

Resistors

R8700

1 K ohm/sq to 1 Gig ohm/sq Resistor System

Description:

The R8700 Series Resistor is specially formulated for high power applications. The unique glass technology and uniformly dispersed conductive phase allows a high quality fired film that dissipates high current. Applications for this material include bleeder resistor, high power tube resistor and other applications where a serpentine, multi-square power dissipation pattern is needed. The low change in resistance under electrostatic discharge, high standard working voltage and excellent VCR make it a perfect system for these applications.

● **Key Benefits:**

- High power handling
- Standard 875°C firing
- High standard working voltage
- Excellent abrasive trim characteristics

Viscosity:

110-170Kcps, Brookfield HBT, #6 spindle, 10 rpm, 25°C

Thinner:

RV-372 (Terpineol)

Recommended Processing:

Printing: 250 mesh, 0.5 mil (12.5 micron) emulsion, 1.1 mil (28 micron) wire

Drying: 150°C for 8 – 10 minutes

Film Thickness: Dried: 24 – 28 microns
Fired: 12 – 16 microns

Firing: 875°C peak, 10 minute dwell time, 45 minutes overall time

● **Typical Fired Resistor Properties:**

R8700 Series ¹⁾	R8731C	R8741C	R8751C	R8761	R8771	R8781	R8791
Resistivity ²⁾ (Ω /Sq.)	1K Ω ± 20%	10K Ω ± 20%	100K Ω ± 15%	1M Ω ± 15%	10M Ω ± 20%	100M Ω ± 30%	100 M Ω High Blender
HTCR @125°C (ppm/°C) ²⁾	±50	±50	±50	±100	±100	±100	N/A
Electrostatic Discharge ³⁾ (%)	+0.03	+0.02	0.01	-0.07	-0.20	N/A	N/A

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Short term Overload Voltage ⁴⁾ (V/mm)	72	208	560	540	160	N/A	N/A
Standard Working Voltage (V/mm)	29	83	224	216	64	N/A	N/A
Maximum Rated Power Dissipation ⁵⁾ (mW/mm ²)	840	680	500	45	1.0	N/A	N/A
Voltage Coefficient of resistance (ppm/V/mm) ⁶⁾	-0.001	0.035	0.043	0.02	0.494	N/A	N/A
High Voltage Stability ⁷⁾ (% change)	N/A	N/A	0.08	0.05	0.19	N/A	N/A
Pulse stability ⁸⁾	-0.07	-0.31	0.02	0.01	0.08	N/A	N/A

- 1) Processing Conditions; Termination: C4026G prefired at peak temp of 875° C for 10 minutes. Resistor size 250x50 mil printed with 250 mesh screen to dried thickness of 26 ± 2 μm.
- 2) Shipping specifications - measured on a 5 square resistor, calculated and reported as Ω/square
- 3) 2000 volt discharge on 50 x 50 mil resistor
- 4) Short term overload voltage:voltage required (5 second duration) to induce a resistance change of 0.1% in a 50 x 50 mil resistor at 25°C.
- 5) Maximum rated power dissipation:(Standard working voltage)²/resistance
- 6) VCR measured between 40V and 400V, reported in ppm/V/mm
- 7) 400V/mm applied for 100 hrs, reported % change in resistance is reported.
- 8) Applied 50, 2μs x 10μs pulses at 5000V. % change in resistance is reported

Note: The information contained in this data sheet is based on typical properties for the product. Actual shipment specifications for the product may vary. Please contact Heraeus for the product's shipment specifications.

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The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

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