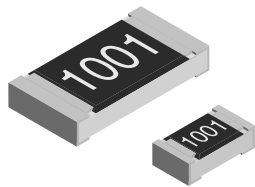




Thick Film, Rectangular, Precision Resistors



FEATURES

- Metal glaze on high quality ceramic
- Protective overglaze
- Solder contacts on Ni barrier layer
- Excellent stability in different environmental conditions
- Low temperature coefficient and tight tolerances

STANDARD ELECTRICAL SPECIFICATIONS

| MODEL | SIZE | | POWER RATING $P_{70^{\circ}\text{C}}$ W CEC 40401-802/EIA-575 | LIMITING ELEMENT VOLTAGE MAX V_{\cong} | TEMPERATURE COEFFICIENT ppm/°C | TOLERANCE % | RESISTANCE RANGE Ω | E-SERIES |
|------------------|------|--------|--|--|--------------------------------------|---------------------------------------|---|----------------------|
| | INCH | METRIC | | | | | | |
| D10P CRCW0402 | 0402 | 1005 | 0.063 | 50 | 100 50 25 | 0.5 0.25, 0.5, 1 0.25, 0.5, 1 | 10R – 1M0 100R – 1M0 100R – 10K | 96 96 96 |
| D11P CRCW0603 | 0603 | 1608 | 0.1 | 75 | 100 50 50 25 | 0.5 0.25 0.5, 1 0.25, 0.5, 1 | 10R – 10M 100R – 1M0 100R – 10M 100R – 10K | 96 96 96 96 |
| D12P CRCW0805 | 0805 | 2012 | 0.125 | 150 | 100 50 50 25 | 0.5 0.25 0.5, 1 0.25, 0.5, 1 | 10R – 10M 100R – 1M0 100R – 10M 100R – 10K | 96 96 96 96 |
| D25P CRCW1206 | 1206 | 3216 | 0.25 | 200 | 100 50 50 25 | 0.5 0.25 0.5, 1 0.25, 0.5, 1 | 10R – 10M 100R – 1M0 100R – 10M 100R – 10K | 96 96 96 96 |
| CRCW1210 | 1210 | 3225 | 0.33 | 200 | 100 50 | 0.5 0.5 | 100R – 1M0 100R – 1M0 | 96 96 |
| CRCW1218 | 1218 | 3246 | 1.0 | 200 | 100 50 | 0.5 0.5, 1 | 100R – 2M2 100R – 2M2 | 96 96 |
| CRCW2010 | 2010 | 5025 | 0.5 | 400 | 100 50 | 0.5 0.5, 1 | 10R – 10M 100R – 10M | 96 96 |
| CRCW2512 | 2512 | 6332 | 1.0 | 500 | 100 50 | 0.5 0.5, 1 | 10R – 10M 100R – 10M | 96 96 |

- Ask about further value ranges
- Special terminations for conductive adhesive attachment on request
- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material
- Marking and packaging: see appropriate catalog or web pages

TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | D10P CRCW0402 | D11P CRCW0603 | D12P CRCW0805 | D25P CRCW1206 | CRCW1210 | CRCW1218 | CRCW2010 | CRCW2512 |
|---|-------------------|------------------------|---------------------|---------------------|---------------------|---------------------|---------------|--------------------|--------------------|
| Rated Dissipation at 70°C (CECC 40401 EIA 575) | W | 0.063 | 0.1 | 0.125 | 0.25 | 0.33 | 1.0 | 0.5 | 1.0 |
| Limiting Element Voltage ²⁾ | V_{\cong} | 50 | 75 | 150 | 200 | 200 | 200 | 400 | 500 |
| Insulation Voltage (1 min) | V_{peak} | > 75 | > 100 | > 200 | > 300 | > 300 | > 300 | > 300 | > 300 |
| Thermal Resistance | K/W | ≤ 870 ¹⁾ | ≤ 550 ¹⁾ | ≤ 440 ¹⁾ | ≤ 220 ¹⁾ | ≤ 140 ³⁾ | ³⁾ | ≤ 88 ³⁾ | ≤ 65 ³⁾ |
| Insulation Resistance | Ω | | | | > 10 ⁹ | | | | |
| Category Temperature Range | °C | - 55 / + 125 | | | | | | | |
| Failure Rate | h ⁻¹ | 0.3 · 10 ⁻⁹ | | | | | | | |
| Weight / 1000pcs | g | 0.65 | 2 | 5.5 | 10 | 16 | 29.5 | 25.5 | 40.5 |

¹⁾ Measuring conditions in acc. to CECC 40401

²⁾ Rated voltage: $\sqrt{P \times R}$

³⁾ Depending on solder pad dimensions

ORDERING INFORMATION

D-SERIES

D11P
MODEL

25
TC
ppm/°C

562R
RESISTANCE VALUE
 Ω

0.5
TOLERANCE
± %

PN
PACKAGING
PN-Papertape 20.000pcs

CRCW-SERIES

CRCW0603
MODEL

25R
RESISTANCE VALUE
 Ω

D
TOLERANCE
± %

25
TC*
ppm/°C

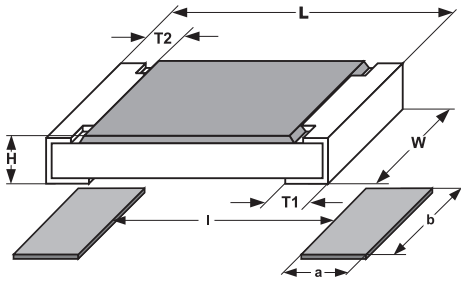
RT6
PACKAGING
PN-Papertape 20,000 pcs

± 1% = 3 sig. digits, plus multiplier
± 5% = 2 sig. digits, plus multiplier
Example: 49R9F = 49.9 Ω , ± 1%
5R1J = 5.1 Ω , ± 5%
3011F = 3.01K Ω , ± 1%
000Z = 0 Ω Jumper

C = ± 0.25%
D = ± 0.5%
F = ± 1%

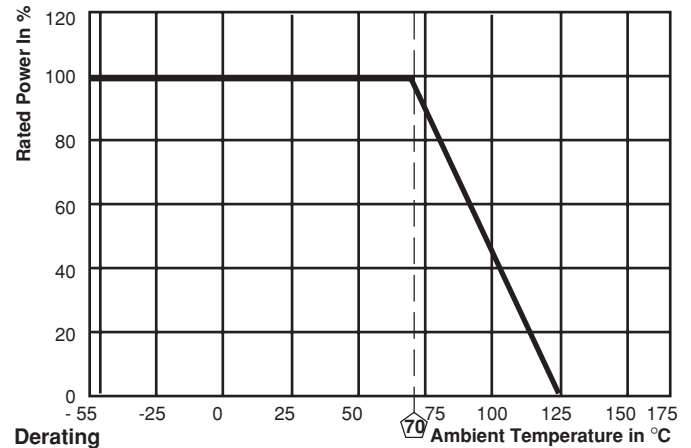
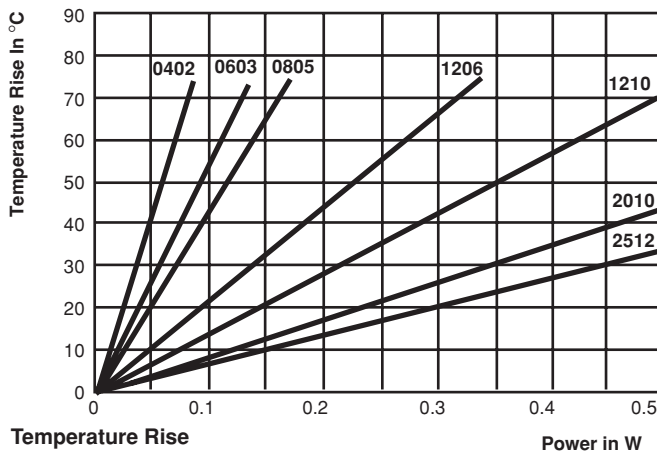
*NOTE: Entering a TC value in this field is optional. If no TC specified by the Customer, the default TC will be highest listed for Tolerance specified.

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 | 0.2 ±0.1 |
| 0603 | 1608 | 1.55 ^{+0.10} / _{-0.05} | 0.85 ±0.1 | 0.45 ±0.05 | 0.3 ±0.2 | 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 |
| 1218 | 3246 | 3.2 ^{+0.10} / _{-0.20} | 4.6 ±0.15 | 0.55 ±0.05 | 0.45 ±0.2 | 0.4 ±0.2 |
| 2010 | 5025 | 5.0 ±0.15 | 2.5 ±0.15 | 0.6 ±0.05 | 0.6 ±0.2 | 0.6 ±0.2 |
| 2512 | 6332 | 6.3 ±0.2 | 3.15 ±0.15 | 0.6 ±0.05 | 0.6 ±0.2 | 0.6 ±0.2 |

Dimensions 1210 to 2512 and solder-pad dimensions: see standard chip resistors D..CRCW



| PERFORMANCE | | | | |
|---|---|----------------|----------------------|----------------------|
| TEST | CONDITIONS OF TEST | TEST RESULTS % | | |
| | | 0402 0603 | 0805 1206 1210 | 1218 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 | ≤ ± 1.5 | ≤ ± 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 2.5 x rated voltage or ≤ 2 x limiting element voltage. | ≤ ± 0.25 | ≤ ± 0.25 | ≤ ± 0.5 |
| Thermal Shock IEC 60115-1 4.19 IEC 60068-2-14 | Rapid change between upper and lower category temperature | ≤ ± 0.25 | ≤ ± 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 | ≤ ± 1.0 | ≤ ± 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 | ≤ ± 0.25 | ≤ ± 0.25 | ≤ ± 0.5 |

HF-CHARACTERISTIC / CURRENT NOISE / NON-LINEARITY AND PACKAGING:

see standard Chip resistors D...CRCW...

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