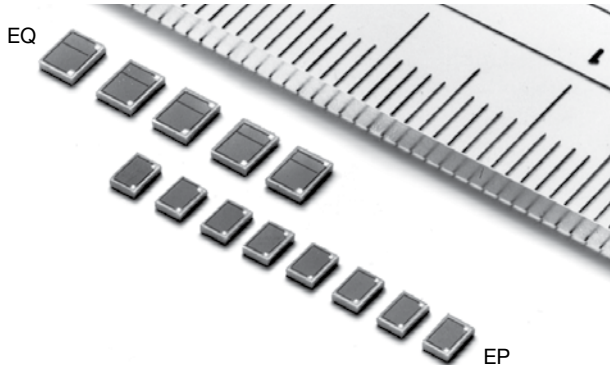
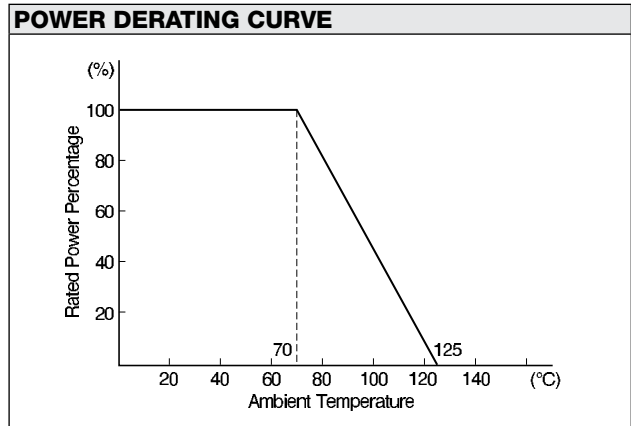


## Ultra Precision SMT Resistor (Wire-Bondable)



| TCR, RESISTANCE RANGE, TOLERANCE, RATED POWER |                                 |                      |                          |                         |
|---|---------------------------------|----------------------|--------------------------|-------------------------|
| Type  | TCR (ppm/°C)<br>-55°C to +125°C | Resistance Range (Ω) | Resistance Tolerance (%) | Rated Power (W) at 70°C |
| EP  | 0±5<br>See Fig.1                | 30 to 100            | ±0.1                     | 0.1                     |
|   |                                 | 100 to 30k           | ±0.05                    |                         |
| EQ  |                                 | 30 to 100            | ±0.1                     | 0.125                   |
|   |                                 | 100 to 60k           | ±0.05                    |                         |



**COMPOSITION OF TYPE NUMBER**

Example:

**EQ 10K00**

Resistance Value Type

Resistance value, in ohm, is expressed by a series of five characters, four of which represent significant digits. R or K is a dual-purpose letter that designates both the value range (R for ohmic; K for kilo-ohm) and the location of the decimal point.

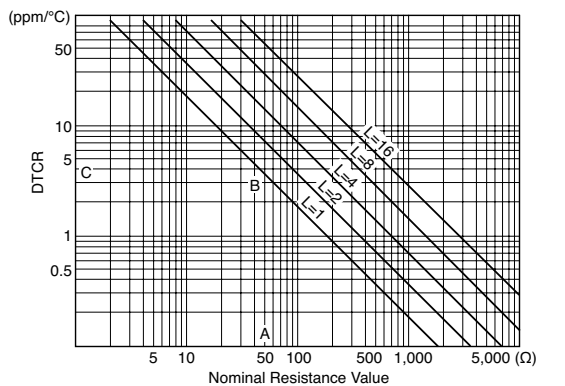
**CONFIGURATION (DIMENSIONS IN mm)**

| Type | EP        | EQ      |
|------|-----------|---------|
| L    | 2.2±0.1   | 3.2±0.1 |
| W    | 1.6±0.1   | 2.2±0.1 |
| T    | 0.4±0.1   |         |
| L1   | 0.25±0.01 |         |
| W1   | 0.25±0.01 |         |

Ultra Precision SMT Resistor (Wire-Bondable)

| PERFORMANCE  |  |  |                            |
|--|--|--|----------------------------|
| Parameters   | Test Condition   | MIL-R-55342 Specification                | ALPHA Typical Test Data    |
| Maximum Rated Operating Temperature<br>Working Temperature Range<br>Maximum Working Voltage<br>Maximum Working Current |  | 70°C<br>-65°C to +125°C<br>40V<br>350 mA |                            |
| Thermal Shock  | -65°C/30 min. ↔ +125°C/30 min., 5 cycles   | ±0.05%                                   | ±0.01%                     |
| Resistance to Bonding Exposure<br>Low Temperature Operation<br>Overload  | Room Temperature, 4 hrs. to 12 hrs.<br>-65°C, No Load, 1 hr. → Rated Voltage, 45 min.<br>Rated Voltage x 2.5, 5 sec. | ±0.05%<br>±0.05%<br>±0.05%               | ±0.01%<br>±0.01%<br>±0.01% |
| Life   | 70°C, Rated Power, 1.5 hr. – ON, 0.5 hr. – OFF, 1,000 hrs.   | ±0.05%                                   | ±0.03%                     |
| Moisture Resistance  | +65°C to -10°C, 90% RH to 98% RH, No Load, 10 cycles (240 hrs.)  | ±0.05%                                   | ±0.03%                     |
| High Temperature Exposure  | 125°C, No Load, 100 hrs.   | ±0.05%                                   | ±0.03%                     |

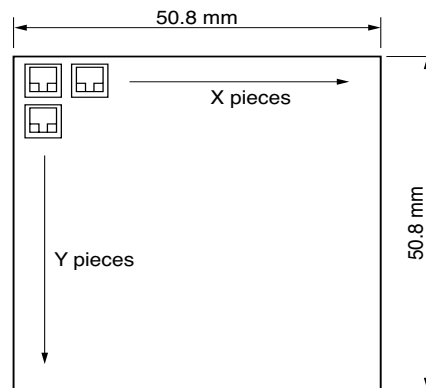
**FIG. 1 EFFECT OF TERMINATION GOLD WIRE ON TCR**



Example: A nominal resistance of 50Ω (point A on the X axis) and gold wire length of 1 mm (point B on the L=1 line) results in an increase in the overall TCR of 3.5 ppm/°C (point C on the Y axis).

**CHIP TRAY**

Tray Size



| Type | X  | Y  | Total Pieces |
|------|----|----|--------------|
| EP   | 13 | 17 | 221          |
| EQ   | 10 | 14 | 140          |

**PRECAUTION IN USING WIRE-BONDED CHIP RESISTORS**

**1. Storage**

Storage condition or environment may adversely affect bondability of the terminal pad with wire. 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 Mounting**

- ① Mounting Method: Die-bonding
- ② Adhesive for Placement: Thixotropic epoxy (temperature of cure ≤180°C)
- ③ State of Mounting: shown right

**3. Recommended Wire Bonding Method**

- ① Bonding Method: Thermosonic ball bonding
- ② Preheating Temperature: 80°C to 125°C (temperature of the resistors)
- ③ Connecting Wire: dia. 25 μm gold wire

**4. Protective Coat**

Avoid direct coating of the resistor with n-methylpyrrolidone

