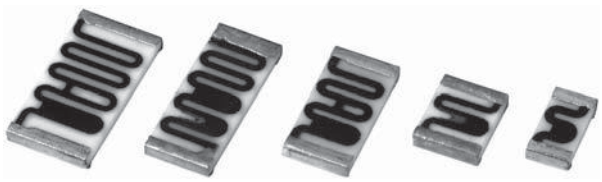
Thick Film Chip Resistors, High Voltage



FEATURES

- High voltage up to 3000 V
- Outstanding stability < 0.5 %
- Flow solderable
- Custom sizes available
- Automatic placement capability
- Available with either wraparound terminations or as a single termination flip chip
- Tape and reel packaging available
- Internationally standardized sizes
- Suitable for solderable, epoxy bondable, or wire bondable applications
- Termination: Gold, palladium silver, platinum gold, platinum silver, platinum palladium gold or solder-coated nickel barrier available
- Multiple styles, termination materials and configurations, allow wide design flexibility
- Non-magnetic terminations available
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition

Pb Available
RoHS* COMPLIANT
HALOGEN FREE

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 + 150 °C) ± ppm/°C
CRHV1206	1206	0.30	1500	2M to 1G	1, 2, 5, 10, 20	100
				1.1G to 8G	2, 5, 10, 20	
CRHV1210	1210	0.45	1750	4M to 1G	1, 2, 5, 10, 20	100
				1.1G to 10G	2, 5, 10, 20	
CRHV2010	2010	0.50	2000	6M to 1G	1, 2, 5, 10, 20	100
				1.1G to 10G	2, 5, 10, 20	
				11G to 35G	5, 10, 20	
CRHV2510	2510	0.60	2500	10M to 1G	1, 2, 5, 10, 20	100
				1.1G to 10G	2, 5, 10, 20	
				11G to 40G	5, 10, 20	
CRHV2512	2512	0.70	3000	12M to 1G	1, 2, 5, 10, 20	100
				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 are calibrated at 100 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: CRHV1206AF100MFKFB (preferred part number format)

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

GLOBAL MODEL	SIZE	TERM STYLE	TERM MATERIAL	RESISTANCE VALUE	TOLERANCE	TCR	SOLDER TERMINATION	PACKAGING
CRHV	**1206** **1210** **2010** **2510** **2512**	**A** = 3-sided **B** = Top only **C** = 5-sided	**F** = Nickel barrier **A** = Palladium silver **B** = Platinum gold **C** = Gold **D** = Platinum silver **E** = Platinum palladium gold	M = MΩ G = GΩ **4M70** = 4.7 MΩ **10M0** = 10 MΩ **1G00** = 1 GΩ	**F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **K** = ± 10 % **M** = ± 20 %	**K** = 100 ppm **N** = 200 ppm **W** = 350 ppm **P** = 500 ppm	**E** = Sn100 **F** = Sn95/Ag5 **N** = No solder **S** = Sn62/Pb36/Ag2 **T** = Sn90/Pb10	**B** = Bulk **F** = T/R (full reel) **1** = T/R (1000 pcs) **5** = T/R (500 pcs) **T** = T/R (250 pcs min.) **W** = Waffle

Historical Part Numbering: CRHV1206AF1006F100e2 (will continue to be accepted)

CRHV	1206	A	F	1006	F	100	e2
HISTORICAL MODEL	SIZE	TERM STYLE	TERM MATERIAL	RESISTANCE VALUE	TOLERANCE	TCR	SOLDER TERMINATION

* Pb containing terminations are not RoHS compliant, exemptions may apply

MECHANICAL SPECIFICATIONS

Resistive element	Ruthenium oxide
Encapsulation	Glass
Substrate	96 % alumina
Termination	Solder-coated nickel barrier standard. Gold, palladium silver, platinum gold, platinum silver, platinum palladium gold terminations available.
Solder finish	Pure tin or tin/lead solder alloys standard. Hot solder dipped tin/silver or tin/lead/silver solder alloys available.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature: - 55 °C to + 150 °C
Life: Less than 0.5 % change when tested at full rated power
Short Time Overload: Less than 0.5 % ΔR

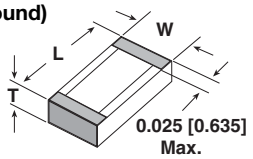
(Reference only: Not for all values specified. Consult factory for your size and value.)

VOLTAGE COEFFICIENT OF RESISTANCE CHART

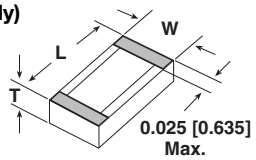
SIZE	VALUE (Ω)	VCR (ppm/V)	FURTHER INSTRUCTIONS
CRHV1206	2M to 199M	25	Values over 200M, consult factory
CRHV1210	4M to 200M	25	Values over 200M, consult factory
CRHV2010	6M to 99M	15	Values over 1G, consult factory
	100M to 1G	20	
CRHV2510	10M to 99M	10	Values over 1G, consult factory
	100M to 1G	15	
CRHV2512	12M to 999M	10	Values over 5G, consult factory
	1G to 5G	25	

DIMENSIONS in inches (millimeters)

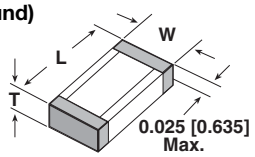
Termination Style A
(3-sided wraparound)



Termination Style B
(Top conductor only)

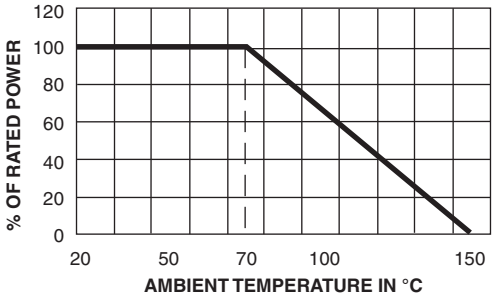


Termination Style C
(5-sided wraparound)



MODEL	LENGTH (L) ± 0.006 (0.152)	WIDTH (W) ± 0.006 (0.152)	THICKNESS (T) ± 0.002 (0.051)
CRHV1206	0.125	0.063	0.025
CRHV1210	0.125	0.100	0.025
CRHV2010	0.200	0.100	0.025
CRHV2510	0.250	0.100	0.025
CRHV2512	0.250	0.126	0.025

DERATING CURVE



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

TYPE	TERMINATION MATERIAL	TERMINATION STYLE	TERMINATION STYLE/ MATERIAL CODE	SOLDER TERMINATION CODE
Solderable	Nickel barrier	3-sided (wraparound)	AF	E, F, S, or T [3]
		Top only (flip chip)	BF	
Wire bondable/ Solderable	Platinum palladium gold	3-sided (wraparound)	AE	N, F or S [1]
		Top only (flip chip)	BE	
		5-sided (wraparound)	CE	
Wire bondable/ Epoxy bondable	Gold	3-sided (wraparound)	AC	N
		Top only (flip chip)	BC	
		5-sided (wraparound)	CC	
Epoxy bondable	Palladium silver [2]	3-sided (wraparound)	AA	N
		Top only (flip chip)	BA	
		5-sided (wraparound)	CA	
	Platinum gold	3-sided (wraparound)	AB	
		Top only (flip chip)	BB	
		5-sided (wraparound)	CB	
	Platinum silver	3-sided (wraparound)	AD	
		Top only (flip chip)	BD	
		5-sided (wraparound)	CD	

Notes

(1) Use solder termination N for applications requiring wire bondable mounting, and solder terminations F or S for applications requiring solderable mounting.

(2) While not recommended, palladium silver terminations could be used for solderable applications when using a solder alloy containing silver.

(3) Standard solder plating for the nickel barrier parts are solder terminations E or T. Hot solder dipped terminations F or S are also available.

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