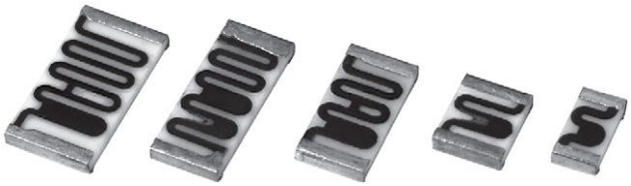
Thick Film Chip Resistors, High Voltage



FEATURES

- High voltage up to 3000 V
- Outstanding stability < 0.5 %
- Flow solderable
- Automatic placement capability
- Tape and reel packaging available
- Termination style:
  3-sided wraparound termination
- Internationally standardized sizes
- Termination material: solder-coated nickel barrier or solder coated non-magnetic terminations standard
- Multiple styles, termination materials and configurations, allow wide design flexibility
- Epoxy bondable or wire bondable non-magnetic terminations available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Available

RoHS* Available

HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

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	CASE SIZE	POWER RATING $P_{70\,°C}$ W	MAXIMUM WORKING VOLTAGE (1) V	RESISTANCE RANGE (2) Ω	TOLERANCE (3) ± %	TEMPERATURE COEFFICIENT (4) (-55 °C to +155 °C) ± ppm/°C
CRHP1206	1206	0.50	1675	2M to 100M	0.5	100
				2M to 1G	1, 2, 5, 10, 20	
				1.1G to 8G	2, 5, 10, 20	
CRHP1210	1210	0.70	1870	4M to 100M	0.5	100
				4M to 1G	1, 2, 5, 10, 20	
				1.1G to 10G	2, 5, 10, 20	
CRHP2010	2010	1.0	2000	6M to 100M	0.5	100
				6M to 1G	1, 2, 5, 10, 20	
				1.1G to 10G	2, 5, 10, 20	
				11G to 35G	5, 10, 20	
CRHP2510	2510	1.2	2500	10M to 100M	0.5	100
				10M to 1G	1, 2, 5, 10, 20	
				1.1G to 10G	2, 5, 10, 20	
				11G to 40G	5, 10, 20	
CRHP2512	2512	1.5	3000	10M to 100M	0.5	100
				10M to 1G	1, 2, 5, 10, 20	
				1.1G to 10G	2, 5, 10, 20	
				11G to 50G	5, 10, 20	

Notes

- For non-standard sizes, lower values or higher power rating requirement, contact factory

(1) Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less

(2) Resistance values below 1 GΩ are calibrated at 100 V_{DC}, and values of 1 GΩ and above are calibrated at 1000 V_{DC}. Calibration at other voltages available upon request

(3) Contact factory for tighter tolerances

(4) Reference only: not for all values specified. Consult factory for your size and value

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CRHP1206AF100MFKFB (preferred part number format)

C	R	H	P	1	2	0	6	A	F	1	0	0	M	F	K	F	B

GLOBAL MODEL	SIZE	TERMINAL STYLE	TERMINAL MATERIAL	RESISTANCE VALUE	TOLERANCE	TCR	SOLDER TERMINATION	PACKAGING
CRHP	**1206** **1210** **2010** **2510** **2512**	**A** = 3-sided	**F** = nickel barrier **G** = non-magnetic	**M** = MΩ **G** = GΩ **4M70** = 4.7 MΩ **10M0** = 10 MΩ **1G00** = 1 GΩ	**D** = ± 0.5 % **F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **K** = ± 10 % **M** = ± 20 %	**K** = 100 ppm **L** = 150 ppm **N** = 200 ppm **R** = 250 ppm **M** = 300 ppm **W** = 350 ppm **P** = 500 ppm	**E** = Sn100 **F** = Sn95/Ag5, HSD **T** = Sn90/Pb10	**B** = bulk (250 pcs max.) **F** = T/R (full reel) **1** = T/R (1000 pcs) **5** = T/R (500 pcs) **T** = T/R (250 pcs min.) **W** = waffle tray

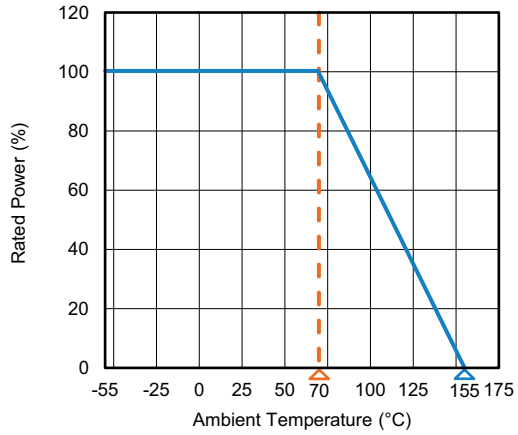
MECHANICAL SPECIFICATIONS

Resistive element	Ruthenium oxide
Encapsulation	Glass
Substrate	96 % alumina
Termination	Solder-coated nickel barrier or solder coated non-magnetic terminations standard
Solder finish	Pure tin or tin/lead solder alloys standard. Tin/silver solder alloy available.

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	-55 °C to +155 °C
Life	Less than 0.5 % change when tested at full rated power
Short time overload	Less than 0.5 % ΔR

DERATING CURVE



Note

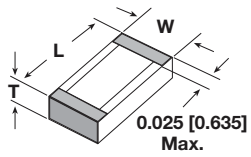
- Reference only: not for all values specified. Consult factory for your size and value

VOLTAGE COEFFICIENT OF RESISTANCE CHART

SIZE	VALUE (Ω)	VCR (ppm/V)	FURTHER INSTRUCTIONS
CRHP1206	2M to 199M	25	Values over 200M, consult factory
CRHP1210	4M to 200M	25	Values over 200M, consult factory
CRHP2010	6M to 99M	15	Values over 1G, consult factory
	100M to 1G	20	
CRHP2510	10M to 99M	10	Values over 1G, consult factory
	100M to 1G	15	
CRHP2512	10M to 999M	10	Values over 5G, consult factory
	1G to 5G	25	

DIMENSIONS in inches (millimeters)

Termination Style A
(3-sided wraparound)



MODEL	LENGTH (L) ± 0.006 (0.152)	WIDTH (W) ± 0.006 (0.152)	THICKNESS (T) ± 0.002 (0.051)
CRHP1206	0.125	0.063	0.025
CRHP1210	0.125	0.100	0.025
CRHP2010	0.200	0.100	0.025
CRHP2510	0.250	0.100	0.025
CRHP2512	0.250	0.126	0.025

TYPE	TERMINATION MATERIAL	TERMINATION STYLE	TERMINATION STYLE / MATERIAL CODE	SOLDER TERMINATION CODE
Solderable	Nickel barrier	3-sided (wraparound)	AF	E or T (standard); F (optional) (1)
	Non-magnetic	3-sided (wraparound)	AG	E or T (standard); F (optional) (1)

Note

(1) Standard solder plating for the nickel barrier and non-magnetic parts is solder terminations E or T. Hot solder dipped termination F is also available

PERFORMANCE

TEST	CONDITIONS OF TEST	TEST RESULTS (TYPICAL TEST LOTS)
Life	MIL-STD-202, method 108, 1000 h rated power at +70 °C	≤ ± 0.5 %
High temperature exposure	MIL-STD-202, method 108	≤ ± 0.2 %
Low temperature operation	MIL-PRF-55342, paragraph 4.8.5	≤ ± 0.05 %
Resistance to bonding exposure	MIL-STD-202, methods 210	≤ ± 0.1 %
Moisture resistance	MIL-PRF-55342, paragraph 4.8.9	≤ ± 0.06 %
Solder mounting integrity	MIL-PRF-55342, paragraph 4.8.13, 2 kg for 30 s	No evidence of mechanical damage
Solderability	MIL-STD-202, method 208	95 % coverage

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