Thick Film Chip Resistors, High Resistance Value

FEATURES

- High resistance values up to 3 GΩ
- Automatic placement capability
- Termination style: 3-sided wraparound termination or single termination flip chip available
- Tape and reel packaging available
- Internationally standardized sizes, custom sizes available
- Suitable for solderable, epoxy bondable, or wire bondable applications
- Termination material: solder-coated nickel barrier or solder coated non-magnetic terminations standard; gold terminations available
- 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

Pb Available

RoHS* Available

HALOGEN FREE

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 (1) $P_{70\,°C}$ W	MAX. WORKING VOLTAGE (2) V	RESISTANCE RANGE (3) Ω	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C
RCHR0805	0805	Contact factory	175	500K to 1G	5, 10, 25	500
RCHR1005	1005	Contact factory	200	500K to 2G	5, 10, 25	500
RCHR1206	1206	Contact factory	300	1M to 3G	5, 10, 25	500

Notes

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

(1) Not specified as voltage is always limiting. Due to the high resistance values, the power dissipation is always small.

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

(3) Resistance values calibrated at 10 V_{DC}. Calibration at other voltages available upon request.

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RCHR0805	RCHR1005	RCHR1206
Rated dissipation at 70 °C	W	Contact factory	Contact factory	Contact factory
Limiting element voltage	V≅	175	200	300
Insulation resistance	Ω	≥ 10^{11}	≥ 10^{11}	≥ 10^{11}
Category temperature range	°C	-55 to +155	-55 to +155	-55 to +155
Weight/1000 (typical)	g	6.4	8.3	12.3

VOLTAGE COEFFICIENT OF RESISTANCE

MODEL	VALUE (Ω)	VCR (ppm/V)	FURTHER INSTRUCTIONS
RCHR0805	500K to 1G	5	
RCHR1005	500K to 1G	10	Values over 1G, consult factory
RCHR1206	1M to 1G	15	Values over 1G, consult factory

GLOBAL PART NUMBER INFORMATION

Global Part Numbering: RCHR1206AF750MJPEW (preferred part number format)

R	C	H	R	1	2	0	6	A	F	7	5	0	M	J	P	E	W

GLOBAL MODEL	SIZE	TERM STYLE	TERM MATERIAL	RESISTANCE VALUE	TOLERANCE	TCR	SOLDER TERMINATION	PACKAGING
RCHR	**0805** **1005** **1206**	**A** = 3-sided **B** = Top only	**F** = Nickel barrier **G** = Non-magnetic **C** = Gold	**K** = kΩ **M** = MΩ **G** = GΩ **110K** = 110 kΩ **49M9** = 49.9 MΩ **3G00** = 3 GΩ	**J** = ± 5 % **K** = ± 10 % **V** = ± 25 %	**P** = 500 ppm	**E** = Sn100 **F** = Sn95/Ag5, HSD **N** = No solder **S** = Sn62/Pb36/Ag2, HSD **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 tray

Note

- For additional information on packaging, refer to the Surface Mount Resistor Packaging document (www.vishay.com/doc?31543).

For technical questions, contact: te1resistors@vishay.com

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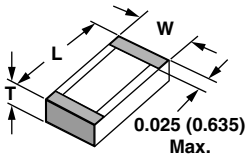
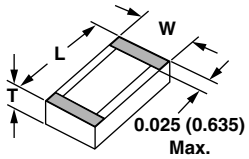
DIMENSIONS in inches (millimeters)

Termination style A (3-sided wraparound)



Termination style B (top conductor only)



MODEL	LENGTH (1) (L)	WIDTH (1) (W)	THICKNESS (1) (T)
RCHR0805	0.075 ± 0.006 (1.90 ± 0.15)	0.050 ± 0.006 (1.27 ± 0.15)	0.025 ± 0.002 (0.64 ± 0.05)
RCHR1005	0.100 ± 0.006 (2.54 ± 0.15)	0.050 ± 0.006 (1.27 ± 0.15)	0.025 ± 0.002 (0.64 ± 0.05)
RCHR1206	0.125 ± 0.006 (3.18 ± 0.15)	0.063 ± 0.006 (1.60 ± 0.15)	0.025 ± 0.002 (0.64 ± 0.05)

Note

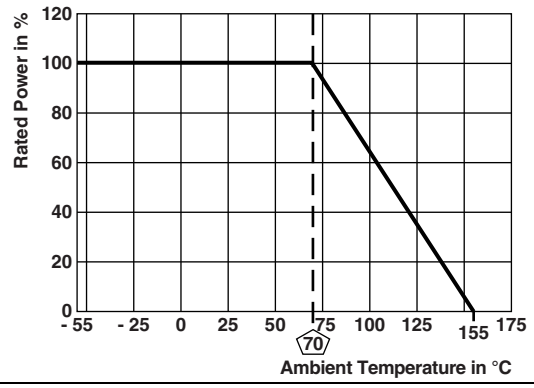
(1) All dimensions are before solder coating.

TYPE	TERMINATION MATERIAL	TERMINATION STYLE	TERMINATION STYLE/ MATERIAL CODE	SOLDER TERMINATION CODE
Solderable	Nickel barrier	3-sided (wraparound)	AF	E or T (standard); F or S (optional) (2)
Solderable	Non-magnetic	3-sided (wraparound)	AG	E or T (standard); F or S (optional) (2)
Wire bondable/ Epoxy bondable	Gold	Top only (flip chip)	BC	N

Note

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

DERATING CURVE



MATERIAL SPECIFICATIONS

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

PERFORMANCE

TEST	CONDITIONS OF TEST	TEST LIMITS	TEST RESULTS (TYPICAL TEST LOTS)
Life	MIL-STD-202, method 108 1000 h rated power at + 70 °C	± 2 %	≤ ± 0.50 %
Short time overload	MIL-PRF-55342, paragraph 4.8.6	± 0.5 %	≤ ± 0.02 %
High temperature exposure	MIL-PRF-55342, paragraph 4.8.7	± 1 %	≤ ± 0.50 %
Low temperature operation	MIL-PRF-55342, paragraph 4.8.5	± 0.5 %	≤ ± 0.02 %
Resistance to bonding exposure	MIL-PRF-55342, paragraph 4.8.8.2	± 0.5 %	≤ ± 0.05 %
Moisture resistance	MIL-STD-202, method 106	± 1 %	≤ ± 0.06 %
Solder mounting integrity	MIL-PRF-55342, paragraph 4.8.13.1	No evidence of mechanical damage	
Solderability	MIL-STD-202, method 208	95 % coverage	

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