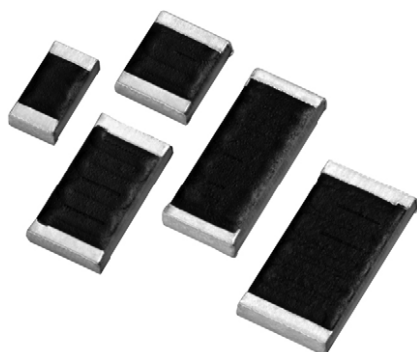


Thick Film Chip Resistors, High Voltage



FEATURES

- Voltages up to 3000 V
- Automatic placement capability
- Termination style:
3-sided wraparound termination
- Tape and reel packaging available
- Suitable for solderable applications
- Internationally standardized sizes, custom sizes available
- Termination material: solder-coated nickel barrier
- Non-magnetic termination available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS*
Available
**HALOGEN
FREE**

LINKS TO ADDITIONAL RESOURCES



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 $P_{70^{\circ}\text{C}}$ W | MAX. WORKING VOLTAGE ⁽²⁾ V | RESISTANCE RANGE ⁽¹⁾ Ω | TOLERANCE $\pm \%$ | TEMPERATURE COEFFICIENT ⁽³⁾ $\pm \text{ppm}/^{\circ}\text{C}$ |
|--------------|-----------|---|--|---|-----------------------|---|
| CRMV1206 | 1206 | 0.30 | 1000 | 150 to 15M | 0.5, 1, 2, 5, 10, 20 | 100 |
| CRMV1210 | 1210 | 0.35 | 1250 | 300 to 20M | 0.5, 1, 2, 5, 10, 20 | 100 |
| CRMV2010 | 2010 | 0.50 | 2000 | 500 to 40M | 0.5, 1, 2, 5, 10, 20 | 100 |
| CRMV2510 | 2510 | 0.80 | 2500 | 1K to 60M | 0.5, 1, 2, 5, 10, 20 | 100 |
| CRMV2512 | 2512 | 1.0 | 3000 | 1K to 75M | 0.5, 1, 2, 5, 10, 20 | 100 |

Notes

- For non-standard sizes, lower values or higher power rating requirement, contact factory
- (1) Resistance values calibrated at 10 V_{DC}. Calibration at other voltages available upon request
- (2) Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less
- (3) Reference only: Not for all values specified. Consult factory for your size and value

TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | CRMV1206 | CRMV1210 | CRMV2010 | CRMV2510 | CRMV2512 |
|----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Rated dissipation at 70 °C | W | 0.30 | 0.35 | 0.50 | 0.80 | 1.0 |
| Limiting element voltage | V _≡ | 1000 | 1250 | 2000 | 2500 | 3000 |
| Insulation resistance | Ω | $\geq 10^{11}$ | $\geq 10^{11}$ | $\geq 10^{11}$ | $\geq 10^{11}$ | $\geq 10^{11}$ |
| Category temperature range | °C | -55 to +155 | -55 to +155 | -55 to +155 | -55 to +155 | -55 to +155 |
| Weight/1000 (typical) | g | 12.2 | 19.6 | 32.2 | 39.8 | 49.7 |

VOLTAGE COEFFICIENT OF RESISTANCE

| MODEL | VALUE (Ω) | VCR (ppm/V) | FURTHER INSTRUCTIONS |
|----------|--------------------|-----------------|----------------------|
| CRMV1206 | 150 to 15M | Consult factory | Consult factory |
| CRMV1210 | 300 to 20M | Consult factory | Consult factory |
| CRMV2010 | 500 to 40M | Consult factory | Consult factory |
| CRMV2510 | 1K to 60M | Consult factory | Consult factory |
| CRMV2512 | 1K to 75M | Consult factory | Consult factory |

GLOBAL PART NUMBER INFORMATION

Global Part Numbering: CRMV1210AF1K00FLET (preferred part number format)

| GLOBAL MODEL | SIZE | TERMINAL STYLE | TERMINAL MATERIAL | RESISTANCE VALUE | TOLERANCE | TCR | SOLDER TERMINATION | PACKAGING |
|--------------|--------------------------------------|----------------|--|---|--|----------------------------|---|---|
| CRMV | 1206 1210 2010 2510 2512 | A = 3-sided | F = nickel barrier G = non-magnetic | R = Ω K = k Ω M = M Ω 110R = 110 Ω 49K9 = 49.9 k Ω 10M0 = 10 M Ω | D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$ | K = 100 ppm L = 150 ppm | E = Sn100 N = no solder 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 |

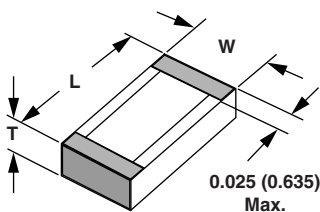
Note

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

DIMENSIONS in inches (millimeters)

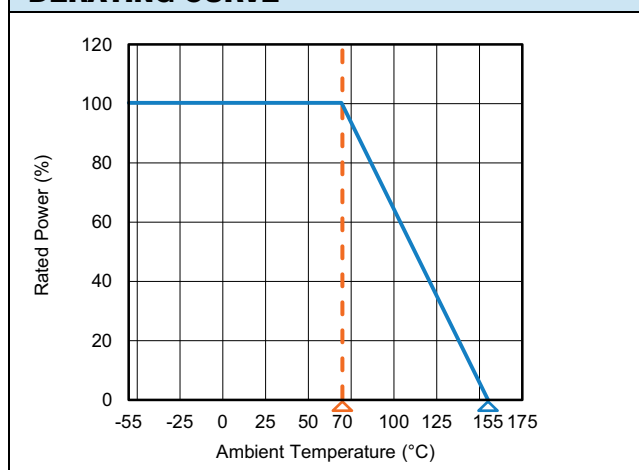
| TERMINATION STYLE A (3-SIDED WRAPAROUND) | MODEL | LENGTH (L) | WIDTH (W) | THICKNESS (T) |
|--|----------|--|--|--|
| | CRMV1206 | 0.125 \pm 0.006 (3.18 \pm 0.15) | 0.063 \pm 0.006 (1.60 \pm 0.15) | 0.025 \pm 0.004 (0.64 \pm 0.10) |
| | CRMV1210 | 0.125 \pm 0.006 (3.18 \pm 0.15) | 0.100 \pm 0.006 (2.54 \pm 0.15) | 0.025 \pm 0.004 (0.64 \pm 0.10) |
| | CRMV2010 | 0.200 \pm 0.006 (5.08 \pm 0.15) | 0.100 \pm 0.006 (2.54 \pm 0.15) | 0.025 \pm 0.004 (0.64 \pm 0.10) |
| | CRMV2510 | 0.250 \pm 0.006 (6.35 \pm 0.15) | 0.100 \pm 0.006 (2.54 \pm 0.15) | 0.025 \pm 0.004 (0.64 \pm 0.10) |
| | CRMV2512 | 0.250 \pm 0.006 (6.35 \pm 0.15) | 0.126 \pm 0.006 (3.20 \pm 0.15) | 0.025 \pm 0.004 (0.64 \pm 0.10) |

TERMINATION STYLE A
(3-SIDED WRAPAROUND)



| TYPE | TERMINATION MATERIAL | TERMINATION STYLE | TERMINATION STYLE / MATERIAL CODE | SOLDER TERMINATION CODE |
|------------|----------------------|----------------------|-----------------------------------|-------------------------|
| Solderable | Nickel barrier | 3-sided (wraparound) | AF | E or T |
| | Non-magnetic | | AG | |

DERATING CURVE



MATERIAL SPECIFICATIONS

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



| PERFORMANCE | | |
|--------------------------------|---|----------------------------------|
| TEST | CONDITIONS OF TEST | TEST RESULTS (TYPICAL TEST LOTS) |
| Life | MIL-STD-202, method 108 1000 h rated power at +70 °C | $\leq \pm 0.50 \%$ |
| Short time overload | MIL-PRF-55342, paragraph 4.8.6 | $\leq \pm 0.02 \%$ |
| Thermal shock | MIL-STD-202, method 107 -55 °C to +150 °C | $\leq \pm 0.50 \%$ |
| Low temperature operation | MIL-PRF-55342, paragraph 4.8.5 | $\leq \pm 0.02 \%$ |
| Resistance to bonding exposure | MIL-STD-202, methods 210 | $\leq \pm 0.05 \%$ |
| Moisture resistance | MIL-PRF-55342, paragraph 4.8.9 | $\leq \pm 0.06 \%$ |
| 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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