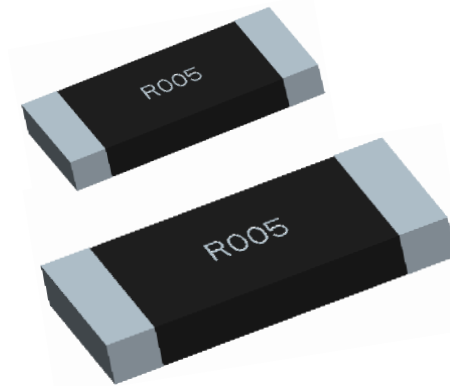


## LMR45 Series Low Resistance Metal Strip Chip Resistors



### Description

- Welded construction product
- Resistance range: 1~200mR
- Rated power: 5~7W
- Low inductance design
- Alloy Material, Shock Resistance
- Operating temperature range: - 65°C~170°C
- AEC-Q200 qualified

### Applications

- Current sensing application
- Over current protection
- Servo motor control circuits
- Inverter power
- Electric control system
- Li-battery management system

### Part number

**LMR 45 F 7P0 R005**  
**【1】 【2】 【3】 【4】 【5】**

【1】 Series Name: Low resistance Metal strip Chip Resistors

【2】 Chip size: 45:4527

【3】 Resistance Precision: D:±0.5% ; F:±1% ; G:±2% ; J:±5%

【4】 Power Rating:7P0=7W ; 5P0=5W

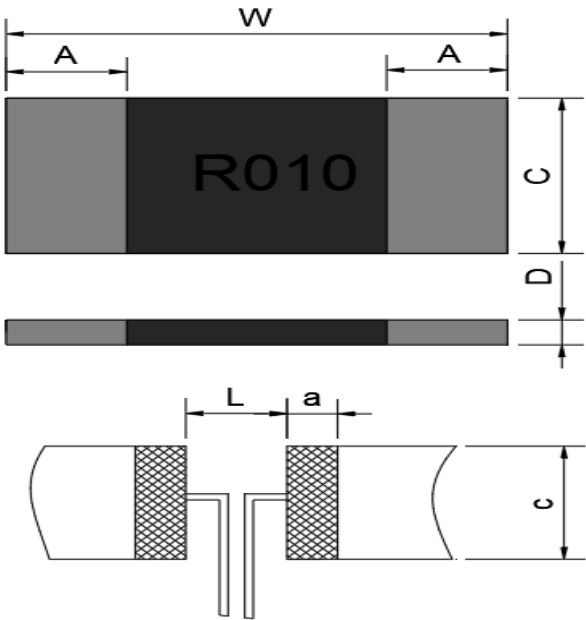
【5】 Resistance Code: R005: 5mΩ ; R050: 50mΩ

### Standard Electrical Specifications

| Size | Power<br>(W) <sub>(70℃)</sub> | Resistance/mΩ           | TCR<br>(ppm/°C) | Material | Operating<br>Temperature<br>(°C) |
|------|-------------------------------|-------------------------|-----------------|----------|----------------------------------|
|      |                               | ±0.5%, ±1%,<br>±2%, ±5% |                 |          |                                  |
| 4527 | 7                             | 1 ~ 3                   | ±75             | Manganin | -65°C~170°C                      |
|      |                               | 4 ~100                  | ±50             | Kamar    |                                  |
|      | 5                             | 101 ~200                |                 |          |                                  |

Note: (1) Products of different sizes are being verified by power rating tests at other ambient temperatures.

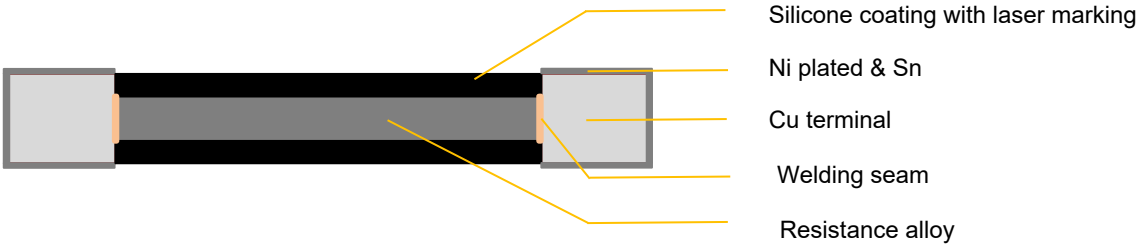
Products & Recommend Pad Dimension



Unit: mm

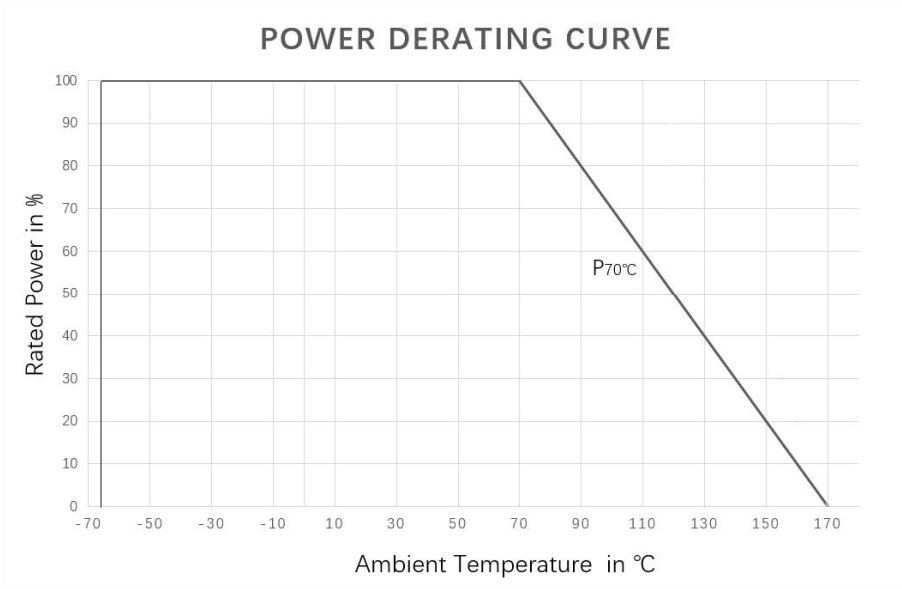
| Type | Resistance | W±0.2 | C±0.2 | A±0.2 | D±0.1 | L   | a   | c   |
|------|------------|-------|-------|-------|-------|-----|-----|-----|
| 4527 | 1 ~ 200    | 11.6  | 6.9   | 2.0   | 1.0   | 7.0 | 3.4 | 8.7 |

Welded Construction

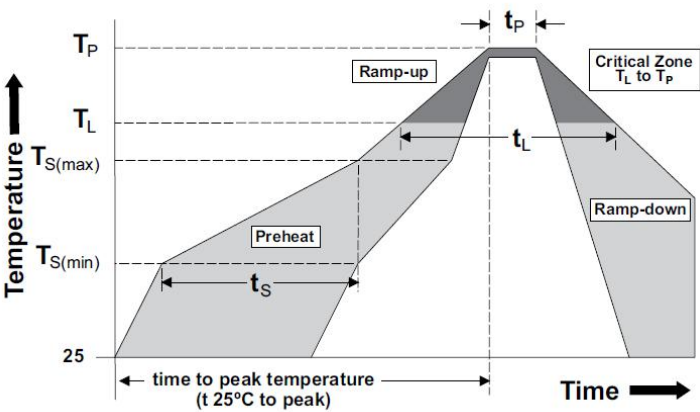


Power Derating Curve

For resistors operated in ambient temperatures 70°C, power rating shall be derated in according with the curve below:



Recommended Solder Curve



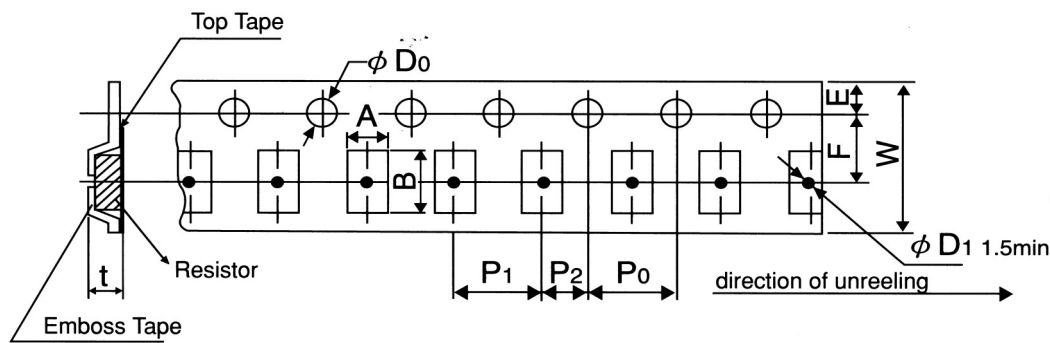
| Reflow Condition                                 |                               | Pb – Free assembly     |
|--------------------------------------------------|-------------------------------|------------------------|
| Pre heat                                         | - Temperature Min (Ts(min))   | 150°C                  |
|                                                  | - Temperature Max (Ts(max))   | 200°C                  |
|                                                  | - Time (Min to Max) (ts)      | 60 – 120 secs          |
| Average ramp up rate (Liquidus Temp (TL) to peak |                               | 5°C/second max         |
| TS(max) to TL - Ramp-up Rate                     |                               | 5°C/second max         |
| Reflow                                           | - Temperature (TL) (Liquidus) | 217°C                  |
|                                                  | - Temperature (tL)            | 60 – 150 seconds       |
| Peak Temperature (TP)                            |                               | 260°C                  |
| Time within 5°C of actual peak Temperature (tp)  |                               | 20 – 40 seconds        |
| Ramp-down Rate                                   |                               | 5°C/second max         |
| Time 25°C to peak Temperature (TP)               |                               | 8 minutes Max.         |
| Wave Soldering                                   |                               | 260°C, 10 seconds max. |
| Hand Soldering                                   |                               | 350°C, 5 seconds max.  |

## LMR45 Series Low Resistance Metal Strip Chip Resistors

### Product Characteristics

| Item                         | Additional Requirements                                                   | Limited                 | Reference                 |
|------------------------------|---------------------------------------------------------------------------|-------------------------|---------------------------|
| Temperature Cycling          | 1000 Cycles (-55°C to +150°C)                                             | ±0.5%                   | JESD22<br>Method JA-104   |
| High Temperature Exposure    | 100hrs.@T=170°C.Unpowered.                                                | ±0.5%                   | MIL-STD-202<br>Method 108 |
| Moisture Resistance          | t=24hrs/cycle.Note: Steps 7a & 7b not required.<br>Unpowered.             | ±0.5%                   | MIL-STD-202<br>Method 106 |
| Biased Humidity              | 1000hrs 85°C/85%RH。 Note: Specified<br>conditions:10% of operating power. | ±0.5%                   | MIL-STD-202<br>Method 103 |
| Operational Life             | Condition D Steady State TA=125°C at rated power.                         | ±0.5%                   | MIL-STD-202<br>Method 108 |
| Thermal Shock                | 1000X(-55°C to +150°C)                                                    | 0.5%                    | MIL-STD-202Met<br>hod107G |
| Solderability                | 235°C±5°C,2s±0.5s                                                         | 95% Coverage<br>Minimum | J-STD-202                 |
| Resistance to Soldering Heat | 260°C±5°C, 10s±1s                                                         | ±0.5%                   | MIL-STD-202<br>Method 210 |
| Short Time Overload          | 5×Rated power for 5 s                                                     | ±0.5%                   | MIL-STD-202<br>Method 201 |
| Shock                        | 100g , 6ms , axes Z and Y , 10 Shocks per axis                            | 0.5%                    | MIL-STD-202<br>Method 213 |
| VIBRATION                    | (10 - 2000 HZ) , 20g @0.1ms                                               | 0.5%                    | MIL-STD-202Met<br>hod204  |

Tapping & Package



- Storage Conditions: Temperature:5°C~35°C, Humidity:40%~75%
- Embossed Plastic Tape

| Type | Pack   | A<br>±0.2 | B<br>±0.2 | D0<br>+0.5-0 | E<br>±0.1 | F<br>±0.05 | P0<br>±0.1 | P1<br>±0.1 | P2<br>±0.1 | W<br>±0.2 | D1<br>±0.05 | t<br>±0.15 |
|------|--------|-----------|-----------|--------------|-----------|------------|------------|------------|------------|-----------|-------------|------------|
| 4527 | Emboss | 7.40      | 11.80     | 1.50         | 1.75      | 11.50      | 4.00       | 12.0       | 2.00       | 24.00     | 1.50        | 2.30       |

Packaging

• Quantity: 3.000pcs

Storage

1. The temperature condition must be controlled at  $25\pm5^{\circ}\text{C}$ , The R.H. must be controlled at  $60\pm15\%$  Store in accordance with this requirement, and the validity period is two years after the date of manufacture.
2. Please avoid the mentioned harsh environment below when storing to ensure product performance and its' weldability. Places exposed to sea breeze or other corrosive gas,such as  $\text{Cl}_2$ 、 $\text{H}_2\text{S}$ 、 $\text{NH}_3$ 、 $\text{SO}_2$  and  $\text{NO}_2$ .
3. When the product is moved and stored, please ensure the correct orientation of the box.Do not drop or squeeze the box. Otherwise, the electrode or the body of the product may be damaged.