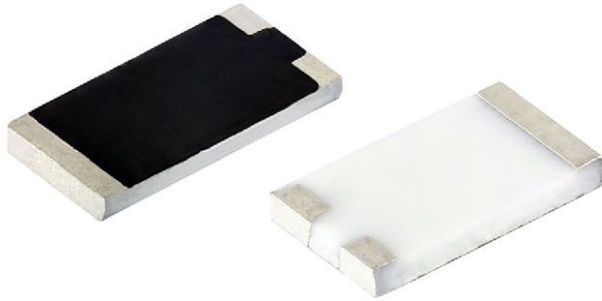


Thick Film Chip Dividers, Medium Voltage



FEATURES

- AEC-Q200 qualified
- Voltage up to 1415 V
- Precision to $\pm 0.5\%$ with low TCR tracking to 10 ppm/ $^{\circ}\text{C}$ utilizing thick film technology
- Wide range of resistance value and ratios
- Termination style: 3-sided wraparound termination
- Termination material: solder-coated nickel barrier
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE


RoHS
 COMPLIANT
 HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



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 $P_{70^{\circ}\text{C}}$ W	MAXIMUM WORKING VOLTAGE ⁽¹⁾ V	RESISTANCE RANGE ⁽²⁾ Ω	TOLERANCE ⁽³⁾ $\pm\%$	RATIO RANGE $(R_1 + R_2)/R_2$	TCR TRACKING (-55°C to $+155^{\circ}\text{C}$) \pm ppm/ $^{\circ}\text{C}$
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 = k Ω M = M Ω 20K0 = 20 k Ω 800K = 800 k Ω 1M00 = 1 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 1000 = 100:1 2000 = 200:1	D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ H = $\pm 3\%$ J = $\pm 5\%$	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)	RATIO TRACKING (ppm/ $^{\circ}$ C) -55 $^{\circ}$ C to +155 $^{\circ}$ 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

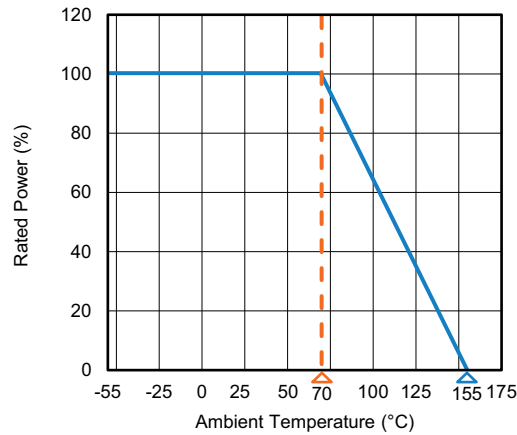
ENVIRONMENTAL SPECIFICATIONS	
Operating temperature	-55 $^{\circ}$ C to +155 $^{\circ}$ C
Life	Less than 0.5 % change when tested at full rated power

Note

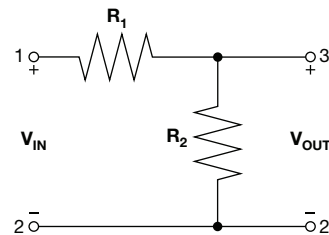
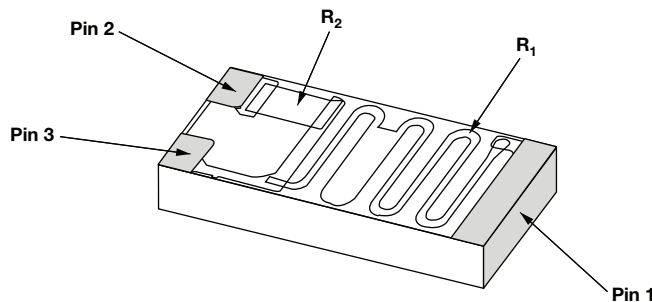
- Reference only: not for all values specified. Consult factory for your size and value

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



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