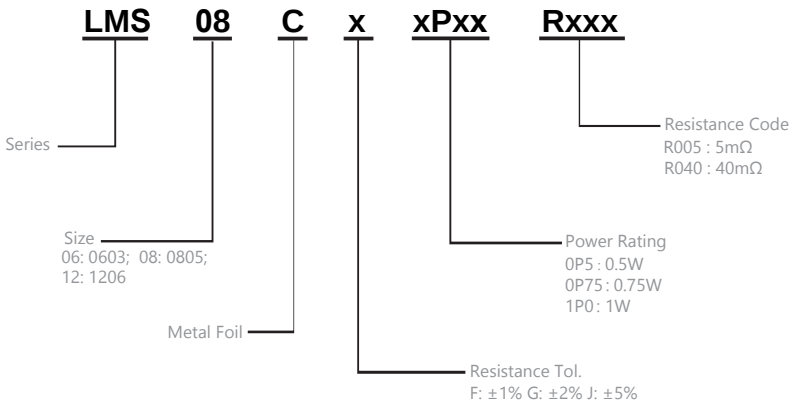
**Current Sensing Resistors**
**LMS Series**

## Description

- Proprietary processing technique produces extremely low resistance values
- Very low inductance
- Low thermal EMF
- Metal Foil

## Part Numbering System



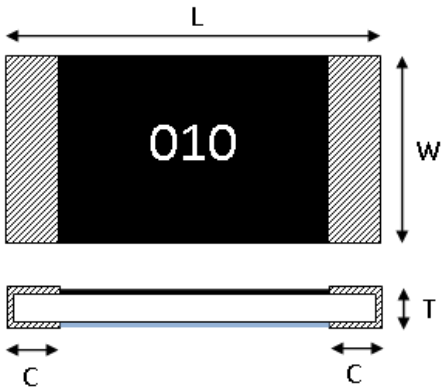

| Parameter | Standard |
|---|---|
| Power Rating | 0.5W / 0.75W / 1.0W |
| Resistance Value | 3~200mΩ |
| Operating Temperature Range | -55 to +155°C |
| Component Temperature Coefficient (TCR) | ± 50 ppm/°C |
| Maximum Working Voltage (V) | $(P \times R)^{1/2}$ |
| Rating current (A) | $(P / R)^{1/2}$ |

P=Power Rating; R=Resistance Value

## Standard Electrical Specifications

| Type | Rating Power at 70℃ | T.C.R. (ppm/℃) | Resistance Range (mΩ) F: ±1.0% G: ±2.0% J: ±5.0% | Operating Temperature(℃) |
|---|---|---|---|---|
| LMS06 | 0.5W | ±50 | 3 - 20 | -55~+155°C |
| LMS08 | 0.75W | | 5 - 100 | |
| LMS12 | 1.0W | | 3 - 200 | |

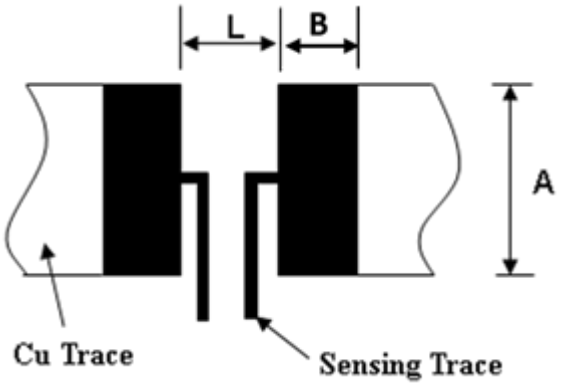
## Dimensions




Unit: Millimeters

| Type | L | W | C | T |
|---|---|---|---|---|
| LMS06 | 1.60±0.20 | 0.8±0.20 | 0.40±0.20 | 0.60±0.20 |
| LMS08 | 2.00±0.20 | 1.25±0.20 | 0.40±0.30 | 0.70±0.20 |
| LMS12 | 3.20±0.20 | 1.60±0.20 | 0.50±0.30 | 0.70±0.20 |

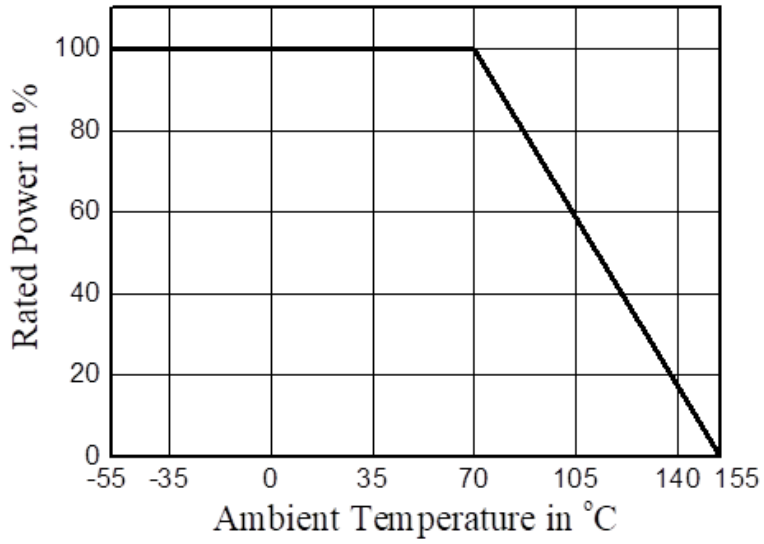
## Recommended land pattern



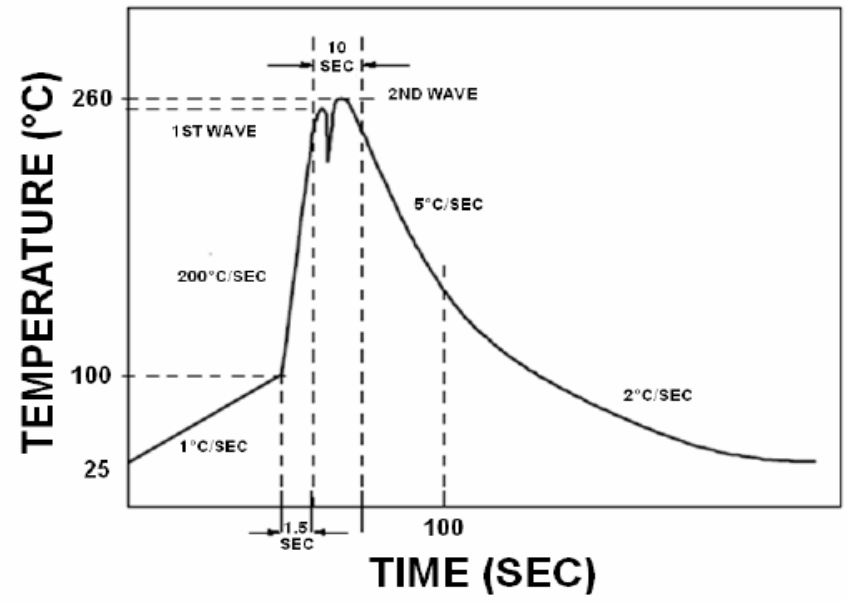

Unit: Millimeters

| Series | Resistance (mΩ) | A | L | B |
|---|---|---|---|---|
| LMS06 | 3 ≦ R ≦ 20 | 1.0 | 0.6 | 1.1 |
| LMS08 | 5 ≦ R ≦ 100 | 1.4 | 1.2 | 1.0 |
| LMS12 | 5 ≦ R ≦ 35 | 1.8 | 1.6 | 1.55 |
| | 36 ≦ R ≦ 200 | | 2.2 | 1.35 |

## Derating Curve



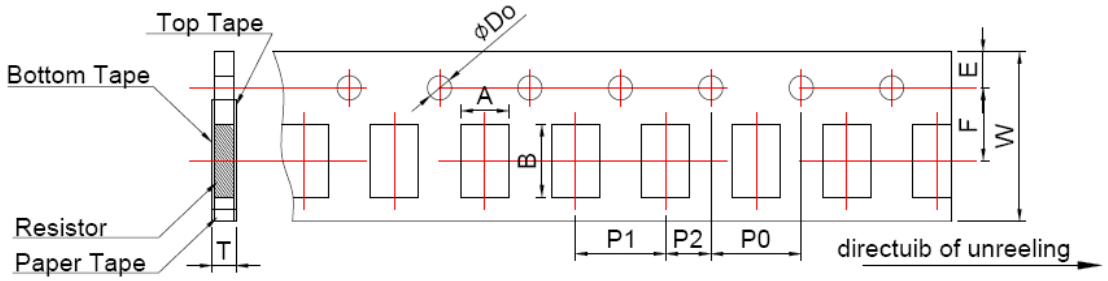

## Recommend Wave-Solder profile



## Product Characteristics

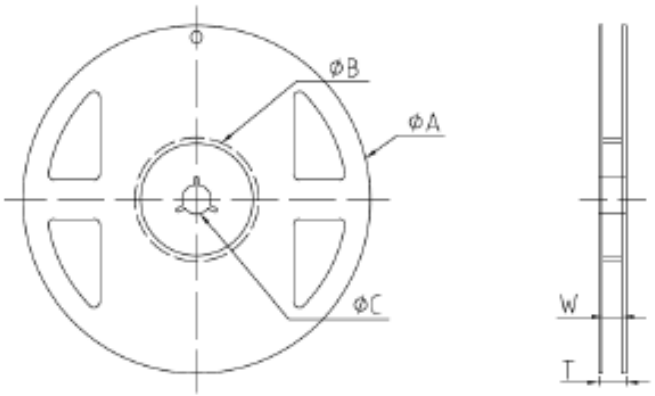
| Item | Test condition/ Methods | Limited | Standard |
|---|---|---|---|
| Resistance | Measuring resistance value at room temperature 25℃±5℃ | Refer to Spec | IEC60115-1 4.5 |
| Temperature coefficient of resistance | $TCR = (R-R_0)/R_0(T2-T1) \times 10^6$ (T1: T2)<br>$R_0$: resistance of room temperature<br>R: resistance of 125℃<br>T1: Room temperature<br>T2: Temperature at 125℃ | Refer to Spec | MIL-STD-202 Method 304 |
| Short time Overload | 5 X rated power for 5s | ≤±1% | MIL-R-26E |
| Resistance to Soldering Heat | 260℃± 5℃ time：10sec± 1sec | ≤±0.5% | MIL-STD-202 Method 210 |
| Temperature Cycling | -55℃ (30min)/+125℃(30min), 1000 cycles, 24 ±4 hours | ≤±1% | MIL-STD-202 Method107G |
| Moisture Resistance | T=24 hours / Cycle ,10 Cycles. Notes: Steps 7a& 7b not required. Unpowered | ≤±1% | MIL-STD-202 |
| High Temperature Storage | 125℃ for 1000hours, 24±4 hours, No power | ≤±1% | IEC6011501-4.25 |
| Bias Humidity | +85℃，85% RH，10%bias1.5 hours “ON”, 0.5 hours “OFF”, 1000hours | ≤±1% | MIL-STD-202 Method103 |
| Solderability | 235±3℃, 3±0.5sec | ＞95% area covered with tin | IEC60115-1-4.17 JIS-C5201-4.17 |
| Mechanical Shock | Wave Form: Tolerance for half sine shock pluse. Peak value is 100g’s. Normal duration(D) is 6(ms) | < ±1% | MIL-STD-202 |
| Operational life | 125℃, 1000 hours, at 35% rated power | ≤±2% | MIL-STD-202 Method 108 |
| Vibration | 5 g's for 20 min., 12 cycles each of 3 orientations. Note: Test from 10-2000 Hz. | < ±1% | MIL-STD-202 |
| Thermal Shock | -55°C/+155°C. Note: Number of cycles required-300, Maximum transfer time-20 seconds, Dwell time-15 minutes. Air-Air. | < ±1% | MIL-STD-202 |
| ESD | verify the voltage setting at 500V | < ±1% | AEC-Q200-002 |
| Board Flex (Bending) | The duration of the applied forces shall be 60 (+ 5) Sec<br>3mm deflection | < ±1% | AEC-Q200-005 |
| Terminal Strength (SMD) | LMS06~ LMS12: Force of 1.8kg for 60 seconds<br>Remarks: 0201-NA | < ±1% | AEC-Q200-006 |

## Tapping & Package




| Type | Pack | A ±0.15 | B ±0.2 | W ±0.2 | E ±0.1 | F ±0.05 | P0 ±0.1 | P1 ±0.1 | P2 ±0.1 | D0 ±0.1 | T ±0.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0603 | Emboss | 1.10 | 1.90 | 8.0 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 1.55 | 0.85 |
| 0805 | Emboss | 1.60 | 2.40 | 8.0 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 1.55 | 1.05 |
| 1206 | Emboss | 2.00 | 3.60 | 8.0 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 1.55 | 1.05 |

## Reel Specification




Unit: Millimeters

| Type | A | B | C | W | T |
|---|---|---|---|---|---|
| 0603 | 180±2 | 60±1 | 13±1 | 9±1 | 11.4±1 |
| 0805 | | | | | |
| 1206 | | | | | |

## Packaging

| Type | LMS06 | LMS08 | LMS12 |
|---|---|---|---|
| Quantity(pcs） | 5,000 | 4,000 | 4,000 |