# Product Engineering Specification
# HCM2012G SERIES (Chip Common Mode Filter)

## ■ FEATURES AND APPLICATION

Powerful components with composite co-fired material to solve EMI problem for high speed differential signal transmission line as USB, and LVDS, without distortion to high speed signal transmission.
MIPI, MHL serial interface in mobile device

This product belongs to the industrial grade standard, not the vehicle gauge product! Cannot use auto parts, if the customer is not expressly informed and privately used to auto parts, produce any consequences, the original is not responsible for after-sales service, thank you!

## ■ PRODUCT DETAIL

| Part No. | Imp. Com. (Ω)±25% @100MHz | DCR Max. (Ω) | Rated Current Max. (mA) | Rated Voltage (V) | Insulation Resistance Min. (MΩ) |
|---|---|---|---|---|---|
| HCM2012GH670A | 67 | 1.0 | 200 | 10 | 100 |
| HCM2012GH900A | 90 | 1.0 | 200 | 10 | 100 |
| HCM2012GD500A | 50 | 1.0 | 100 | 10 | 100 |
| HCM2012GD900A | 90 | 1.0 | 200 | 10 | 100 |
| HCM2012GD121A | 120 | 1.2 | 100 | 10 | 100 |
| Test Instruments | □HP4991B RF IMPEDANCE / MATERIAL ANALYZER<br>□HP4338 A/B MILLIOHMMETER<br>□Agilent E5071C ENA SERIES NETWORK ANALYZER<br>□HP6632B SYSTEM DC POWER SUPPLY<br>□Keithley 2410 1100V SOURCE METER | | | | |

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## ■ PART NUMBER CODE

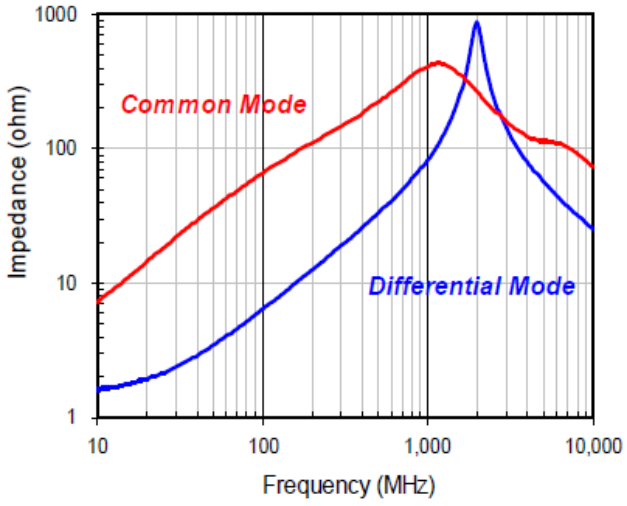
| HCM | 2012 | G | □ | 90 | 0 | A |
|---|---|---|---|---|---|---|
| *1* | *2* | *3* | *4* | *5* | *6* | *7* |

*1* Series name
*2* Dimension：L *W
*3* Material code
*4* Product identification number
*5* Impedance value
*6* Fixed decimal point ┐├ (ex：900=90Ω )
*7* Soldering: Green Parts: A— Lead-Free

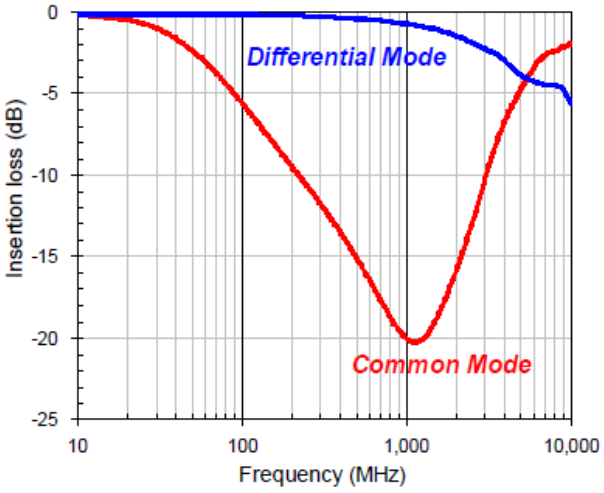
## ■ TYPICAL CHARACTERISTICS

HCM2012GH670A

IMPEDANCE vs. FREUQENCY CHARACTERISTICS




INSERTION LOSS vs. FREUQENCY CHARACTERISTICS

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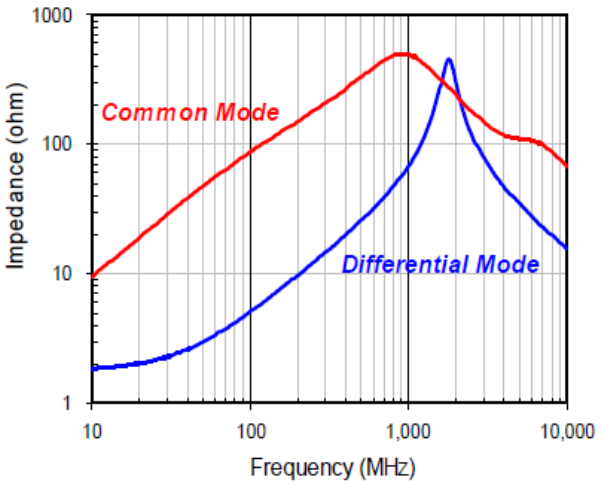
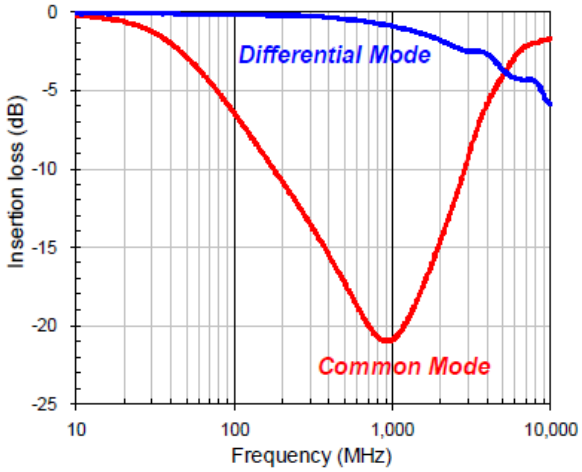
## HCM2012GH900A

IMPEDANCE vs. FREUQENCY CHARACTERISTICS

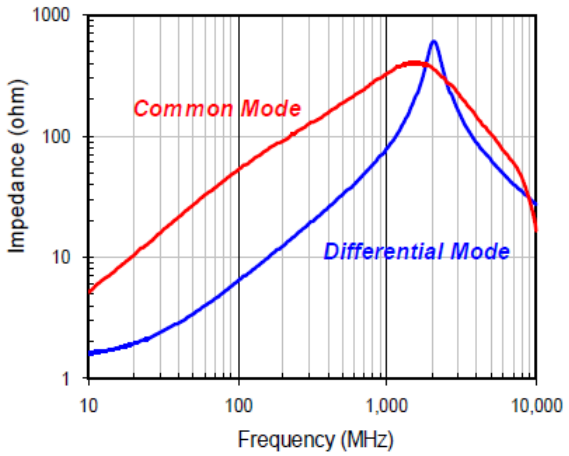



INSERTION LOSS vs. FREUQENCY CHARACTERISTICS

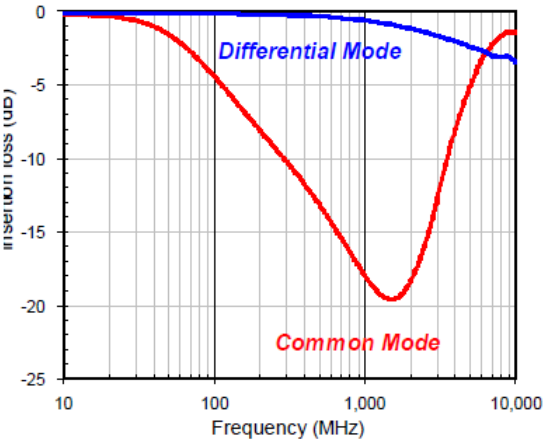



## HCM2012GD500A

IMPEDANCE vs. FREUQENCY CHARACTERISTICS




INSERTION LOSS vs. FREUQENCY CHARACTERISTICS

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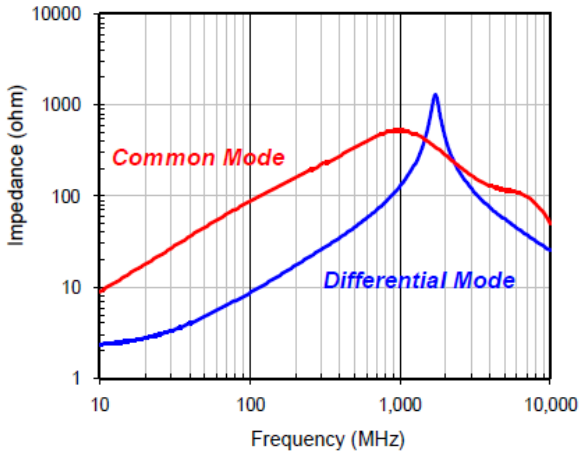
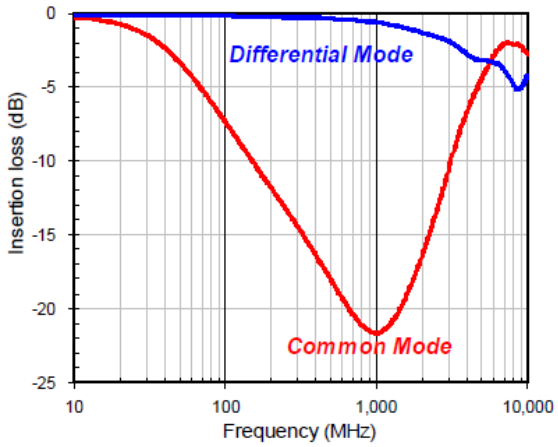
## HCM2012GD900A

IMPEDANCE vs. FREUQENCY CHARACTERISTICS

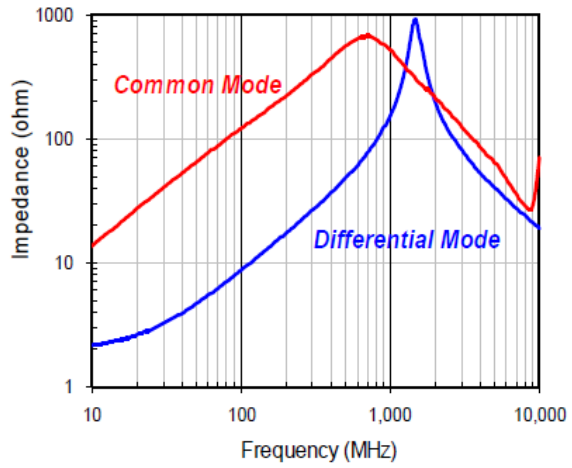



INSERTION LOSS vs. FREUQENCY CHARACTERISTICS

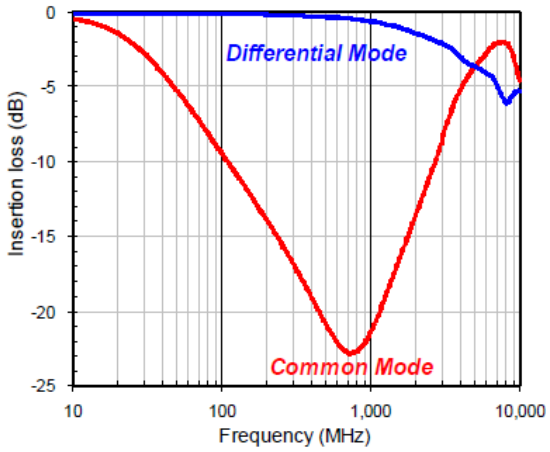



## HCM2012GD121A

IMPEDANCE vs. FREUQENCY CHARACTERISTICS




INSERTION LOSS vs. FREUQENCY CHARACTERISTICS

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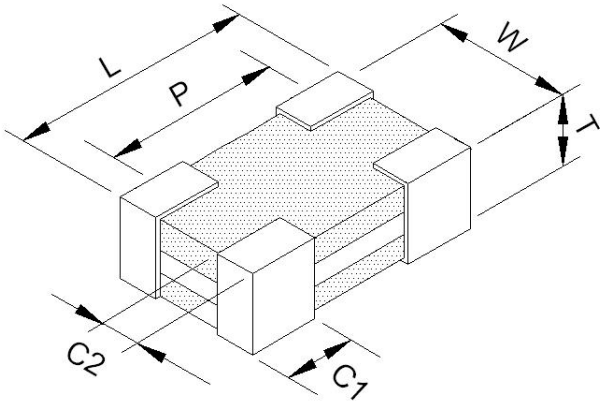
## ■ SHAPES AND DIMENSIONS

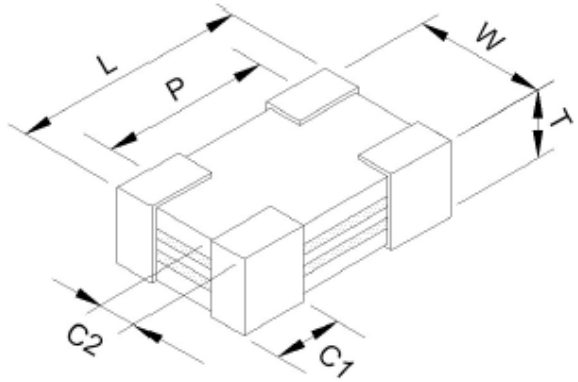
HCM2012GH & GD SERIES




**Unit: mm**

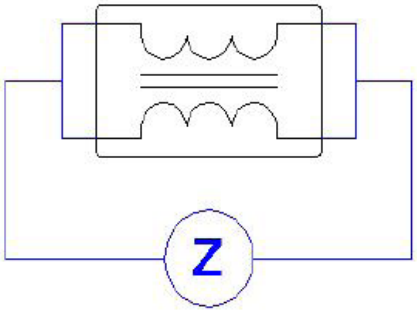
| TYPE | Dimension |
|---|---|
| L | 2.00±0.20 |
| W | 1.20±0.20 |
| T | 1.00±0.10 |
| P | 1.60±0.20 |
| C1 | 0.40±0.20 |
| C2 | 0.30±0.20 |

HCM2012GD500A

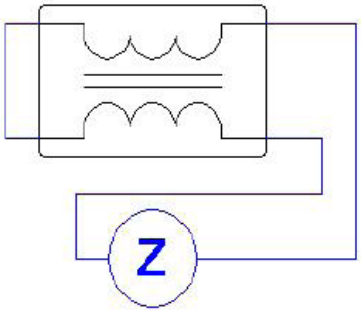


## 1. MEASURING CIRCUITS

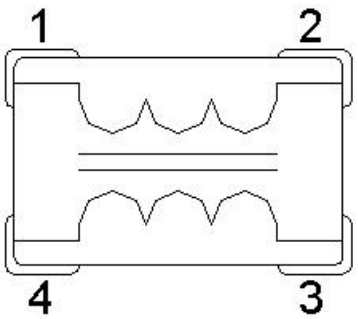
(A):Common mode

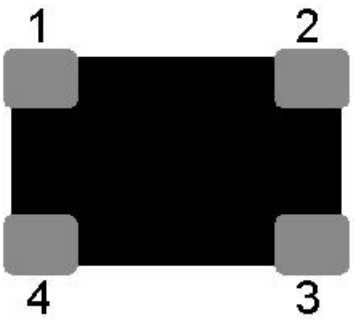


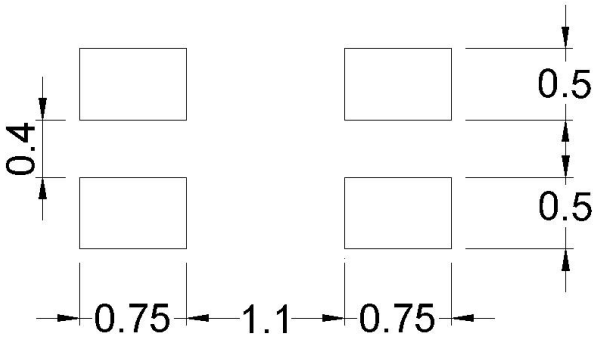

(B):Differential mode




## 2. CIRCUIT CONFIGURATION & LAYOUT PAD



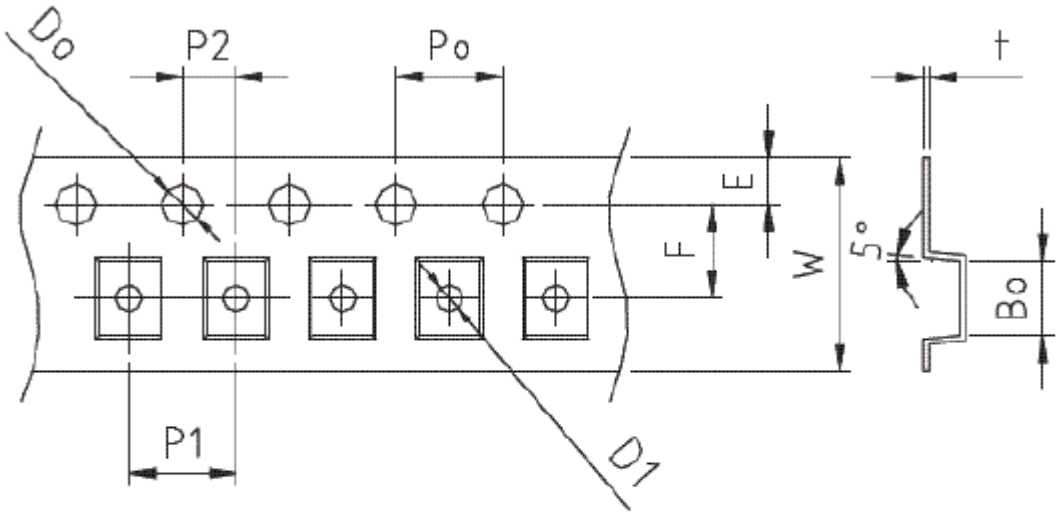



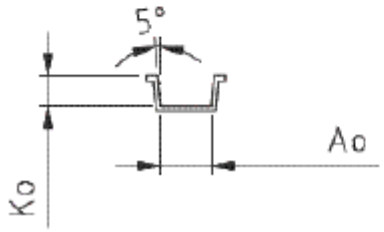



## ■ TAPE AND REEL SPECIFICATIONS

### 1. Taping Dimensions

TYPE : PLASTIC CARRIER



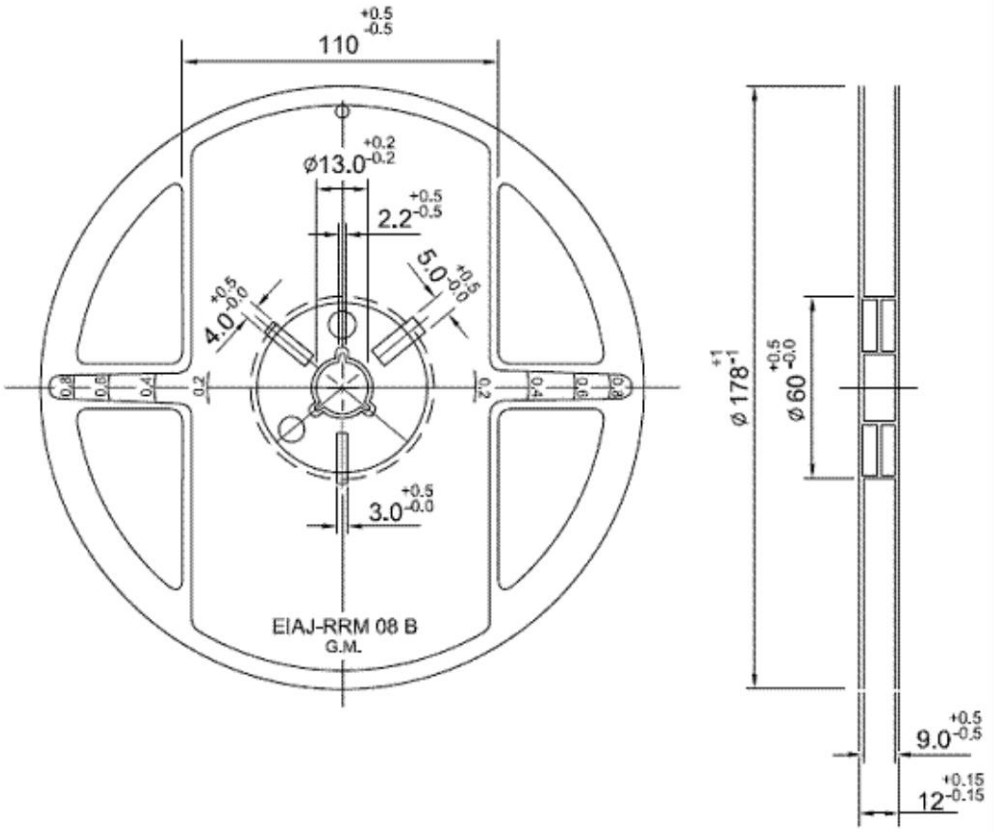




Unit：mm

| Symbol | Size | Symbol | Size |
|---|---|---|---|
| W | 8.00±0.10 | Po | 4.00 ±0.10 |
| P1 | 4.00 ±0.10 | P2 | 2.00 ±0.10 |
| E | 1.75 ±0.10 | Bo | 2.30 ±0.10 |
| F | 3.50 ±0.10 | Ao | 1.40±0.10 |
| Do | 1.55 ±0.05 | Ko | 1.13±0.10 |
| D1 | 1.00 ±0.05 | t | 0.22 ±0.05 |

## 2. REEL DIMENSIONS

Unit: mm




| Reel Packaging Quantity | | |
|---|---|---|
| **PART SIZE (EIA SIZE)** | | **2012** |
| **7" REEL** | **Qty. (pcs)** | 3,000 |

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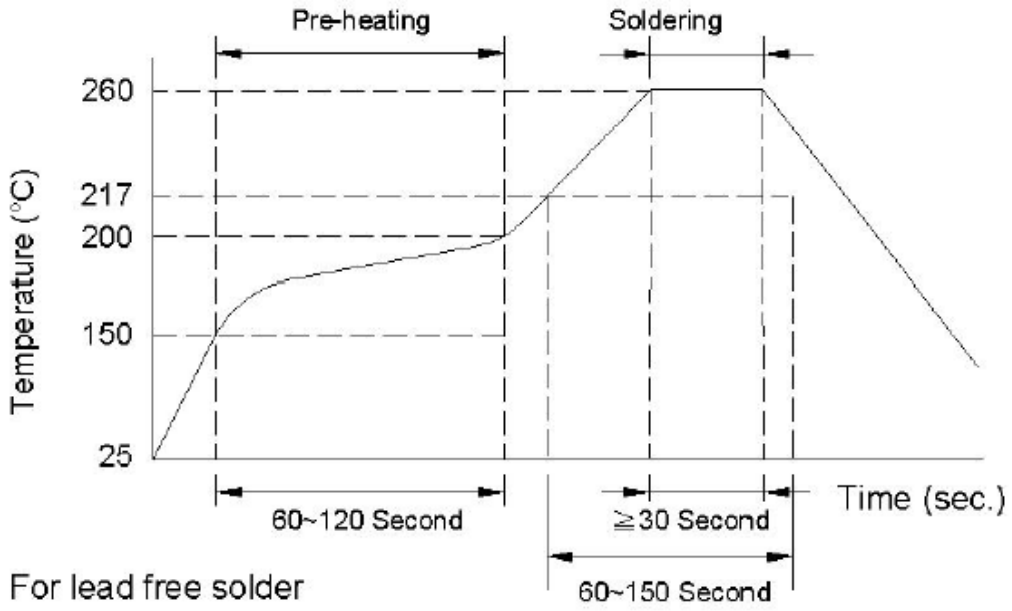
## ■ RECOMMENDED SOLDERING CONDITIONS




## ■ GENERAL TECHNICAL DATA

Operating temperature range : - 40℃~ +85℃

Storage temperature : Less than 40℃ and 70%RH.

Storage Time: 6 months Max.

Soldering method: Reflow

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## ■ RELIABILITY AND TEST CONDITION

| Test item | Test Condition | Criteria |
|---|---|---|
| Temperature Cycle | A. Temperature : -40 ~ +85℃<br>B. Cycle : 100 cycles<br>C. Dwell time : 30minutes<br><br>Measurement : at ambient temperature 24 hrs after test completion | A. No mechanical damage<br>B. Impedance value should be within ± 20 % of the initial value |
| Operational Life | A. Temperature: 85 ±5℃<br>B. Test time: 1000 hrs<br>C. Applied current: Full rated current<br><br>Measurement: at ambient temperature 24 hours after test completion | A. No mechanical damage<br>B. Impedance value should be within ±20% of the initial value |
| Biased Humidity | A. Temperature: 40 ±2℃<br>B. Humidity: 90-95 % RH<br>C. Test time: 1000 hrs<br>D. Applied current: Full rated current<br><br>Measurement: at ambient temperature 24 hours after test completion | A. No mechanical damage<br>B. Impedance value should be within ±20% of the initial value |
| Resistance to Solder Heat | A. Solder temperature : 260 ± 5℃<br>B. Flux : Rosin<br>C. DIP time : 10 ± 1 sec | A. More than 95 % of terminal electrode should be covered with new solder<br>B. No mechanical damage<br>C. Impedance value should be within ± 20 % of the initial value |
| Steam Aging Test | A. Temperature : 93 ± 2℃<br>B. Test time : 4 hrs<br>C. Solder temperature : 235 ± 5℃<br>D. Flux : Rosin<br>E. DIP time : 5 ± 1 sec | More than 95 % of terminal electrode should be covered with new solder |

Note: All the products in this specification comply with RoHS 1.0 directive.

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