

## Specification Sheet

**CIGT160808XMR24MNC (1608 / EIA 0603)**

### APPLICATION

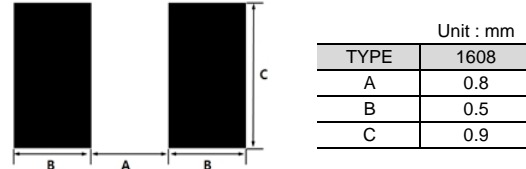
Smart phones, Tablet, Wearable devices, Power converter modules, etc.



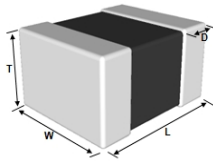
### FEATURES

Small power inductor for mobile devices  
Low DCR structure and high efficiency inductor for power circuits.  
Monolithic structure for high reliability  
Free of all RoHS-regulated substances  
Halogen free

### RECOMMENDED LAND PATTERN



### DIMENSION



| TYPE | Dimension [mm] |         |         |         |
|------|----------------|---------|---------|---------|
|      | L              | W       | T       | D       |
| 1608 | 1.6±0.2        | 0.8±0.2 | 0.8 max | 0.3±0.2 |

### DESCRIPTION

| Part no.           | Size [inch/mm] | Thickness [mm] (max) | Inductance [uH] | Inductance tolerance (%) | DC Resistance [mΩ] |      | Rated DC Current (Isat) [A] |      | Rated DC Current (Irms) [A] |      |
|--------------------|----------------|----------------------|-----------------|--------------------------|--------------------|------|-----------------------------|------|-----------------------------|------|
|                    |                |                      |                 |                          | Max.               | Typ. | Max.                        | Typ. | Max.                        | Typ. |
| CIGT160808XMR24MNC | 0603/1608      | 0.8                  | 0.24            | ±20                      | 24                 | 19   | 4.1                         | 4.6  | 4.3                         | 4.9  |

\* Inductance : Measured with a LCR meter 4991A(Agilent) or equivalent (Test Freq. 1MHz, Level 0.1V)

\* DC Resistance : Measured with a Resistance HI-TESTER 3541(HIOKI) or equivalent

\* Maximum allowable DC current : Value defined when DC current flows and the initial value of inductance has decreased by 30% or when current flows and temperature has risen to 40°C whichever is smaller. (Reference: ambient temperature is 25°C±10)

(Isat) : Allowable current in DC saturation : The DC saturation allowable current value is specified when the decrease of the initial inductance value at 30% (Reference: ambient temperature is 25°C±10)

(Irms) : Allowable current of temperature rise : The temperature rise allowable current value is specified when temperature of the inductor is raised 40°C by DC current. (Reference: ambient temperature is 25°C±10)

\* Absolute maximum voltage : Absolute maximum voltage DC 20V.

\* Operating temperature range : -40 to +125°C (Including self-temperature rise)

### PRODUCT IDENTIFICATION

**CIG (1)    T (2)    1608 (3)    08 (4)    XM (5)    R24 (6)    M (7)    N (8)    C (9)**

(1) Power Inductor

(3) Dimension (1608: 1.6mm x 0.8mm)

(5) Remark (Characterization Code)

(7) Tolerance (M:±20%)

(8) Internal Code

(9) Packaging (C:paper tape, E:embossed tape)

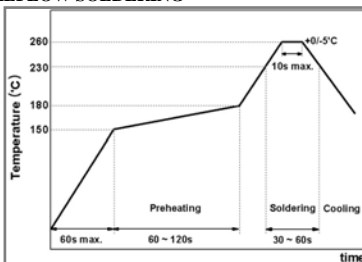
(2) Type (T: Metal Composite Thin Film Type)

(4) Thickness (08: 0.8mm)

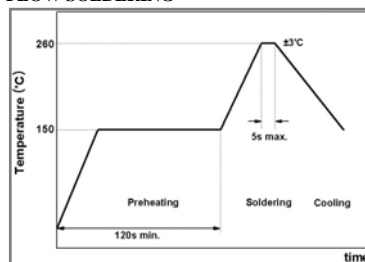
(6) Inductance (R24: 0.24 uH)

### RECOMMENDED SOLDERING CONDITION

#### REFLOW SOLDERING



#### FLOW SOLDERING



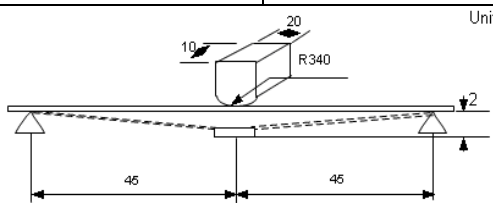
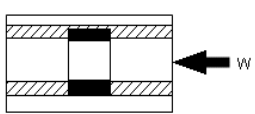
#### IRON SOLDERING

|                                   |            |
|-----------------------------------|------------|
| Temperature of Soldering Iron Tip | 280°C max. |
| Preheating Temperature            | 150°C min. |
| Temperature Differential          | ΔT ≤ 130°C |
| Soldering Time                    | 3sec max.  |
| Wattage                           | 50W max.   |

### PACKAGING

| Packaging Style   | Quantity(pcs/reel) |
|-------------------|--------------------|
| Card Board Taping | 4000 pcs           |

## Reliability Test

| Item   | Specified Value  | Test Condition   |
|--|--|--|
| Solderability                                  | More than 90% of terminal electrode should be soldered newly.  | After being dipped in flux for 4±1 seconds, and preheated at 150~180℃ for 2~3 min, the specimen shall be immersed in solder at 245±5℃ for 4±1 seconds.     |
| Resistance to Soldering                        | No mechanical damage.<br>Remaining terminal Electrode: 75% min.<br>Inductance change to be within ±20% to the initial. | After being dipped in flux for 4±1 seconds, and preheated at 150~180℃ for 2~3 min, the specimen shall be immersed in solder at 260±5℃ for 10 ±0.5 seconds. |
| Thermal Shock<br>(Temperature Cycle test)      | No mechanical damage<br>Inductance change to be within ±20% to the initial.  | Repeat 100 cycles under the following conditions.<br>-40±3℃ for 30 min → 85±3℃ for 30 min  |
| High Temp. Humidity<br>Resistance Test         | No mechanical damage<br>Inductance change to be within ±20% to the initial   | 85±2℃, 85%RH, for 500±12 hours.<br>Measure the test items after leaving at normal temperature and humidity for 24 hours.                                   |
| Low Temperature Test                           | No mechanical damage<br>Inductance change to be within ±20% to the initial.  | Solder the sample on PCB. Exposure at -55±2℃ for 500±12 hours.<br>Measure the test items after leaving at normal temperature and humidity for 24hours.     |
| High Temperature Test                          | No mechanical damage<br>Inductance change to be within ±20% to the initial.  | Solder the sample on PCB. Exposure at 125±2℃ for 500±12 hours.<br>Measure the test items after leaving at normal temperature and humidity for 24hours.     |
| High Temp. Humidity Resistance<br>Loading Test | No mechanical damage<br>Inductance change to be within ±20% to the initial   | 85±2℃, 85%RH, Rated Current for 500±12 hours.<br>Measure the test items after leaving at normal temperature and humidity for 24 hours.                     |
| High Temperature Loading Test                  | No mechanical damage<br>Inductance change to be within ±20% to the initial   | 85±2℃, Rated Current for 500±12 hours.<br>Measure the test items after leaving at normal temperature and humidity for 24 hours.                            |
| Reflow Test                                    | No mechanical damage<br>Inductance change to be within ±20% to the initial   | Peak 260±5℃, 3 times   |
| Vibration Test                                 | No mechanical damage<br>Inductance change to be within ±20% to the initial.  | Solder the sample on PCB. Vibrate as apply 10~55Hz, 1.5mm amplitude for 2 hours in each of three(X,Y,Z) axis (total 6 hours).                              |
| Bending Test                                   | No mechanical damage   | Bending Limit; 2mm<br>Test Speed; 1.0mm/sec.<br>Keep the test board at the limit point in 5 sec.<br>PCB thickness : 1.6mm                                  |
|  |                                    |  |
| Terminal Adhesion Test                         | No indication of peeling shall occur on the terminal electrode.  | W(kgf)   |
|  |  | 0.5  |
|  |  | TIME(sec)  |
|  |  | 10±1   |
|  |                                     |  |
| Drop Test                                      | No mechanical damage<br>Inductance change to be within ±20% to the initial.  | Random Free Fall test on concrete plate.<br>1 meter, 10 drops  |

### 1. Model : CIGT160808XMR24MNC

### 2. Description

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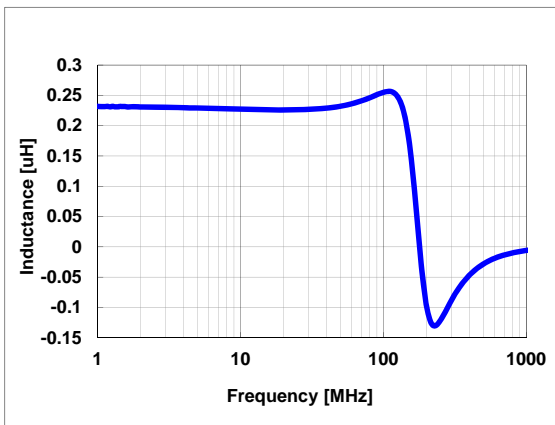
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### 3. Characteristics data

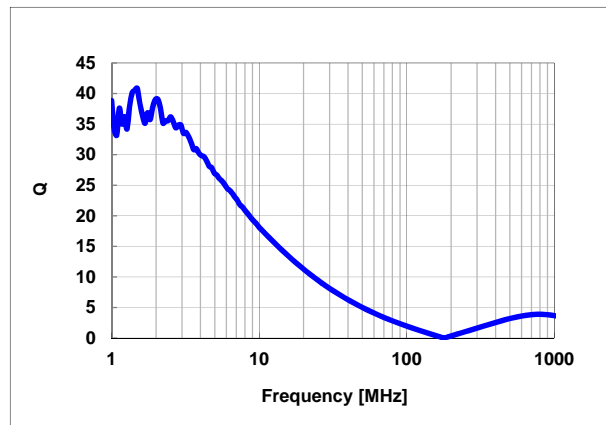
#### 1) Frequency characteristics (Ls)

Agilent E4294A +E4991A , 1MHz to 1,000MHz

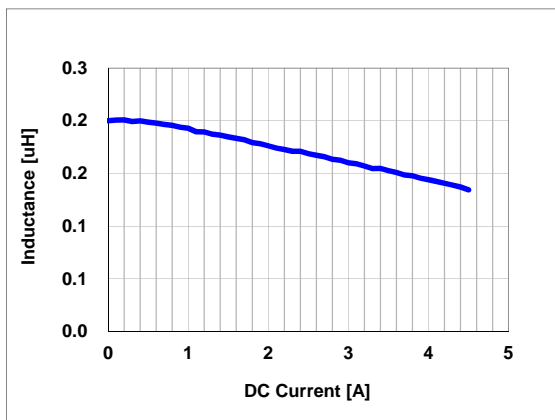


#### 2) Frequency characteristics (Q)

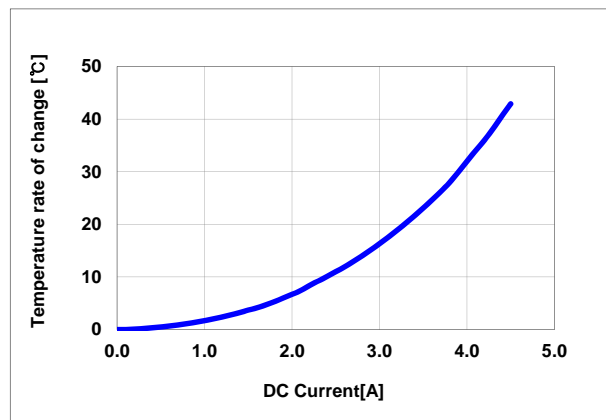
Agilent E4294A +E4991A , 1MHz to 1,000MHz



#### 3) DC Bias characteristics (Typ.)



#### 4) Temperature characteristics (Typ.)



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The data sheets include the typical data for design reference only. If there is any question regarding the data sheets, please contact our sales personnel or application engineers