



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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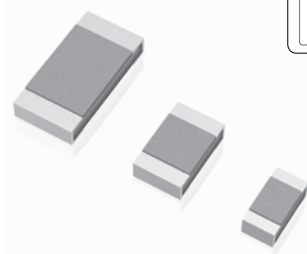
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## Precision SMD Bulk Metal® Foil Resistor (Wraparound)



RoHS  
COMPLIANT

### FEATURES

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

### COMPOSITION OF TYPE NUMBER

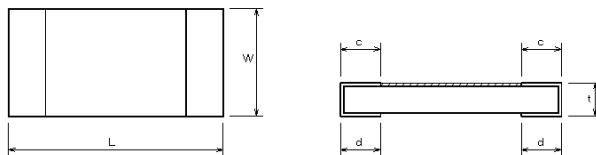
Example:

**RWC 10K00 Q L**

Tape and Reel Package  
Resistance Tolerance  
Resistance Value  
Type

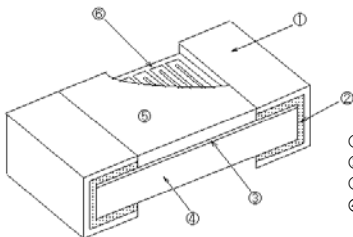
Resistance value is expressed by 4 numbers and 1 alphabet. R or K is a dual-purpose letter that designates both the value range (R for ohmic, K for kilohm) and the location of decimal point.

### CONFIGURATION—DIMENSIONS IN inches (mm)



| Type                 | RWA         | RWB          | RWC         |
|----------------------|-------------|--------------|-------------|
| $L \pm 0.008$ (0.2)  | 0.063 (1.6) | 0.079 (2.0)  | 0.126 (3.2) |
| $W \pm 0.008$ (0.2)  | 0.031 (0.8) | 0.049 (1.25) | 0.063 (1.6) |
| $t \pm 0.004$ (0.1)  | 0.020 (0.5) | 0.020 (0.5)  | 0.020 (0.5) |
| $c \pm 0.010$ (0.25) | 0.012 (0.3) | 0.016 (0.4)  | 0.020 (0.5) |
| $d \pm 0.010$ (0.25) | 0.012 (0.3) | 0.016 (0.4)  | 0.020 (0.5) |

### CONSTRUCTION

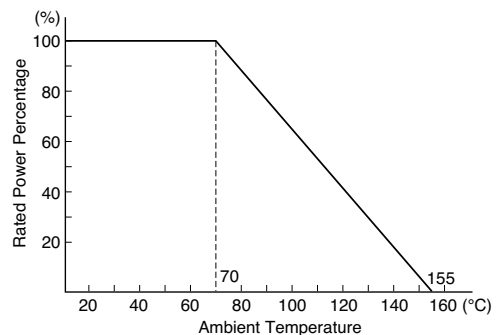


- ① External terminal (Sn)
- ② Internal terminal (Cu+Ni)
- ③ Bonding layer (polyimide)
- ④ Ceramic substrate (high-purity alumina)
- ⑤ Solder resist
- ⑥ Bulk Metal Foil

### TCR, RESISTANCE RANGE, TOLERANCE, RATED POWER

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

### 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 inches (mm)]**

| Tape Dimensions |              |              |              |               |              |              |               |              |                   | Reel Dimensions   |                 |                 |                 |              |                 |              |
|-----------------|--------------|--------------|--------------|---------------|--------------|--------------|---------------|--------------|-------------------|---|-----------------|-----------------|-----------------|--------------|-----------------|--------------|
|                 |              |              |              |               |              |              |               |              |                   |   |                 |                 |                 |              |                 |              |
| Type            | A            | B            | C            | D             | E            | F            | G             | H            | J                 | A   | N               | B               | C               | D            | W1              | W2           |
|                 | ±0.004 (0.1) | ±0.004 (0.1) | ±0.008 (0.2) | ±0.002 (0.05) | ±0.004 (0.1) | ±0.004 (0.1) | ±0.002 (0.05) | ±0.004 (0.1) | ±0.022 (0.55)     | 0/-0.059 (0/-1.5)   | +0.039/0 (+1/0) | ±0.008 (0.2)    | ±0.031 (0.8)    | ±0.020 (0.5) | +0.039/0 (+1/0) | ±0.039 (1.0) |
| RWA             | 0.039 (1.0)  | 0.071 (1.8)  | 0.315 (8.0)  | 0.138 (3.5)   | 0.069 (1.75) | 0.157 (4.0)  | 0.079 (2.0)   | 0.157 (4.0)  | Dia. 0.061 (1.55) | Dia. 7.087 (180)  | Dia. 2.362 (60) | Dia. 0.512 (13) | Dia. 0.827 (21) | 0.079 (2)    | 0.354 (9)       | 0.512 (13)   |
| RWB             | 0.057 (1.45) | 0.089 (2.25) | 0.315 (8.0)  | 0.138 (3.5)   | 0.069 (1.75) | 0.157 (4.0)  | 0.079 (2.0)   | 0.157 (4.0)  | Dia. 0.061 (1.55) | Reel Capacity<br>RWA, RWB, RWC: 5,000 pieces/reel<br>(Available at 100 pieces, 500 pieces and 1,000 pieces) |                 |                 |                 |              |                 |              |
| RWC             | 0.075 (1.9)  | 0.138 (3.5)  | 0.315 (8.0)  | 0.138 (3.5)   | 0.069 (1.75) | 0.157 (4.0)  | 0.079 (2.0)   | 0.157 (4.0)  | Dia. 0.061 (1.55) |   |                 |                 |                 |              |                 |              |

**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**

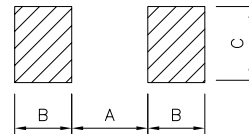
- ① IR and vapor phase reflow are recommended.
- ② Vacuum pick up is recommended for handling.
- ③ If the use of a soldering iron becomes necessary, precautionary measures should be taken to avoid any possible damage / overheating.

**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  | 0.031 (0.8) | 0.035 (0.9) | 0.039 (1.0) |
| RWB  | 0.031 (0.8) | 0.047 (1.2) | 0.055 (1.4) |
| RWC  | 0.063 (1.6) | 0.059 (1.5) | 0.071 (1.8) |