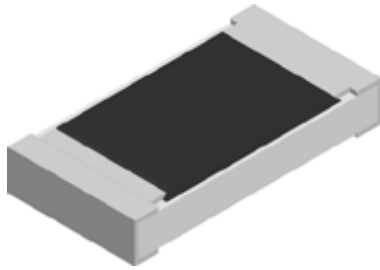


Thick Film, Rectangular, Trimmable, Resistor Chips



FEATURES

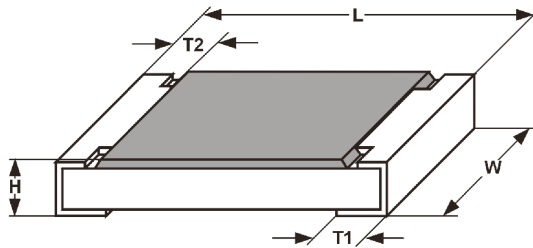
- Thick film on high quality ceramic
- Solder contacts on Ni barrier layer
- Can be trimmed to required value after insertion
- For applications in precision circuitry where relative tolerances can be compensated by trimming

STANDARD ELECTRICAL SPECIFICATIONS								
MODEL	SIZE		POWER RATING P _{70°C} (W)	LIMITING ELEMENT VOLTAGE V _{≧ MAX}	TEMPERATURE COEFFICIENT ppm/°C	TOLERANCE %	RESISTANCE RANGE Ω	E-SERIES
	INCH	METRIC	CECC 40401-802/EIA-575					
CRCW0402TR D10TR	0402	1005	0.063	50	100	± 10, ± 15, ± 20 + 0- 30	10R – 10M	24
					200	± 10, ± 15, ± 20 + 0- 30	R47 – 10M	24
CRCW0603TR D11TR	0603	1608	0.1	75	100	± 10, ± 15, ± 20 + 0- 30	10R – 10M	24
					200	± 10, ± 15, ± 20 + 0- 30	R47 – 10M	24
CRCW0805TR D12TR	0805	2012	0.125	150	100	± 10, ± 15, ± 20 + 0- 30	10R – 10M	24
					200	± 10, ± 15, ± 20 + 0- 30	R47 – 10M	24
CRCW1206TR D25TR	1206	3216	0.25	200	100	± 10 ± 15, ± 20 + 0- 30	10R – 10M 10R – 20M	24 24
					200	± 10 ± 15, ± 20 + 0- 30	R47 – 10M R47 – 20M	24 24
CRCW 1210TR	1210	3225	0.33	200	200	± 15	10R – 4M7	24
CRCW 2010TR	2010	5025	0.5	200	200	± 15	10R – 4M7	24
CRCW 2512TR	2512	6332	1.0	200	200	± 15	10R – 4M7	24

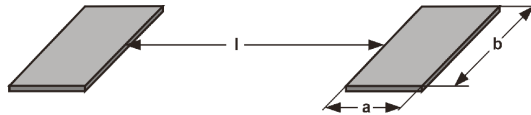
* Size not specified in CECC

- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material
- Values from R10 to R43 with TC500 on request
- Marking: no marking on device, on label only
- Packaging: see appropriate catalog or web page
- Tolerance +0 ... -10% and ± 15% for D10 to D25 on request

ORDERING INFORMATION				
D-SERIES				
D11TR MODEL	200 TC ppm/°C	560R RESISTANCE VALUE Ω	10% TOLERANCE ± %	P5 PACKAGING Paper tape 5.000pcs
CRCW-SERIES				
CRCW2512TR MODEL	561 RESISTANCE VALUE Ω	K TOLERANCE K = ± 10% L = ± 15% M = ± 20% W = + 0, - 30%	200 TC* ppm/°C	R82 PACKAGING Blister tape 4.000pcs
First two digits are significant figures. Third digit is the multiplier. Example: 5R6 = 5.6 392 = 3.9K 105 = 1M				
*NOTE: Entering a TC value in this field is optional. If no TC specified by the Customer, the default TC will be entered by the factory.				

DIMENSIONS


SIZE		DIMENSIONS [in millimeters]				
INCH	METRIC	L	W	H	T1	T2
0402	1005	1.0 ±0.05	0.5 ±0.05	0.35 ±0.05	0.25 ^{+0.05} _{-0.10}	0.2 ±0.1
0603	1608	1.55 ^{+0.10} _{-0.05}	0.85 ±0.1	0.45 ±0.05	0.3 ^{+0.20} _{-0.10}	0.3 ±0.2
0805	2012	2.0 ^{+0.20} _{-0.10}	1.25 ±0.15	0.45 ±0.05	0.3 ^{+0.20} _{-0.10}	0.3 ±0.2
1206	3216	3.2 ^{+0.10} _{-0.20}	1.6 ±0.15	0.55 ±0.05	0.45 ±0.2	0.4 ±0.2
1210	3225	3.2 ±0.2	2.5 ±0.2	0.55 ±0.05	0.45 ±0.2	0.4 ±0.2
2010	5025	5.0 ±0.15	2.5 ±0.15	0.60 ±0.05	0.6 ±0.25	0.6 ±0.25
2512	6332	6.3 ±0.2	3.15 ±0.15	0.60 ±0.05	0.6 ±0.25	0.6 ±0.25



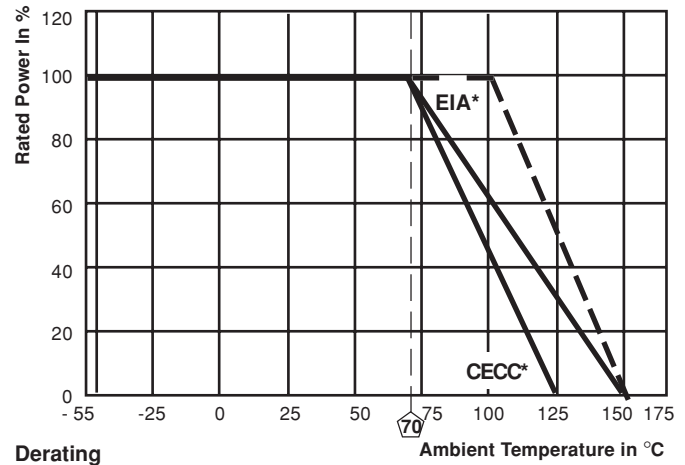
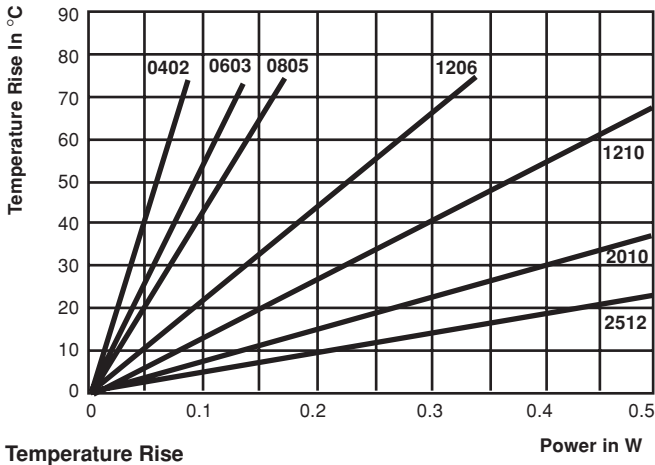
SIZE		SOLDER PAD DIMENSIONS [in millimeters]					
		REFLOW SOLDERING			WAVE SOLDERING		
INCH	METRIC	a	b	l	a	b	l
0402	1005	0.4	0.6	0.5			
0603	1608	0.5	0.9	1.0	0.9	0.9	1.0
0805	2012	0.7	1.3	1.2	0.9	1.3	1.3
1206	3216	0.9	1.7	2.0	1.1	1.7	2.3
1210	3225	0.9	2.5	2.0	1.1	2.5	2.2
2010	5025	1.0	2.5	3.9	1.2	2.5	3.9
2512	6332	1.0	3.2	5.2	1.2	3.2	5.2

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	D10TR CRCW0402TR	D11TR CRCW0603TR	D12TR CRCW0805TR	D25TR CRCW1206TR	CRCW1210TR	CRCW2010TR	CRCW2512TR
Rated Dissipation at 70°C (CECC 40401 EIA 575)	W	0.063	0.1	0.125	0.25	0.33	0.5	1.0
Limiting Element Voltage ²⁾	V _≅	50	75	150	200	200	200	200
Insulation Voltage (1 min)	V _{peak}	75	100	200	300	300	300	300
Thermal Resistance ¹⁾	K/W	≤ 870 ¹⁾	≤ 550 ¹⁾	≤ 440 ¹⁾	≤ 220 ¹⁾	≤ 140 ³⁾	≤ 88 ³⁾	≤ 65 ³⁾
Insulation Resistance	Ω	> 10 ⁹						
Category Temperature Range	°C	- 55 / + 125 (+ 155)						
Weight / 1000pcs	g	0.65	2	5.5	10	16	29.5	40.5

¹⁾ Measuring conditions in acc. to CECC 40401

²⁾ Rated voltage: $\sqrt{P \times R}$
³⁾ Depending on solder pad dimensions

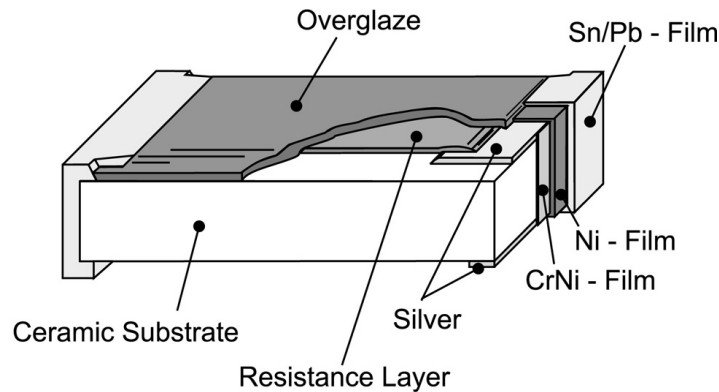


*There are differences in board layout and measurements between CECC and EIA.

PACKAGING					
MODEL	REEL				
	TAPE WIDTH	DIAMETER	PIECES / REEL	PACKAGING CODE	
				PAPER ¹⁾	BLISTER ¹⁾
D10TR	8mm Papertape	180mm / 7" 330mm / 13"	10000 50000	P0 / RT7 PZ / RT4	
D11TR	8mm Paper-/ Blisertape	180mm / 7" 255mm / 10" 330mm / 13"	5000	P5 / RT1	B5/na
			10000 20000	P0 / RT5 PN / RT6	BN/na
D12TR	8mm Paper-/ Blisertape	180mm / 7" 255mm / 10" 330mm / 13"	5000	P5 / RT1	B5/na
			10000 20000	P0 / RT5 PN / RT6	BN/na
D25TR	8mm Paper-/ Blisertape	180mm / 7" 255mm / 10" 330mm / 13"	5000	P5 / RT1	B5/na
			10000 20000	P0 / RT5 PN / RT6	BN/na
CRCW1210	8mm Paper-/Blisertape	180mm / 7" 330mm / 13"	5000 20000	P5 / RT1 PN / RT6	B5/na BN/na
CRCW2010	12mm Blisertape	180mm / 7"	4000		B4 / R02
CRCW2512	12mm Blisertape	180mm / 7"	2000		B2 / R67
			4000		B4 / R82

¹⁾ European / N. American product

• For further information about packaging: see appropriate catalog or web page


Trimming Instructions:

YAG-Laser:

The trimming length should not exceed 50% of the dimension W (width)

Maximum trimming factor = 1.6

Distance between end termination and trimming cut = 0.2mm min

Double cut: Distance between two cuts = 0.5mm min

The laser-cut should be protected with epoxy resins

PERFORMANCE					
TEST	CONDITIONS OF TEST	REQUIREMENTS in % ¹⁾			
		0402 0603	0805 1206 1210	2010 2512	
Endurance Test at 70°C IEC 60115-1 4.25.1	1000 hours at 70°C, 1.5 hours "ON", 0.5 hours "OFF"	≤ ± 1.0	≤ ± 0.5	≤ ± 1.0	
Endurance at UCT IEC 60115-1 4.25.3	1000 hours at 125°C without load	≤ ± 1.0	≤ ± 0.5	≤ ± 1.0	
Overload Test IEC 60115-1 4.13	Short time overload	≤ ± 0.5	≤ ± 0.25	≤ ± 0.5	
Thermal Shock IEC 60115-1 4.19 IEC 60068-2-14	Rapid change between upper and lower category temperature	≤ ± 0.5	≤ ± 0.25	≤ ± 0.5	
Damp Heat Steady State IEC 60115-1 4.24 IEC 60068-2-3	56 days at 40°C and 93% relative humidity	≤ ± 0.25	≤ ± 0.5	≤ ± 1.0	
Resistance to Soldering Heat IEC 60115-1 4.18 IEC 60068-2-20	10 seconds at 260°C solder bath temperature	≤ ± 0.5	≤ ± 0.25	≤ ± 0.5	

¹⁾ Limits for change of resistance at test. Data are valid for the non trimmed resistors only. Depending on trimming process some properties can change

APPLICABLE SPECIFICATIONS
<ul style="list-style-type: none"> • CECC40000 / 40400 / 40401 • EN140400 / IEC 60115 – 1 • EIA 575 • MIL-PRF-55342