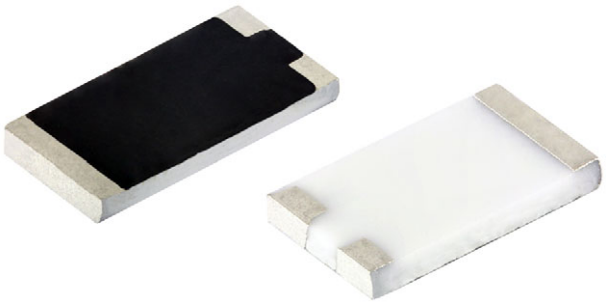
Thick Film Chip Dividers, Medium Voltage



FEATURES

- AEC-Q200 qualified
- Voltage up to 1415 V
- Precision to ± 0.5 % with low TCR tracking to 10 ppm/°C utilizing thick film technology
- Wide range of resistance value and ratios
- Termination style: 3-sided wraparound termination
- Termination material: solder-coated nickel barrier
- Sulfur resistant verified by testing to EIA 977 test condition A
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

RoHS COMPLIANT

HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

Footprints

APPLICATIONS

- Automotive:
  - EV charging for over voltage protection
  - Voltage dividers
  - On-board chargers
  - DC/DC converters
  - Battery management

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	CASE SIZE	POWER RATING $P_{70\,°C}$ W	MAXIMUM WORKING VOLTAGE (1) V	RESISTANCE RANGE (2) Ω	TOLERANCE (3) ± %	RATIO RANGE $(R_1 + R_2)/R_2$	TCR TRACKING (-55 °C to +155 °C) ± ppm/°C
CDMA	2512	1	1415	500K to 50M	0.5, 1, 2, 5, 10	100:1 to 600:1	10 to 50

Notes

(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

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CDMA20K0J1000GEB (preferred part number format)

C	D	M	A	2	0	K	0	J	1	0	0	0	G	E	B		

GLOBAL MODEL	RESISTANCE VALUE (R_1)	TOLERANCE	RATIO $(R_1 + R_2) / R_2$	RATIO TOLERANCE	SOLDER TERMINATION	PACKAGING	SPECIAL
CDMA = CDMA2512	K = kΩ M = MΩ **20K0** = 20 kΩ **800K** = 800 kΩ **1M00** = 1 MΩ	**D** = ± 0.5 % **F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **K** = ± 10 %	3 digit significant figure, followed by a multiplier **1000** = 100:1 **2000** = 200:1	**D** = ± 0.5 % **F** = ± 1 % **G** = ± 2 % **H** = ± 3 % **J** = ± 5 %	**E** = Sn100	**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.)	

Note

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

VOLTAGE COEFFICIENTS AND RATIO TRACKING INFORMATION (Typical)

RESISTANCE (Ω)	RATIO (MAXIMUM)	VCR (ppm/V)	TCR TRACKING (ppm/°C) -55 °C to +155 °C
500K	100:1	-10	± 20
15M	250:1	-10	± 10
50M	600:1	-10	-50 to 0

Note
- Contact factory for other ratios

MATERIAL SPECIFICATIONS

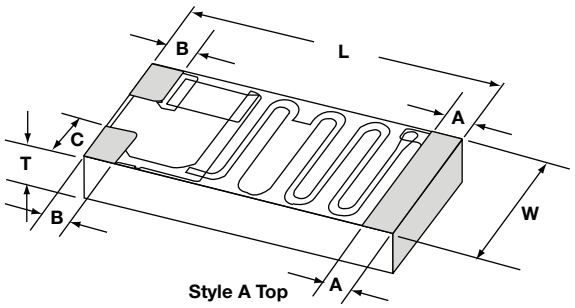
Resistive element	Ruthenium oxide
Encapsulation	Epoxy
Substrate	96 % alumina
Termination	Solder-coated nickel barrier terminations standard
Solder finish	Pure tin

ENVIRONMENTAL SPECIFICATIONS

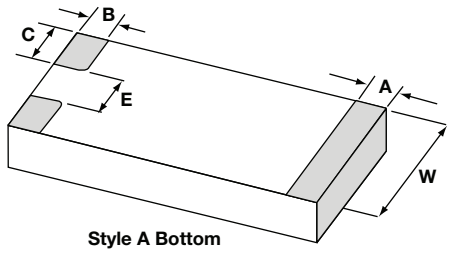
Operating temperature	-55 °C to +155 °C
Life	Less than 0.5 % change when tested at full rated power

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

DIMENSIONS in inches (millimeters)



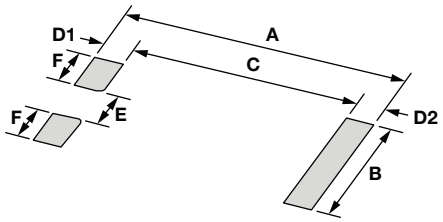
Style A Top



Style A Bottom
(3-sided wraparound)

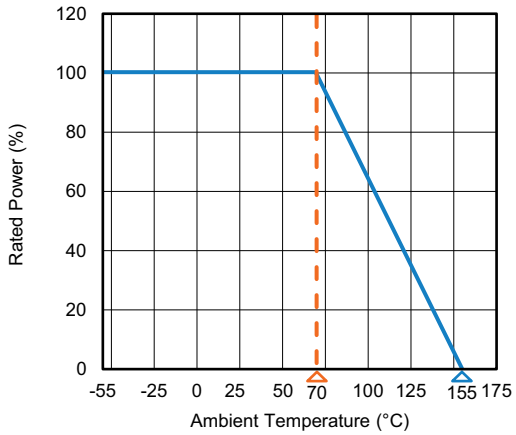
TERMINATION	LENGTH (L) ± 0.006 (0.152)	WIDTH (W) ± 0.006 (0.152)	THICKNESS (T) ± 0.005 (0.127)	A ± 0.005	B ± 0.005	C ± 0.005	E ± 0.010
Style A (3-sided wraparound)	0.250	0.126	0.025	0.025	0.025	0.040	0.046

RECOMMENDED SOLDER PAD LAYOUT



MODEL	DIMENSIONS in inches (millimeters)						
	A	B	C	D1	D2	E	F
CDMA2512	0.275 (6.99)	0.126 (3.20)	0.190 (4.83)	0.050 (1.27)	0.035 (0.89)	0.040 (1.02)	0.046 (1.17)

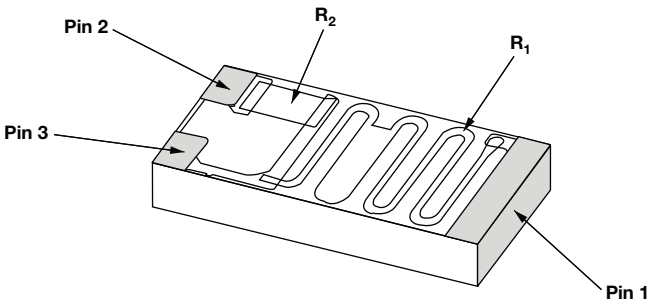
DERATING CURVE

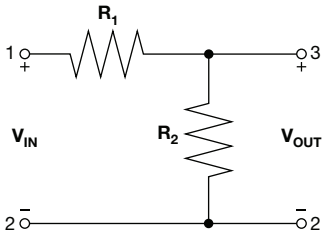


Note

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

SCHEMATIC





PERFORMANCE

TEST	CONDITIONS OF TEST	TEST LIMITS
High temperature exposure (storage)	MIL-STD-202, method 108, 2000 h at T = 155 °C at 0 % power	± 1.0 %
Thermal shock	JESD22 method JA-104, 2000 cycles (-55 °C to +150 °C), dwell time = 15 min, maximum transfer time = 20 s air to air	± 1.0 %
Moisture resistance	MIL-STD-202, method 106	± 1.0 %
Biased humidity	MIL-STD, method 103, 2000 h 85 °C / 85 % RH Note: specified conditions: 10 % of rated voltage	± 2.0 %
Operational life	MIL-STD-202, method 108, 2000 h, T_a = 125 °C at rated power	± 1.0 %
Resistance to solvents	MIL-STD-202, method 215	No damage to parts
Mechanical shock	MIL-STD-202, method 213, figure 1, SMD, condition C	± 0.5 %
Vibration	MIL-STD-202, method 204, 5 *g*'s for 20 minutes. 12 cycles each of 3 orientations	± 0.5 %
Resistance to solder heat	MIL-STD-202, method 210, condition J	± 1.0 %
Solderability	J-STD-002, method B1, 4 h at 155 °C dry heat, solder at 245 °C, magnification 50 x	> 95 % coverage
Flammability	UL 94	V-0
Board flex	AEC-Q200-005 2 mm min.	± 1.0 %
Terminal strength (SMD)	AEC-Q200-006 force of 1.8 kg for 60 s	± 1.0 %

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