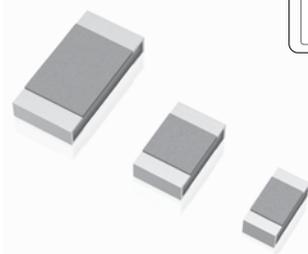


Precision SMD Bulk Metal® Foil Resistor (Wraparound)



Available
RoHS
COMPLIANT

FEATURES

- High precision and stable Bulk Metal® Foil resistor with 0603, 0805 and 1206 package
- TCR: 0±1 ppm/°C*, 0±2 ppm/°C, 0±5 ppm/°C
- Resistance tolerance: up to ±0.01%
- Load-life stability: ±0.005% (typical, 70°C, 2000 hrs., rated power)
- No standard resistance value (example: 1K234Ω)
- MOQ: 100 pieces

*Please contact us for availability.

COMPOSITION OF TYPE NUMBER

Example:

RWC 10K00 Q L

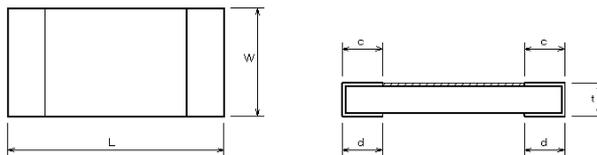
— Tape and Reel Package
— Resistance Tolerance
— Resistance Value
— Type

Resistance value is expressed by 4 numbers and 1 alphabet. R or K is a dual-purpose letter that designates both the value range (R for ohmic, K for kilohm) and the location of decimal point.

TCR, RESISTANCE RANGE, TOLERANCE, RATED POWER

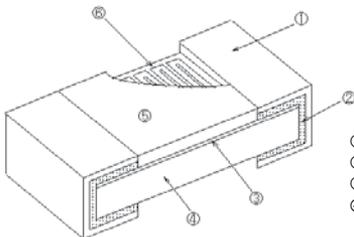
| Type | TCR -25°C to +125°C (ppm/°C) | Resistance Range (Ω) | Resistance Tolerance (%) | Rated Power at 70°C (W) |
|------|---------------------------------------|----------------------------|--------------------------------|----------------------------------|
| RWA | 0±5 | 100 to 1k | ±0.1(B) | 0.1 |
| | | 1k to 5k | ±0.05(A) | |
| RWB | 0±10 | 10 to 30 | ±0.5(D) | 0.2 |
| | | 30 to 100 | ±0.1(B) | |
| | | 100 to 1k | ±0.05(A), ±0.1(B) | |
| RWC | 0±2 | 1k to 10k | ±0.02(Q), ±0.05(A) | 0.3 |
| | | 5 to 30 | ±0.5(D) | |
| | | 30 to 100 | ±0.1(B) | |
| | | 100 to 1k | ±0.02(Q), ±0.05(A), ±0.1(B) | |
| | 0±2 | 1k to 30k | ±0.01(T), ±0.02(Q), ±0.05(A) | |

CONFIGURATION — DIMENSIONS IN mm



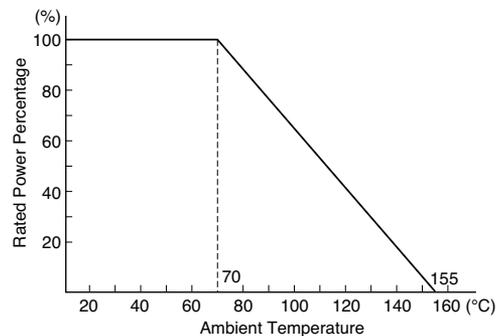
| Type | RWA | RWB | RWC |
|------|----------|----------|----------|
| L | 1.6±0.2 | 2.0±0.2 | 3.2±0.2 |
| W | 0.8±0.2 | 1.25±0.2 | 1.6±0.2 |
| t | 0.5±0.1 | 0.5±0.1 | 0.5±0.1 |
| c | 0.3±0.25 | 0.4±0.25 | 0.5±0.25 |
| d | 0.3±0.25 | 0.4±0.25 | 0.5±0.25 |

CONSTRUCTION



- ① External terminal (Sn)
- ② Internal terminal (Cu+Ni)
- ③ Bonding layer (polyimide)
- ④ Ceramic substrate (high-purity alumina)
- ⑤ Solder resist
- ⑥ Bulk Metal Foil

POWER DERATING CURVE



| PERFORMANCE | | | |
|----------------------------------|---|---------------------------|---------------|
| PARAMETERS | TEST CONDITION | SPECIFICATION | |
| | | MIL-PRF-55342 | ALPHA Typical |
| Max. Rated Operating Temperature | | 70°C | |
| Working Temperature Range | | -65°C to +155°C | |
| Maximum Working Voltage | | RWA=22V, RWB=45V, RWC=95V | |
| Thermal Shock | -65°C/30 min. ↔ +150°C/30 min. 100 cycles | ±0.1% | ±0.01% |
| Overloading | Rated Voltage x 2.5, 5 sec. | ±0.1% | ±0.01% |
| Low Temperature Storage | -65°C, No Load, 24 hrs. → Rated Power, 45 min. | ±0.1% | ±0.01% |
| Resistance to Soldering Heat | +260°C, 10 sec. | ±0.2% | ±0.01% |
| Moisture Resistance | +65°C to -10°C, 90% RH to 98% RH, Rated Voltage, 10 cycles (240 hrs.) | ±0.2% | ±0.02% |
| Life | 70°C, Rated Power, 1.5 hrs. ON, 0.5 hrs. OFF, 2,000 hrs. | ±0.5% | ±0.005% |
| High Temperature Exposure | 155°C, No Load, 100 hrs. | ±0.1% | ±0.02% |

TAPE AND REEL PACKAGE (BASED ON EIA-481-1) [DIMENSIONS IN mm]

| Tape Dimensions | | | | | | | | | | Reel Dimensions | | | | | | |
|-----------------|-----------|-----------|----------|-----------|-----------|----------|-----------|----------|-----------------|---|--------------|--------------|--------------|--------|-----------|-----------|
| | | | | | | | | | | | | | | | | |
| Type | A | B | C | D | E | F | G | H | J | A | N | B | C | D | W1 | W2 |
| RWA | 1.00 ±0.1 | 1.80 ±0.1 | 8.0 ±0.2 | 3.5 ±0.05 | 1.75 ±0.1 | 4.0 ±0.1 | 2.0 ±0.05 | 4.0 ±0.1 | Dia. 1.55 ±0.55 | Dia. 180 0/-1.5 | Dia. 60 +1/0 | Dia. 13 ±0.2 | Dia. 21 ±0.8 | 2 ±0.5 | 9.0 +1/-0 | 13.0 ±1.0 |
| RWB | 1.45 ±0.1 | 2.25 ±0.1 | 8.0 ±0.2 | 3.5 ±0.05 | 1.75 ±0.1 | 4.0 ±0.1 | 2.0 ±0.05 | 4.0 ±0.1 | Dia. 1.55 ±0.55 | Reel Capacity RWA, RWB, RWC: 5,000 pieces/reel (Available at 100 pieces, 500 pieces and 1,000 pieces) | | | | | | |
| RWC | 1.90 ±0.1 | 3.50 ±0.1 | 8.0 ±0.2 | 3.5 ±0.05 | 1.75 ±0.1 | 4.0 ±0.1 | 2.0 ±0.05 | 4.0 ±0.1 | Dia. 1.55 ±0.55 | | | | | | | |

PRECAUTION IN USING FACE-BONDED CHIP RESISTORS

1. Storage

Storage conditions or environment may adversely affect solderability of the exterior terminals. Do not store in high temperature and humidity. The recommended storage environment is lower than 40°C, has less than 70% RH humidity and is free from harmful gases such as sulphur and chlorine.

2. Caution in Soldering

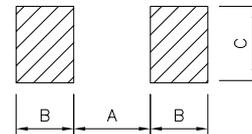
- IR and vapor phase reflow are recommended.
- Vacuum pick up is recommended for handling.
- If the use of a soldering iron becomes necessary, precautionary measures should be taken to avoid any possible damage / overheating.

3. Cleaning

Avoid the use of cleaning agents which could attack epoxy resins, which form part of the resistor construction.

4. Recommended Land Pattern

The dimensions of solder land must be determined in conformity with the size of resistors and with the soldering method. They are also subject to the mounting machine and the material of the substrate.



| Type | A | B | C |
|------|-----|-----|-----|
| RWA | 0.8 | 0.9 | 1.0 |
| RWB | 0.8 | 1.2 | 1.4 |
| RWC | 1.6 | 1.5 | 1.8 |

(mm)

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