

Molded Thick Film Divider, High Voltage, High Precision, Surface-Mount



LINKS TO ADDITIONAL RESOURCES



FEATURES

- High voltage up to 1500 V utilizing thick film technology
- Precision to $\pm 0.5\%$ with low TCR tracking to 10 ppm/ $^{\circ}\text{C}$ utilizing thick film technology
- Sulfur resistant
- Automotive compliant terminations
- AEC-Q200 qualified
- Wide range of resistance value and ratios
- 12.5 mm creepage distance. Rated 1250 V per IEC 60664-1
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

| STANDARD ELECTRICAL SPECIFICATIONS | | | | | | | | |
|------------------------------------|-----------|---|---|--|--|---|-----------------------|--|
| GLOBAL MODEL | CASE SIZE | POWER RATING $P_{70^{\circ}\text{C}}$ W | MAXIMUM WORKING VOLTAGE ⁽¹⁾ V | RESISTANCE RANGE R_1 ⁽²⁾ Ω | TOLERANCE ⁽³⁾ R_1 $\pm\%$ | RATIO RANGE ⁽⁴⁾ $(R_1 + R_2) / R_2$ | RATIO TOL. $\pm\%$ | TCR TRACKING (-55°C to $+155^{\circ}\text{C}$) \pm ppm/ $^{\circ}\text{C}$ |
| CDMM | 4527 | 1.5 | 1500 | 500K to 50M | 0.5, 1, 2, 5, 10 | 100:1 to 500:1 | 0.5, 1, 2, 5 | 10 - 50 |

Notes

- (1) Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less
- (2) Resistance value is calibrated at 100 V_{DC}
- (3) Contact factory for tighter tolerances
- (4) Contact factory for other ratios

| GLOBAL PART NUMBER INFORMATION | | | | | | | | | | | | | | | | | |
|---|--|---|--|--|--------------------|---|--|----------|----------|----------|----------|----------|----------|----------|----------|--|--|
| New Global Part Numbering: CDMM20M0F2500FEF (preferred part number format) | | | | | | | | | | | | | | | | | |
| C | D | M | M | 2 | 0 | M | 0 | F | 2 | 5 | 0 | 0 | F | E | F | | |
| GLOBAL MODEL | RESISTANCE VALUE (R_1) | TOLERANCE | RATIO ($R_1 + R_2$) / R_2 | RATIO TOLERANCE | SOLDER TERMINATION | PACKAGING | SPECIAL | | | | | | | | | | |
| (see Standard Electrical Specifications Global Model column for options) | K = k Ω M = M Ω 525K = 525 k Ω 1M50 = 1.5 M Ω | D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ K = $\pm 10\%$ | 3 digit significant figure, followed by a multiplier 2500 = 250:1 3000 = 300:1 | D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ | E = Sn100 | B = bulk (250 pcs max.) F = T/R (1200 pcs) 1 = T/R (1000 pcs) 5 = T/R (500 pcs) T = T/R (250 pcs min.) | Blank = standard (dash number) (up to 2 digits) from 1 to 99 as applicable | | | | | | | | | | |

Notes

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

PATENT(S): www.vishay.com/patents

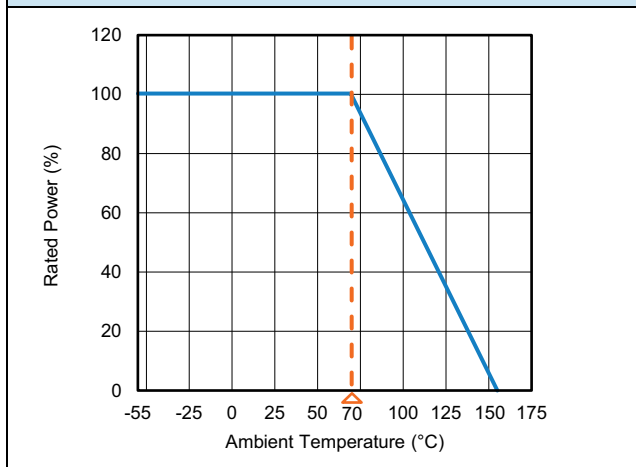
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VOLTAGE AND TEMPERATURE COEFFICIENTS OF RESISTANCE CHART (TYPICAL)

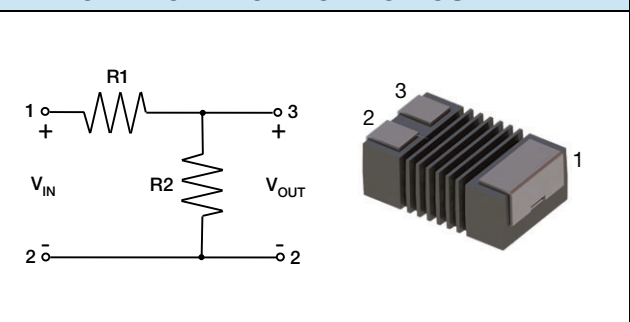
| GLOBAL MODEL | RESISTANCE Ω | RATIO (TYPICAL) | VCR ppm/V | RATIO TRACKING (-55 °C to +150 °C) ppm/°C |
|--------------|------------------------|--------------------|--------------|---|
| CDMM | 500K | 100:1 | -10 | ± 20 |
| | 15M | 250:1 | -10 | ± 10 |
| | 50M | 500:1 | -10 | -50 to 0 |

Note

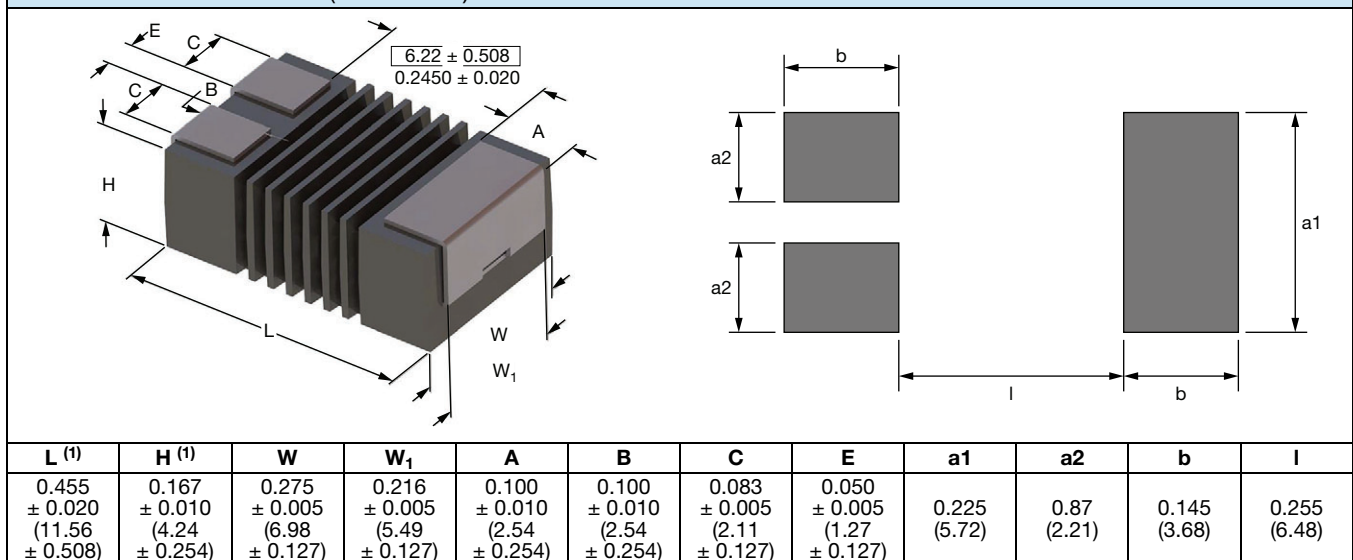
- Contact factory for other ratios

DERATING CURVE

ENVIRONMENTAL SPECIFICATIONS

| | |
|-----------------------|-------------------|
| Operating temperature | -55 °C to +155 °C |
|-----------------------|-------------------|

TYPICAL DC ELECTRICAL CIRCUIT

MECHANICAL SPECIFICATIONS

| | |
|-------------------|------------------------------|
| Resistive element | Ruthenium oxide (thick film) |
| Encapsulation | Molded thermoplastic |
| Substrate | Alumina |
| Termination | Solder-coated bronze |

DIMENSIONS in inches (millimeters)

Note

- ⁽¹⁾ Dimensions includes the terminals

| PERFORMANCE | | |
|---------------------------|--|-------------|
| TEST | CONDITIONS OF TEST | TEST LIMITS |
| Thermal shock | -55 °C to +150 °C, 1000 cycles, 15 min at each extreme | ± 1.0 % ΔR |
| High temperature exposure | 1000 h at 155 °C | ± 1.0 % ΔR |
| Biased humidity | +85 °C, 85 % RH, 10 % rated power ⁽¹⁾ , 1000 h | ± 2.0 % ΔR |
| Mechanical shock | 100 g's for 11 ms, 5 pulses | ± 0.5 % ΔR |
| Vibration | Frequency varied 10 Hz to 500 Hz in 1 min, 3 directions, 9 h | ± 0.5 % ΔR |
| Load life | 1000 h at rated power, +70 °C, 1.5 h "ON", 0.5h "OFF" | ± 1.0 % ΔR |
| Resistance to solder heat | +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence | ± 1.0 % ΔR |

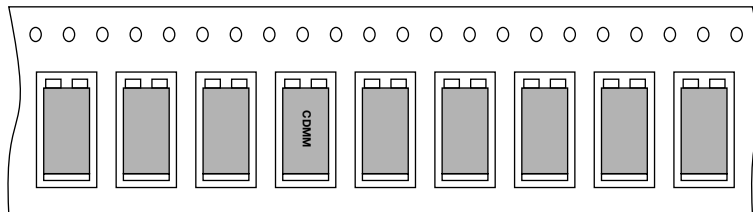
Note

⁽¹⁾ Applied voltage is based on the critical resistance value, not to exceed 500 V

| PACKAGING | | | | |
|-----------|--------------------------|--------------|-------------|------|
| MODEL | TAPE WIDTH | DIAMETER | PIECES/REEL | CODE |
| CDMM | 24 mm / embossed plastic | 330 mm / 13" | 1200 | EF |
| | | | 1000 | E1 |
| | | | 500 | E5 |
| | | | 250 | ET |

Note

- Embossed carrier tape per EIA-481



The above image shows the orientation of the parts in the reel



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