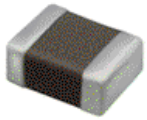
SAMSUNG ELECTRO-MECHANICS

High Efficiency Power Inductor (HEPI)

Specification Sheet

RoHS+Halogen Compliant ecoparts

CIGT201610LMR68MNE (2016 / EIA 0806)



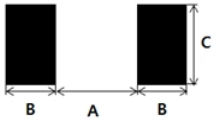
APPLICATION

Mobile Phones, Tablet, LCD & AMOLED Display, Storage etc

FEATURES

High Current Type
Low DC resistance
Magnetically shielded structure
Free of all RoHS-regulated substances
Monolithic structure for high reliability

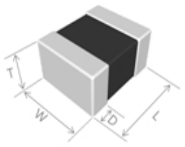
RECOMMENDED LAND PATTERN



Unit : mm

TYPE	2016
A	0.8
B	0.8
C	1.8

DIMENSION



TYPE	Dimension [mm]			
	L	W	T	D
2016	2.0±0.2	1.6±0.2	1.0 max	0.5±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.
CIGT201610LMR68MNE	0806/2016	1.0	0.68	±20	53	46	3.2	3.8	2.7	2.9

* 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℃ whichever is smaller. (Reference: ambient temperature is 25℃±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℃±10)
  (Irms) : Allowable current of temperature rise : The temperature rise allowable current value is specified when temperature of the inductor is raised 40℃ by DC current. (Reference: ambient temperature is 25℃±10)
* Absolute maximum voltage : Absolute maximum voltage DC 20V.
* Operating temperature range : -40 to +125°C (Including self-temperature rise)

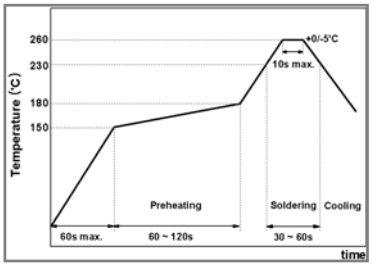
PRODUCT IDENTIFICATION

CIG	T	2016	10	LM	R68	M	N	E
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

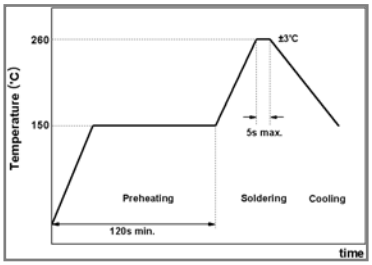
(1) Power Inductor
(2) Type (B: Automotive Type)
(3) Dimension (2016: 2.0mm ×1.6 mm)
(4) Thickness (10: 1.0mm)
(5) Remark (Characterization Code)
(6) Inductanc (R68: 0.68 uH)
(7) Tolerance (M:±20%)
(8) Internal Code
(9) Packaging (C:paper tape, E:embossed tape)

RECOMMENDED SOLDERING CONDITION

REFLOW SOLDERING



FLOW SOLDERING



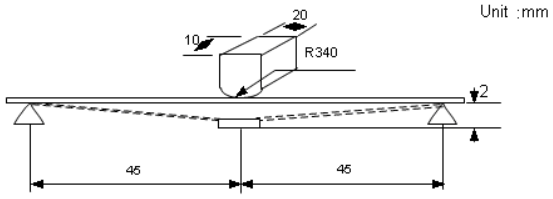
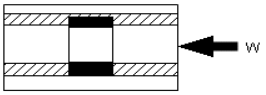
IRON SOLDERING

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

PACKAGING

Packaging Style	Quantity(pcs/reel)
Embossed Taping	3000 pcs

Reliability Test

<table>
<tr><th>Item</th><th>Specified Value</th><th colspan="2">Test Condition</th></tr>
<tr><td>Solderability</td><td>More than 90% of terminal electrode should be soldered newly.</td><td colspan="2">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.</td></tr>
<tr><td>Resistance to Soldering</td><td>No mechanical damage.
Remaining terminal Electrode: 75% min.
Inductance change to be within ±20% to the initial.</td><td colspan="2">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.</td></tr>
<tr><td>Thermal Shock
(Temperature Cycle test)</td><td>No mechanical damage
Inductance change to be within ±20% to the initial.</td><td colspan="2">Repeat 100 cycles under the following conditions.
-40±3℃ for 30 min → 85±3℃ for 30 min</td></tr>
<tr><td>High Temp. Humidity
Resistance Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial</td><td colspan="2">85±2℃, 85%RH, for 500±12 hours.
Measure the test items after leaving at normal temperature and humidity for 24 hours.</td></tr>
<tr><td>Low Temperature Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial.</td><td colspan="2">Solder the sample on PCB. Exposure
at -55±2℃ for 500±12 hours.
Measure the test items after leaving at normal temperature and humidity for 24hours.</td></tr>
<tr><td>High Temperature Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial.</td><td colspan="2">Solder the sample on PCB. Exposure at 125±2℃ for 500±12 hours.
Measure the test items after leaving at normal temperature and humidity for 24hours.</td></tr>
<tr><td>High Temp. Humidity Resistance
Loading Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial</td><td colspan="2">85±2℃, 85%RH, Rated Current for 500±12 hours.
Measure the test items after leaving at normal temperature and humidity for 24 hours.</td></tr>
<tr><td>High Temperature Loading Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial</td><td colspan="2">85±2℃, Rated Current for 500±12 hours.
Measure the test items after leaving at normal temperature and humidity for 24 hours.</td></tr>
<tr><td>Reflow Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial</td><td colspan="2">Peak 260±5℃, 3 times</td></tr>
<tr><td>Vibration Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial.</td><td colspan="2">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).</td></tr>
<tr><td rowspan="2">Bending Test</td><td>No mechanical damage</td><td colspan="2">Bending Limit; 2mm
Test Speed; 1.0mm/sec.
Keep the test board at the limit point in 5 sec.
PCB thickness : 1.6mm</td></tr>
<tr><td colspan="3">Unit :mm
 
</td></tr>
<tr><td rowspan="3">Terminal Adhesion Test</td><td rowspan="2">No indication of peeling shall occur on the terminal electrode.</td><td>W(kgf)</td><td>TIME(sec)</td></tr>
<tr><td>0.5</td><td>10±1</td></tr>
<tr><td colspan="3"> 
</td></tr>
<tr><td>Drop Test</td><td>No mechanical damage
Inductance change to be within ±20% to the initial.</td><td colspan="2">Random Free Fall test on concrete plate.
1 meter, 10 drops</td></tr>
<tr><td>Ipeak
(AC+DC Load Life)</td><td>No mechanical damage
Inductance change to be within ±20% to the initial</td><td colspan="2">85±2℃, 85%RH, Load(Ipeak) for 120 hours.
(Frequncy:1MHz, Load(Ipeak):1.5hr on / 0.5hr off)
Measure the test items after leaving at normal temperature and humidity for 24 hours.
* Load(Ipeak) = Irms(max)×1.4</td></tr>
</table>

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Data Sheet

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1. Model : CIGT201610LMR68MNE

2. Description

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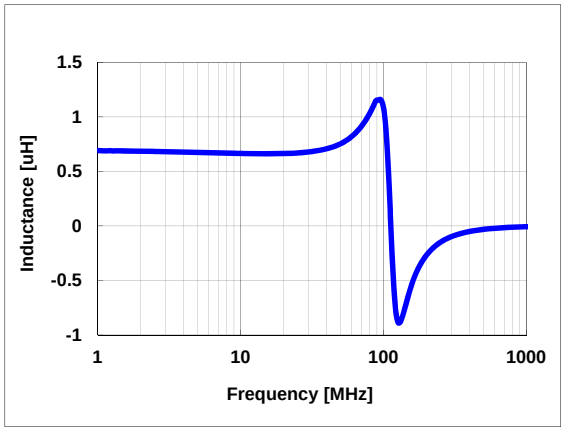
3. Characteristics data

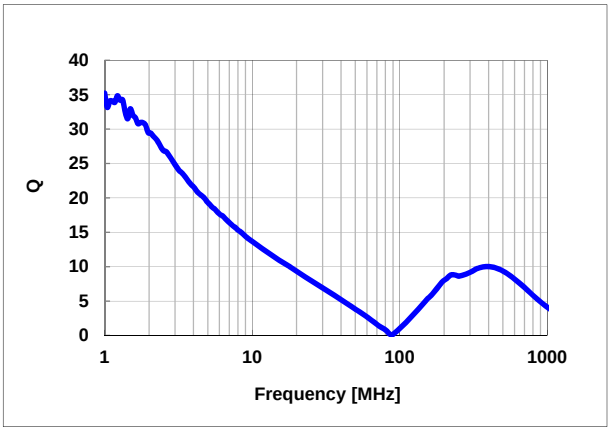
1) Frequency characteristics (Ls)

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

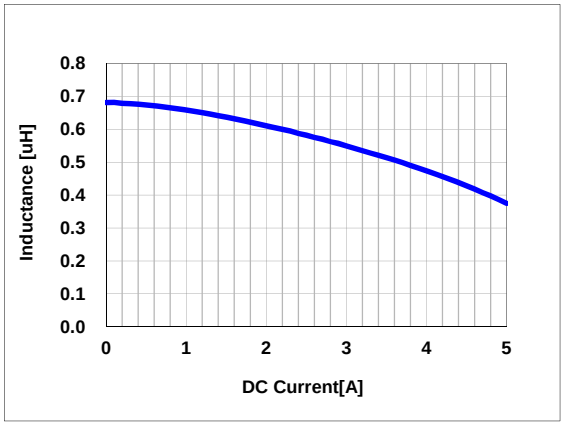


2) Frequency characteristics (Q)

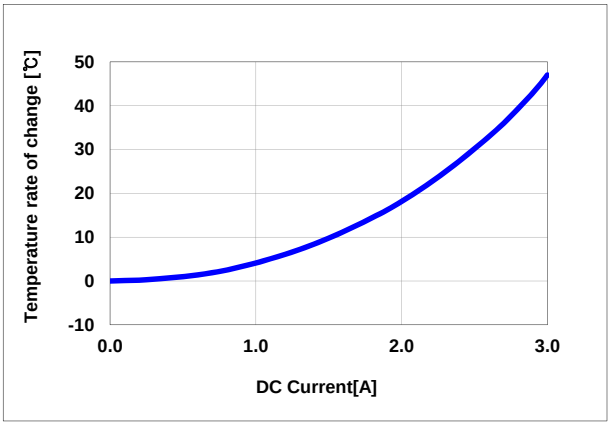
Agilent E4294A +E4991A , 1MHz to 1,000MHz



3) DC Bias characteristics (Typ.)



4)Temperature characteristics (Typ.)



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