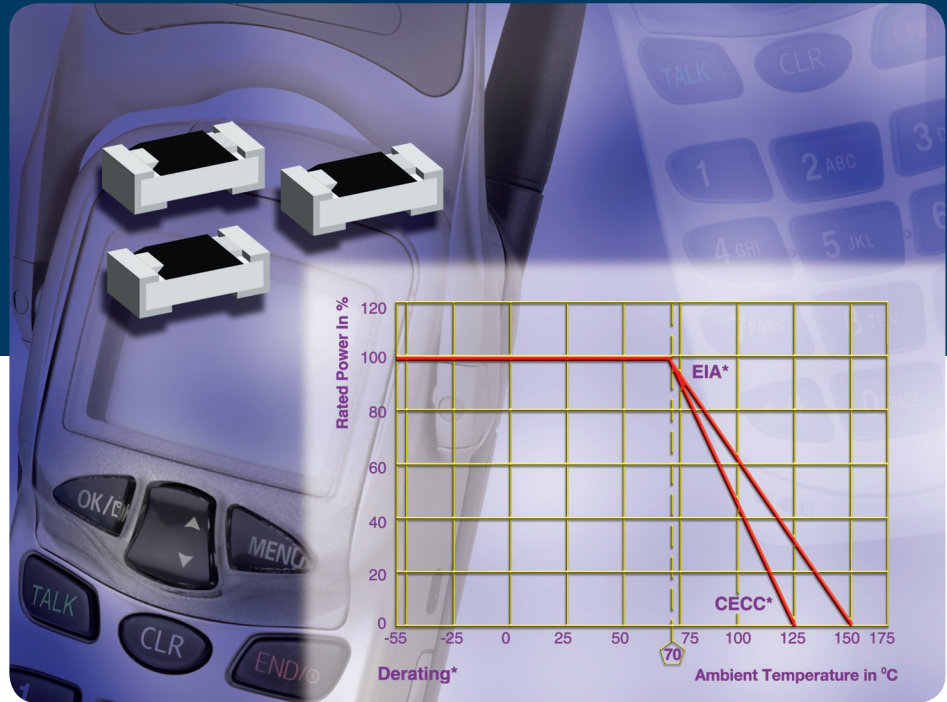




THICK FILM RESISTOR

CRCW0201 - e3



Thick Film Rectangular Chip Resistor

KEY BENEFITS

- Power rating: 0.05 W at 70 °C
- Resistance range: 10 Ω to 1 M Ω
- Temperature coefficient: ± 200 ppm/ $^{\circ}$ C
- Tolerances: 1 % and 5 %
- Operating temperature range: -55 $^{\circ}$ C to $+125$ $^{\circ}$ C
- Package size: (L x W x H) 0.6 mm x 0.3 mm x 0.23 mm (0.024 inches x 0.012 inches x 0.009 inches)

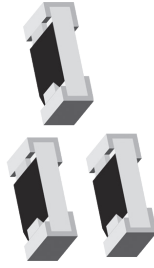
APPLICATIONS

- Cellular phones
- Memory modules
- PCMCIA cards
- Hearing aids
- Sensors

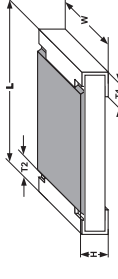
Thick Film Rectangular Chip Resistor

FEATURES

- Metal glaze on high quality ceramic
- Protective overglaze
- Lead (Pb)-free solder contacts on Ni barrier layer
- Pure tin plating provides compatibility with lead (Pb)-free and lead containing soldering processes
- Compatible with "Restriction of the use of Hazardous Substances" (RoHS) directive 2002/95/EC (issue 2004)
- Excellent stability ($|\Delta R/R| \leq 1\%$ for 1000 h at 70 °C)



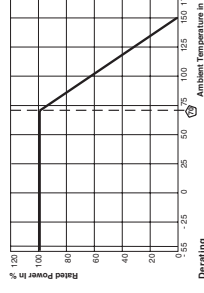
DIMENSIONS



SIZE	L	W	H	T1	T2
mm	0.6 ± 0.05	0.3 ± 0.05	0.23 ± 0.05	0.15 ± 0.05	0.15 ± 0.05
inch	0.024 ± 0.002	0.012 ± 0.002	0.009 ± 0.002	0.006 ± 0.002	0.006 ± 0.002



SOLDER PAD DIMENSIONS		
SIZE	a	b
mm	0.28	0.43
inch	0.011	0.017



STANDARD ELECTRICAL SPECIFICATIONS					
MODEL	POWER RATING $P_{70°C}$ W	LIMITING ELEMENT VOLTAGE MAX. V_E	TEMPERATURE COEFFICIENT ppm/°C	RESISTANCE RANGE Ω	E-SERIES
CRCW0201	0.05	30	± 200	10R - 1MΩ	24 24 + 96

- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material
- Ask about extended value ranges
- Marking: no marking

TECHNICAL SPECIFICATIONS	
PARAMETER	UNIT
Rated Dissipation at 70 °C	W
Limiting Element Voltage ¹⁾	V_E
Insulation Voltage (1 min)	V_P
Insulation Resistance	Ω
Category Temperature Range	°C
Failure Rate	h^{-1}
Weight / 1000 pieces	g

¹⁾ Rated voltage: $\sqrt{P \times R}$

ORDERING INFORMATION	
CRCW0201	ED
MODEL	PACKAGING
100R	Paper tape 10 000 pieces
RESISTANCE VALUE Ω	
TOLERANCE	
J = ± 5 %	
N = ± 200 ppmK	
F = ± 1 %	
0 = Jumper	

TEST PROCEDURES AND REQUIREMENTS

TEST (CLAUSE)	CONDITIONS OF TEST	REQUIREMENTS PERMISSIBLE CHANGE (ΔR/R)
Resistance (4.5)	stability for product types: CRCW0201...e3	10 Ω to 1 MΩ
Temperature coefficient (4.8.4.2)	20: 55/20 °C and 20/125/20 °C U = 2.5 × (P ₇₀ × R) ^{1/2} ≤ 2 × U _{max} ; Duration: 0.5 s	± 1 %; ± 5 % ± 200 ppmK
Overload (4.13)	Aging 4 h at 155 °C, dry heat Solder bath method: 235 °C; 2 s Visual examination	Good (tinning ≥ 95 % covered) no visible damage
Solderability (4.17.5)	Solder bath method: (260 ± 5) °C; (10 ± 1) s	± (1 % R + 0.05 Ω)
Resistance to soldering heat (4.18.2)	30 min. at LCT = -55 °C; 30 min. at UCT = 125 °C; 5 cycles (40 ± 2) °C; 56 days; (93 ± 3) % RH	± (0.5 % R + 0.05 Ω)
Rapid change of temperature (4.19)	16 h at UCT = 125 °C; 1 cycle at 55 °C; 1 h at LCT = -55 °C; 5 cycles at 55 °C; U = (P ₇₀ × R) ^{1/2}	± (2 % R + 0.1 Ω)
Damp heat, steady state (4.24)	U = U _{max} , whichever is less severe U = (P ₇₀ × R) ^{1/2}	± (3 % R + 0.1 Ω)
Climatic sequence (4.23)	U = U _{max} , whichever is less severe U = (P ₇₀ × R) ^{1/2} 1 cycle at 100 h; 70 °C; 1000 h	± (4 % R + 0.1 Ω)
Endurance at 70 °C (4.25.1)	Duration extended to 8000 hours UCT = 125 °C; 1000 h	± (2 % R + 0.1 Ω)
Extended endurance (4.25.1.8)		
Endurance at upper category temperature (4.25.3)		

APPLICABLE SPECIFICATIONS

- EN 60115-1 Ceramic Specification
- EN 14040 Solderability Specification
- EN 140401-802 Detail Specification
- IEC 60068-2-X Variety of environmental test procedures
- IEC 60286-3 Packaging of SMD components

Revision 13-Oct-06

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