-1N	4	2.88	2	7.5K	100 to 1M	1, 2, 5, 10	200
ROX100..P	ROX-1P	5.6	4.03	2.8	7.5K	1M to 100M	1, 2, 5, 10	50
						1k to 500M	1, 2, 5, 10	100
						150 to 3G	1, 2, 5, 10	200
ROX100..NP	ROX-1NP	5.6	4.03	2.8	7.5K	100 to 1M	1, 2, 5, 10	200
ROX150	ROX-1-1/2	5	3.6	2.5	11K	1M to 100M	1, 2, 5, 10	50
						1k to 500M	1, 2, 5, 10	100
						200 to 3G	1, 2, 5, 10	200
ROX150..N	ROX-1-1/2N	5	3.6	2.5	11K	100 to 1M	1, 2, 5, 10	200

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		$P_{25\ °C}$ W	$P_{70\ °C}$ W	$P_{125\ °C}$ W	V	Ω	± %	± ppm/°C
ROX150..P	ROX-1-1/2P	7	5.04	3.5	11K	1M to 100M	1, 2, 5, 10	50
						1k to 500M	1, 2, 5, 10	100
						200 to 3G	1, 2, 5, 10	200
ROX150..NP	ROX-1-1/2NP	7	5.04	3.5	11K	100 to 1M	1, 2, 5, 10	200
ROX200	ROX-2	6	4.32	3	15K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						205 to 3G	1, 2, 5, 10	200
ROX200..N	ROX-2N	6	4.32	3	15K	100 to 1M	1, 2, 5, 10	200
ROX200..P	ROX-2P	8.4	6.05	4.2	15K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						205 to 3G	1, 2, 5, 10	200
ROX200..NP	ROX-2NP	8.4	6.05	4.2	15K	100 to 1M	1, 2, 5, 10	200
ROX300	ROX-3	10	7.2	5	22.5K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						330 to 3G	1, 2, 5, 10	200
ROX300..N	ROX-3N	10	7.2	5	22.5K	400 to 10M	1, 2, 5, 10	200
ROX300..P	ROX-3P	14	10.1	7	22.5K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						330 to 3G	1, 2, 5, 10	200
ROX300..NP	ROX-3NP	14	10.1	7	22.5K	400 to 10M	1, 2, 5, 10	200
ROX400	ROX-4	12	8.64	6	30K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						600 to 3G	1, 2, 5, 10	200
ROX400..N	ROX-4N	12	8.64	6	30K	500 to 10M	1, 2, 5, 10	200
ROX400..P	ROX-4P	16.8	12.1	8.4	30K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						600 to 3G	1, 2, 5, 10	200
ROX400..NP	ROX-4NP	16.8	12.1	8.4	30K	500 to 10M	1, 2, 5, 10	200
ROX500	ROX-5	16	11.5	8	37.5K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						750 to 3G	1, 2, 5, 10	200
ROX500..N	ROX-5N	16	11.5	8	37.5K	500 to 10M	1, 2, 5, 10	200
ROX500..P	ROX-5P	22.4	16.1	11.2	37.5K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						750 to 3G	1, 2, 5, 10	200
ROX500..NP	ROX-5NP	22.4	16.1	11.2	37.5K	500 to 10M	1, 2, 5, 10	200
ROX600	ROX-6	20	14.4	10	45K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						850 to 3G	1, 2, 5, 10	200
ROX600..N	ROX-6N	20	14.4	10	45K	500 to 10M	1, 2, 5, 10	200
ROX600..P	ROX-6P	28	20.2	14	45K	1M to 500M	1, 2, 5, 10	50
						1k to 1G	1, 2, 5, 10	100
						850 to 3G	1, 2, 5, 10	200
ROX600..NP	ROX-6NP	28	20.2	14	45K	500 to 10M	1, 2, 5, 10	200

Notes

- **Resistance values of 1 kΩ and below are calibrated at 1 V_{DC}, values above 1 kΩ up to 100 kΩ are calibrated at 10 V_{DC}, and values above 100 kΩ are calibrated at 100 V_{DC}. Calibration at other voltages available**
- ± 1 % not available above 1 GΩ
- Part marking: Print marked - Dale, model, value, tolerance, temperature coefficient, date code

(1) Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less
(2) For resistance values above and below those listed please contact us
(3) Typical TCR results

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	RESISTANCE VALUE	TOLERANCE CODE	TEMP. COEFFICIENT	PACKAGING (1)	CONSTRUCTION	SPECIAL
(see Electrical Specifications table)	**R** = Ω **K** = kΩ **M** = MΩ **G** = GΩ **910R** = 910 Ω **10M0** = 10 MΩ **1G00** = 1.0 GΩ	**F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **K** = ± 10 %	**H** = 50 ppm **K** = 100 ppm **N** = 200 ppm	**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)	(up to 2 digits) blank = standard **N** = non-inductive **P** = 0.040 Ø leads **S** = solid body, axial **T** = threaded terminals **-18** = Uncoated **Y** = one end axial, one threaded terminal	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.

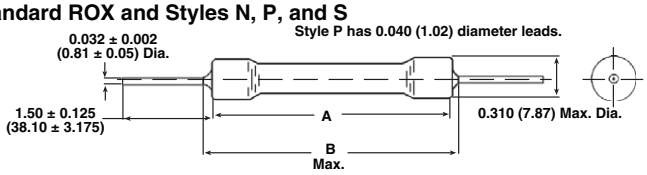
- For additional information on packaging, refer to the Through-Hole Resistor Packaging document (www.vishay.com/doc?31544).

TECHNICAL SPECIFICATIONS

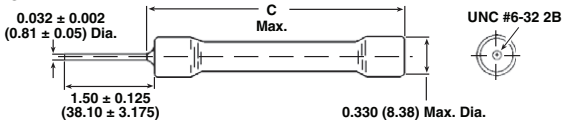
PARAMETER	UNIT	ROX050	ROX075	ROX100	ROX150	ROX200	ROX300	ROX400	ROX500	ROX600
Insulation Resistance	Ω	≥ 10^{11}								
Category Temperature Range	°C	Epoxy coated = -55 / +180; Silicone coated = -55 / +230								

DIMENSIONS in inches (millimeters)

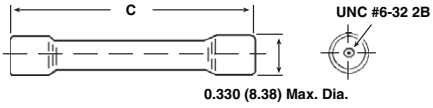
Standard ROX and Styles N, P, and S



Style Y



Style T

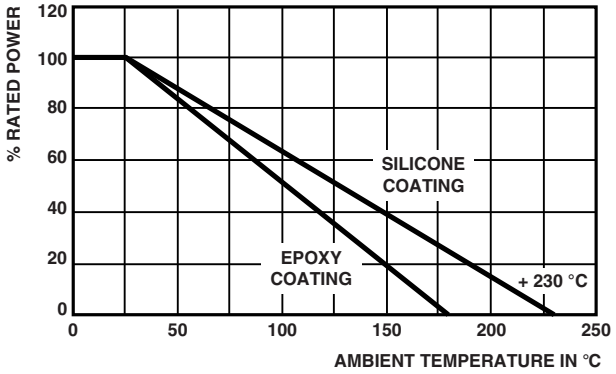


GLOBAL MODEL	STANDARD ROX AND STYLES N, P, S		STYLE T	STYLE Y
	A	B	C	C MAX.
ROX050	0.550 ± 0.032 (13.97 ± 0.81)	0.700 (17.78)	N/A	N/A
ROX075	0.800 ± 0.032 (20.32 ± 0.81)	0.900 (22.86)	1.168 ± 0.022 (29.66 ± 0.56)	1.050 (26.67)
ROX100	0.920 ± 0.032 (23.37 ± 0.81)	1.020 (25.91)	1.288 ± 0.022 (32.72 ± 0.56)	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)

Note

- All dimensions given are for the standard coated version of the ROX parts.

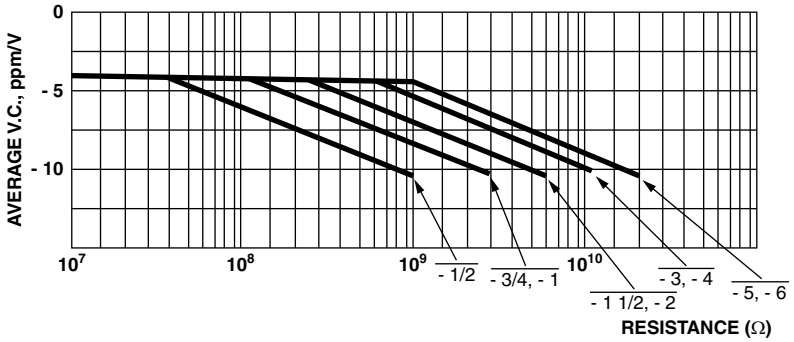
DERATING



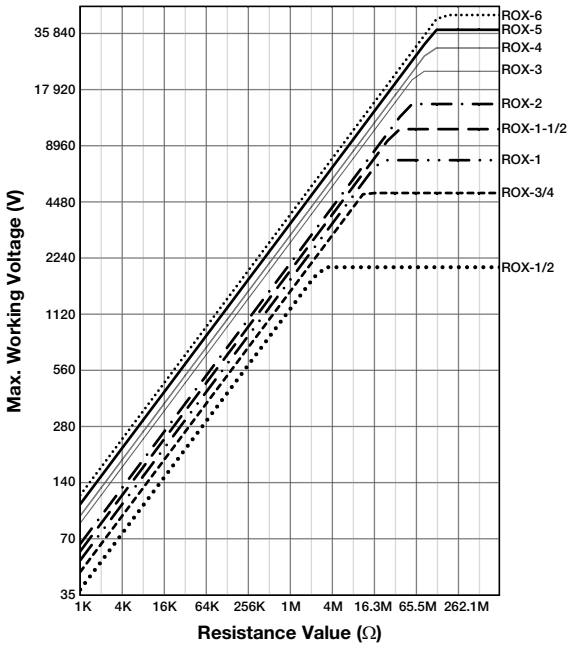
MECHANICAL SPECIFICATIONS	
Terminal Strength	10 pound pull test
Solderability	Continuous satisfactory coverage when tested in accordance with MIL-STD-202, Method 208

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

VOLTAGE COEFFICIENT



ROX MAXIMUM WORKING VOLTAGE



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