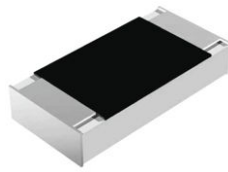


Standard Thick Film Chip Resistors



FEATURES

- Very small standard size (0.4 mm x 0.2 mm)
- Low tolerance (1 %)
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

| STANDARD ELECTRICAL SPECIFICATIONS | | | | | | | | |
|---|-----------------------|---------------------|-------------------------------|--|-------------------------------------|----------------|---------------------------------|----------|
| TYPE | CASE SIZE IMPERIAL | CASE SIZE METRIC | POWER RATING P_{70} W | LIMITING ELEMENT VOLTAGE $U_{max.}$ AC _{RMS} /DC V | TEMPERATURE COEFFICIENT ppm/K | TOLERANCE % | RESISTANCE RANGE Ω | SERIES |
| CRCW01005 | 01005 | RR0402M | 0.031 | 15 | ± 250 | ± 1 | 10.0 to 1M | E24; E96 |
| | | | | | | ± 2, ± 5 | | E24 |
| | | | | | -200/+600 | ± 1 | 1.0 to 9.76 | E24; E96 |
| | | | | | | ± 2, ± 5 | 1.0 to 9.1 | E24 |
| Zero-Ohm-Resistor: $R_{max.} = 50 \text{ m}\Omega$, $I_{max.} = 0.5 \text{ A}$ | | | | | | | | |

Notes

- These resistors do not feature a limited lifetime when operated within the permissible limits. However, resistance value drift increasing over operating time may result in exceeding a limit acceptable to the specific application, thereby establishing a functional lifetime.
- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material.

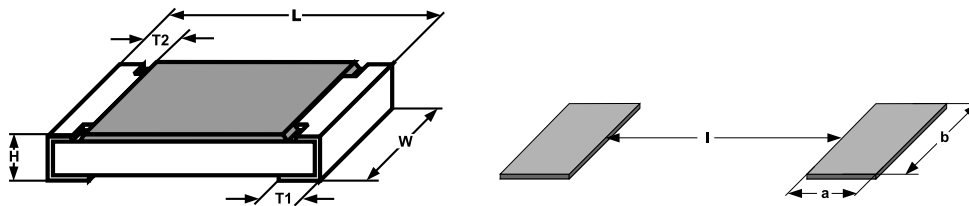
| TECHNICAL SPECIFICATIONS | | |
|--|----------|-------------------|
| PARAMETER | UNIT | CRCW01005 |
| Rated Dissipation P_{70} ⁽¹⁾ | W | 0.031 |
| Operating Voltage $U_{max.}$ AC _{RMS} /DC | V | 15 |
| Insulation Voltage U_{ins} (1 min) | V | 30 |
| Insulation Resistance | Ω | > 10 ⁹ |
| Operating Temperature Range | °C | -55 to +125 |
| Mass | mg | 0.07 |

Note

- ⁽¹⁾ The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature of 125 °C is not exceeded.

| PART NUMBER AND PRODUCT DESCRIPTION | | | | | | | | | | | | | | | |
|---|---------------------------------------|--|--|------------------|--|---|---|---|---|---|-----------------|---|---|---|---|
| PART NUMBER: CRCW01001K00FREL | | | | | | | | | | | | | | | |
| C | R | C | W | 0 | 1 | 0 | 0 | 1 | K | 0 | 0 | F | R | E | L |
| TYPE CRCW0100 | | VALUE R = Decimal K = Thousand M = Million 0000 = Jumper | | | TOLERANCE F = ± 1.0 % G = ± 2.0 % J = ± 5.0 % Z = Jumper | | | TCR R = ± 250 ppm/K Y = -200 ppm/K/+600 ppm/K 0 = Jumper | | | PACKAGING EL | | | | |
| PRODUCT DESCRIPTION: CRCW01005 250 1K0 1 % ET3 e3 | | | | | | | | | | | | | | | |
| CRCW01005 | 250 | 1K0 | 1 % | ET3 | e3 | | | | | | | | | | |
| TYPE CRCW01005 | TCR ± 250 ppm/K -200/+600 ppm/K | RESISTANCE VALUE 1R0 = 1 Ω 10R = 10 Ω 1K0 = 1 kΩ 10K = 10 kΩ 1M0 = 1 MΩ 0R0 = Jumper | TOLERANCE VALUE ± 1 % ± 2 % ± 5 % | PACKAGING ET3 | LEAD (Pb)-FREE e3 = Pure tin termination finish | | | | | | | | | | |

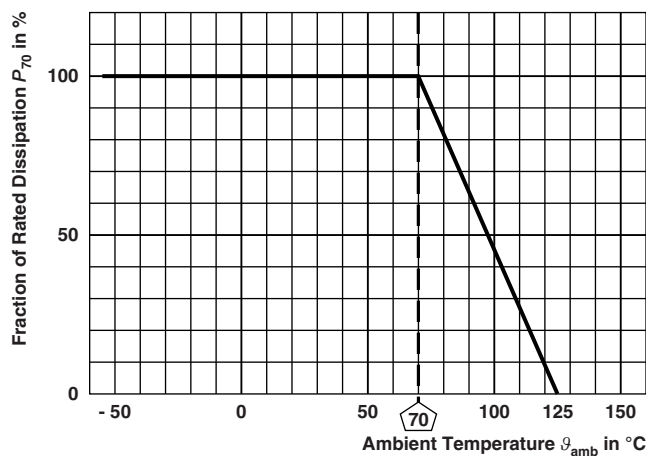
| PACKAGING | | | | | | |
|-----------|----------|----------|---|-------|-------|---------------|
| TYPE | CODE | QUANTITY | CARRIER TAPE | WIDTH | PITCH | REEL DIAMETER |
| CRCW01005 | EL = ET3 | 20 000 | Paper tape acc. to IEC 60286-3, Type 1a | 8 mm | 2 mm | 180 mm/7" |

DIMENSIONS in millimeters


| SIZE | | DIMENSIONS | | | | | RECOMMENDED SOLDER PAD DIMENSIONS | | |
|----------|---------|------------|------------|-------------|-------------|-------------|-----------------------------------|-----|-----|
| IMPERIAL | METRIC | L | W | H | T1 | T2 | a | b | l |
| 01005 | RR0402M | 0.4 ± 0.02 | 0.2 ± 0.02 | 0.13 ± 0.02 | 0.10 ± 0.03 | 0.10 ± 0.03 | 0.15 | 0.2 | 0.2 |

Note

- No marking for 01005 size.

DERATING




| TEST PROCEDURES AND REQUIREMENTS | | | | |
|----------------------------------|----------------------------------|--|---|--|
| EN 60115-1 CLAUSE | IEC 60068-2 TEST METHOD | TEST | PROCEDURE | REQUIREMENTS PERMISSIBLE CHANGE (ΔR) |
| | | | STABILITY CLASS 1 OR BETTER | |
| | | | CRCW01005 e3 | |
| 4.5 | - | Resistance | - | 1Ω to $1 M\Omega$ $\pm 1 \%$; $\pm 2 \%$; $\pm 5 \%$ |
| 4.13 | - | Short time overload | $U = 2.5 \times \sqrt{P_{70} \times R} \leq 2 \times U_{max.}$; duration according to style | $\pm (2 \% R + 0.1 \Omega)$ |
| 4.17.2 | 58 (Td) | Solderability | Solder bath method; Sn60Pb40 non activated flux; (235 \pm 5) °C (2 \pm 0.2) s | Good tinning ($\geq 95 \%$ covered) no visible damage |
| | | | Solder bath method; Sn96.5Ag3Cu0.5 non-activated flux; (235 \pm 3) °C (2 \pm 0.5) s | Good tinning ($\geq 95 \%$ covered) no visible damage |
| 4.8.4.2 | - | Temperature coefficient | (20/-55/20) °C and (20/125/20) °C | - 200 ppm/K/+600 ppm/K, ± 250 ppm/K |
| 4.33 | 21 (Uu ₁) | Substrate bending | Depth 3 mm; 1 time | No visible damage, no open circuit in bent position $\pm (1 \% R + 0.05 \Omega)$ |
| 4.19 | 14 (Na) | Rapid change of temperature | 15 min. at -55 °C; 15 min. at 125 °C; 300 cycles | $\pm (2 \% R + 0.1 \Omega)$ |
| 4.25.1 | - | Endurance at 70 °C | $U = \sqrt{P_{70} \times R} \leq U_{max.}$; 1.5 h on; 0.5 h off; 70 °C; 1000 h | $\pm (5 \% R + 0.1 \Omega)$ |
| 4.18.2 | 58 (Td) | Resistance to soldering heat | Solder bath method (260 \pm 5) °C; (10 \pm 1) s | $\pm (2 \% R + 0.1 \Omega)$ |
| 4.24 | 78 (Cab) | Damp heat, steady state | (40 \pm 2) °C; (90 to 95) % RH; 1000 h | $\pm (5 \% R + 0.1 \Omega)$ |
| 4.25.3 | - | Endurance at upper category temperature | 125 °C, 1000 h | $\pm (2 \% R + 0.1 \Omega)$ |
| 4.29 | 45 (XA) | Component solvent resistance | Isopropyl alcohol; (20 to 25) °C; (5 \pm 0.5) min | No visible damage |

All tests are carried out in accordance with the following specifications:

- EN 60115-1, generic specification
- EN 140400, sectional specification
- EN 140401-802, detail specification
- IEC 60068-2-x, environmental test procedures

Packaging of components is done in paper tapes according to IEC 60286-3.



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