RNV Series

High Voltage Anti-moisture Metal Film Resistor

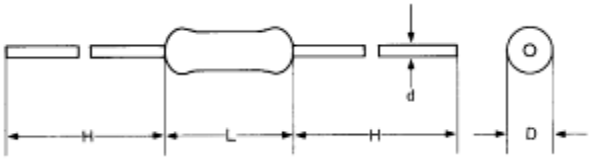
Stackpole Electronics, Inc.
Resistive Product Solutions

Features:

- High voltage surge handling per IEC 60065.14.1, up to 7KV
- High tolerance to prolonged exposure to temperature and humidity stress
- Ideal for applications requiring high stability, reliability and voltage handling; including power inverters, AC adapters and switching power supplies

Electrical Specifications

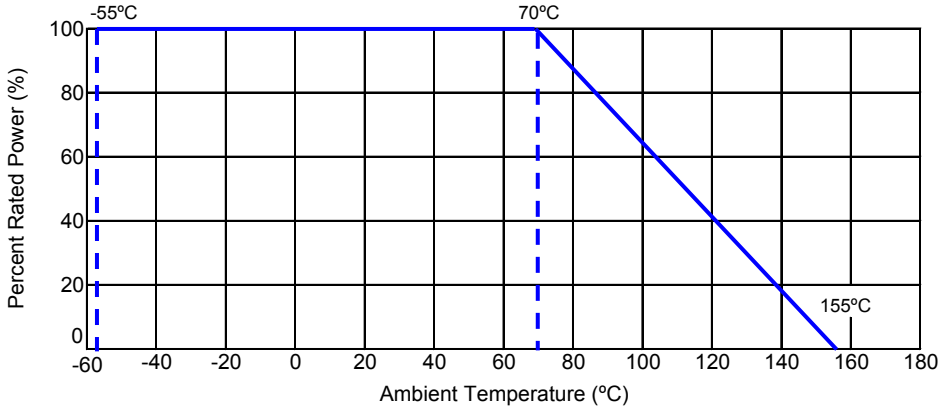
Type / Code	Power Rating (Watts) @ 70ºC	Maximum Working Voltage	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance
					1% and 5%
RNV14	0.25W	1600V (DC) 1150V (RMS)	3200V (DC) 2300V (RMS)	±200 ppm/ºC	100K - 15M



Mechanical Specifications

Type / Code	L	D	d	H	Unit
RNV14	0.236 ± 0.012 6.00 ± 0.30	0.094 ± 0.008 2.40 ± 0.20	0.022 ± 0.002 0.55 ± 0.05	1.102 ± 0.012 28.00 ± 0.30	inches mm

Power Derating Curve:



How to Order

1	2	3	4	5	6	7	8	9	10	11	12
R	N	V	1	4	F	T	L	1	0	0	K

Product Series	
RNV	High Voltage Metal Film

Size	Power
14	0.25W

Tolerance	
Code	Tol
F	1%
J	5%

Packaging			
Code	Description	Size	Quantity
A	Tape Box (52mm)	14	2,000
T	Tape and Reel		5,000

TCR	
Code	ppm
L	200

Resistance Value
Four characters with the multiplier used as the decimal holder.
100 Kohm = 100K 1 Mohm = 1M00 15 Mohm = 15M0

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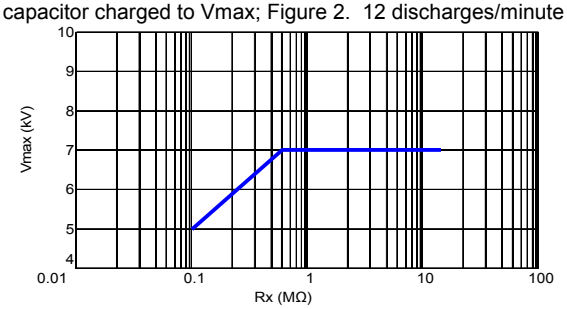
Performance Characteristics		
Item	Performance	Test Method
Solvent Resistance	No serious scratches on the insulating surface	Resistor was dipped into solvent for 5 ± 0.5 minutes
Temperature Coefficient Resistance (TCR)	Within ±200ppm/ºC	Measured resistance (R_0 ohm) at room temperature (t ºC) then measured again at 100ºC higher than room temperature ppm/ºC = $(R-R_0)/R_0$ X $10^6/\{(T + 100)-t\}$
Overload (short time)	Resistance variation within ±(1% + 0.05 ohm)	Applied DC voltage 2.5 times the rated voltage for 5 seconds ON, 45 seconds OFF. Repeated cycle 10 times. Maximum Overload voltage is not more than 2 x Max Working Voltage
Voltage Proof	Resistance variation within ±(0.5% + 0.05 ohm)	Resistor was clamped in the through of a 90ºC metallic V-block and was tested at provided AC potential voltage for 1 minute. Test voltage: max overload voltage. Test voltage: 500V (AC)
Vibration	Resistance variation within ±(0.5% + 0.05 ohm)	Applied 1.5mm amplitude vibration to two directions, perpendicular to each other, for 6 hours each. Total 12 hours. Vibrating frequency is 10HZ - 2000HZ - 10HZ cycle in 20 minutes. Repeat cycle.
Insulation Resistance	10^4 M ohm or more	Resistor was clamped in the through of a 90ºC metallic V-block at DC 100V for 1 minute
Robustness of Terminations	Resistance variation within ±(0.5% + 0.05 ohm) and no mechanical damage	Tensile test: The body of the part is fixed. The tensile force was applied gradually up to 10N. Twist test: Terminal lead was rotated 360º of the original axis of the bent terminal, alternating direction for 3 rotations.
Resistance to Soldering Heat	No mechanical and electrical deterioration	Resistance to wave soldering condition: Temperature/Time-Profile in accordance to the CECC00802. Max Temperature/Time: 260ºC, 10 seconds
Solderability	More than 95% of the lead surface was covered by new solder after the leads were dipped in the solder	Dipped the lead into a solder bath (temperature 245ºC ± 5ºC) up to 4 ± 0.8mm from the resistor body and held for 5 ± 0.5 seconds.
Rapid Change of Temperature	Resistance variation within ±(0.5% + 0.05 ohm)	Test: -55ºC for 30 min., 25ºC for 30 sec., 155ºC for 30 min. 25ºC for 30 sec. Resistance changed after continuous 5 cycles.
Damp Heat	Resistance variation within ±(1.5% + 0.05 ohm)	Temperature 40ºC ± 2ºC, relative humidity 90~95%, inside bath for 1.5 hour and shut voltage 0.5 hour. Repeated cycle for 1,000 hours. Room temperature for 1 hour after test, then measured
Endurance at 70ºC	Resistance variation within ±(1.5% + 0.05 ohm)	In constant temperature chamber 70ºC ± 2ºC, applied rated DC voltage for 1.5 hour and shut voltage for 0.5 hour. Cycle repeated for 1,000 hours.
Cold Resistance	Resistance variation within ±(1.5% + 0.05 ohm)	Resistor was put into a bath at fixed temp of -55ºC ± 3ºC for 2 hours. After measured, left at room temp for 1 hour, then measured again.
Heat Resistance	Resistance variation within ±(1.5% + 0.05 ohm)	Resistor was put into a bath at fixed temp of 155ºC ± 3ºC for 16 hours. After measured, left at room temp for 1 hour, then measured again.
High Voltage Surge Test	Resistance variation within ±(1% + 0.05 ohm)	In accordance with IEC60065.14.1, 50 discharges from a 1nF capacitor charged to Vmax; Figure 2. 12 discharges/minute 

Operating Temperature Range: -55ºC to +155ºC