



**INPAQ**

# PRODUCT SPECIFICATION

DOCUMENT NO.				
DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	APPROVED BY
<b>MCI1608-HQ Series</b>	陳曉慧 Sharon Chen	陳宏銘 Addking Chen	林庭煒 Tim Lin	吳維政 Albert Wu

RoHS



## High Frequency Chip Ceramic Inductor (MCI-HQ Series)

### Engineering Specification

This product belongs to the industrial grade standard, not the vehicle gauge product! Can not 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!

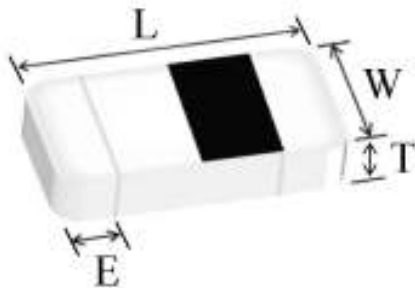
#### ■ FEATURES

- Particular ceramic material and coil structure provide high frequency application range up to 10GHz.
- Small size and low profile.
- Available in various sizes.
- Excellent solderability and heat resistance.

#### ■ APPLICATIONS

RF and wireless communication, information technology equipment which includes computer, telecommunications, radar detectors, automotive electronics, cellular phones, pagers, audio equipment, PDAs, keyless remote system and low-voltage power supply modules.

#### ■ SHAPES AND DIMENSIONS



TYPE	160808 (EIA0603)
L	1.60±0.15
W	0.80±0.15
T	0.80±0.15
E	0.20~0.60
Unit	mm

## ■ PART NUMBER CODE

<u>MCI</u>	<u>1608</u>	<u>HQ</u>	<u>1N0</u>	<input type="checkbox"/>	<u>H</u>	<u>B</u>	<u>P</u>	<u>G0</u>
1	2	3	4	5	6	7	8	9

- 1 Series Name
- 2 Dimensions L\*W
- 3 HQ : material code
- 4 Inductance(nH) : N means Decimal point , ex : 1.0 nH = 1N0
- 5 Tolerance : B =  $\pm 0.1\text{nH}$  , C =  $\pm 0.2\text{nH}$  , S =  $\pm 0.3\text{nH}$  , G =  $\pm 2\%$  , H =  $\pm 3\%$  , J =  $\pm 5\%$
- 6 Mark : H = 1/8 Mark , M = 1/4 Mark , N = No Mark
- 7 Soldering : Green Parts , B= Lead-Free for whole chip
- 8 Packaging : P = Paper tape, 7" reel
- 9 INPAQ internal code

## ■ GENERAL TECHNICAL DATA

Operating temperature range: - 55°C ~ +125°C

Storage Condition: Less than 40°C and 70% RH

Storage Time: 12 months Max.

Soldering method: Reflow

## ■ TEST INSTRUMENTS CONDITIONS

Agilent E4991A RF Impedance  
Material Analyzer with fixture 16197A or equivalent  
Agilent 4338B Milliohm meter  
Test Level : 500mV

■ PART NUMBER AND CHARACTERISTICS TABLE

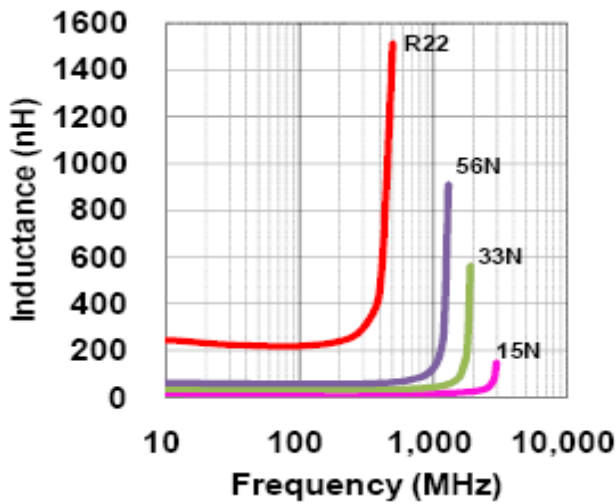
Part No.	Inductance (nH)	Inductance Tolerance	Q (Min.)	Freq. (MHz)	DCR(Ω) Max.	S.R.F (MHz) Min.	Rated Current (mA) Max.
MCI1608HQ1N0_HBPG0	1.0	B, S	8	100	0.05	10,000	1,000
MCI1608HQ1N2_HBPG0	1.2		8	100	0.05	10,000	1,000
MCI1608HQ1N5_HBPG0	1.5		8	100	0.10	10,000	1,000
MCI1608HQ1N8_HBPG0	1.8		8	100	0.10	10,000	1,000
MCI1608HQ2N2_HBPG0	2.2		8	100	0.10	8,000	1,000
MCI1608HQ2N7_HBPG0	2.7		10	100	0.13	7,000	1,000
MCI1608HQ3N3_HBPG0	3.3		10	100	0.13	6,000	1,000
MCI1608HQ3N9_HBPG0	3.9		10	100	0.15	6,000	1,000
MCI1608HQ4N7_HBPG0	4.7		10	100	0.20	5,000	1,000
MCI1608HQ5N6_HBPG0	5.6		10	100	0.23	4,000	600
MCI1608HQ6N8_HBPG0	6.8	G, J	10	100	0.25	4,000	600
MCI1608HQ8N2_HBPG0	8.2		10	100	0.28	3,500	600
MCI1608HQ10N_HBPG0	10		12	100	0.30	3,400	600
MCI1608HQ12N_HBPG0	12		12	100	0.35	2,600	600
MCI1608HQ15N_HBPG0	15		12	100	0.40	2,300	600
MCI1608HQ18N_HBPG0	18		12	100	0.45	2,000	600
MCI1608HQ22N_HBPG0	22		12	100	0.50	1,600	600
MCI1608HQ27N_HBPG0	27		12	100	0.55	1,400	600
MCI1608HQ33N_HBPG0	33		12	100	0.60	1,200	600
MCI1608HQ39N_HBPG0	39		12	100	0.65	1,100	500
MCI1608HQ47N_HBPG0	47	12	100	0.70	900	500	
MCI1608HQ56N_HBPG0	56	12	100	0.75	900	500	
MCI1608HQ68N_HBPG0	68	12	100	0.85	700	400	
MCI1608HQ82N_HBPG0	82	12	100	0.95	600	300	
MCI1608HQR10_HBPG0	100	J	12	100	1.00	600	300
MCI1608HQR12_HBPG0	120		8	50	1.20	500	300
MCI1608HQR15_HBPG0	150		8	50	1.20	500	300
MCI1608HQR18_HBPG0	180		8	50	1.30	400	300
MCI1608HQR22_HBPG0	220		8	50	1.50	400	300
MCI1608HQR27_HBPG0	270		8	50	1.90	400	200

Part No.	Inductance (nH)	Inductance Tolerance	Q (Min.)	Freq. (MHz)	DCR( $\Omega$ ) Max.	S.R.F (MHz) Min.	Rated Current (mA) Max.
MCI1608HQR33_HBPG0	330	J	8	50	2.10	350	200
MCI1608HQR39_HBPG0	390		8	50	2.30	350	150
MCI1608HQR47_HBPG0	470		8	50	2.60	300	150

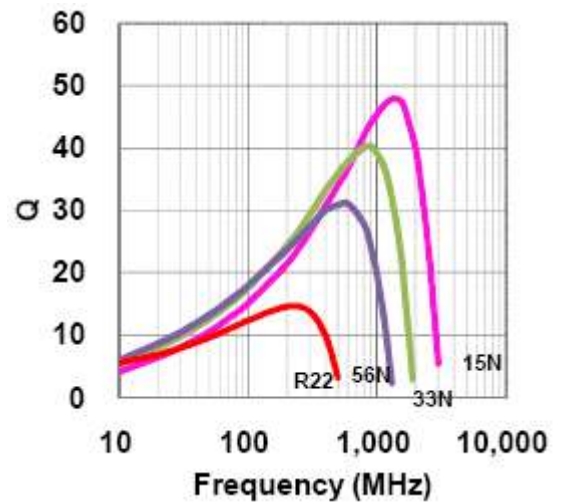
\*\*For special part number which is not shown in the above table, please refer to appendix.

■ TYPICAL ELECTRICAL CHARACTERISTIC

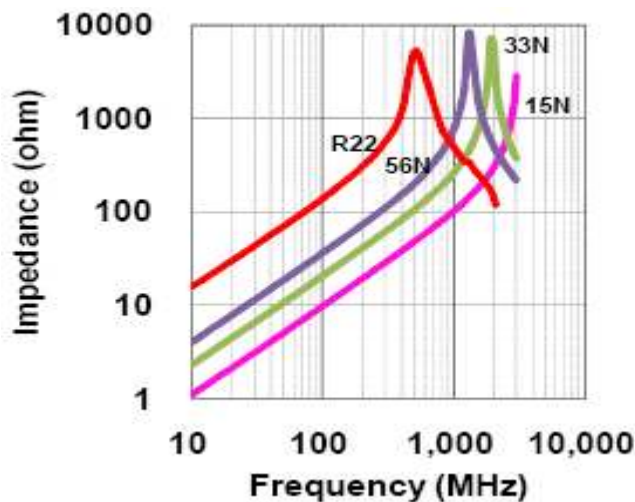
L vs. Frequency



Q vs. Frequency

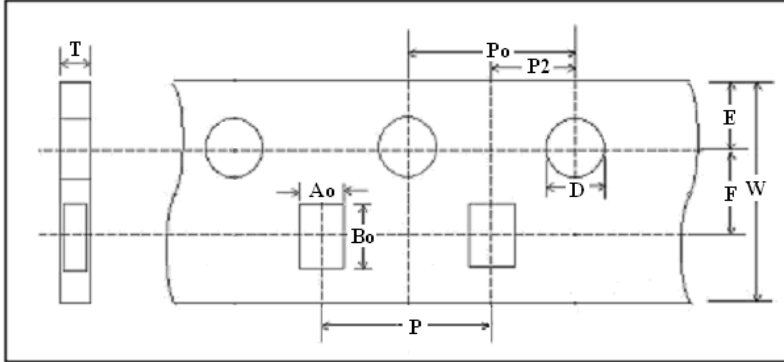


Z vs. Frequency



■ PACKAGING SPECIFICATIONS

➤ Type : Paper Carrier

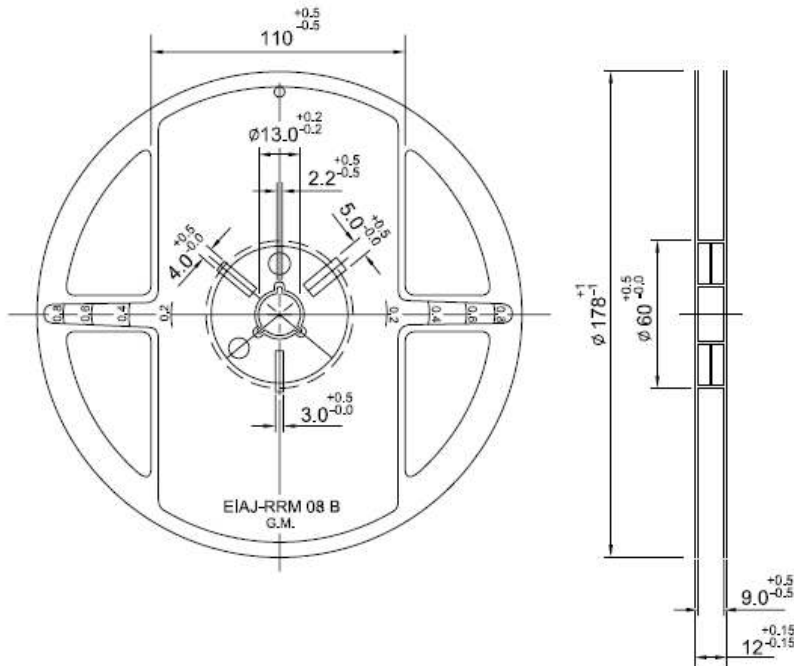


➤ Taping Dimension

(mm)	1608
Symbol	PAPER
W	8.00±0.10
P	4.00±0.10
E	1.75±0.10
F	3.50±0.10
D	1.56±0.10
P <sub>0</sub>	4.00±0.10
P <sub>2</sub>	2.00±0.10
A <sub>o</sub>	1.05±0.05
B <sub>o</sub>	1.85±0.05
K <sub>o</sub> (T)	0.95±0.05

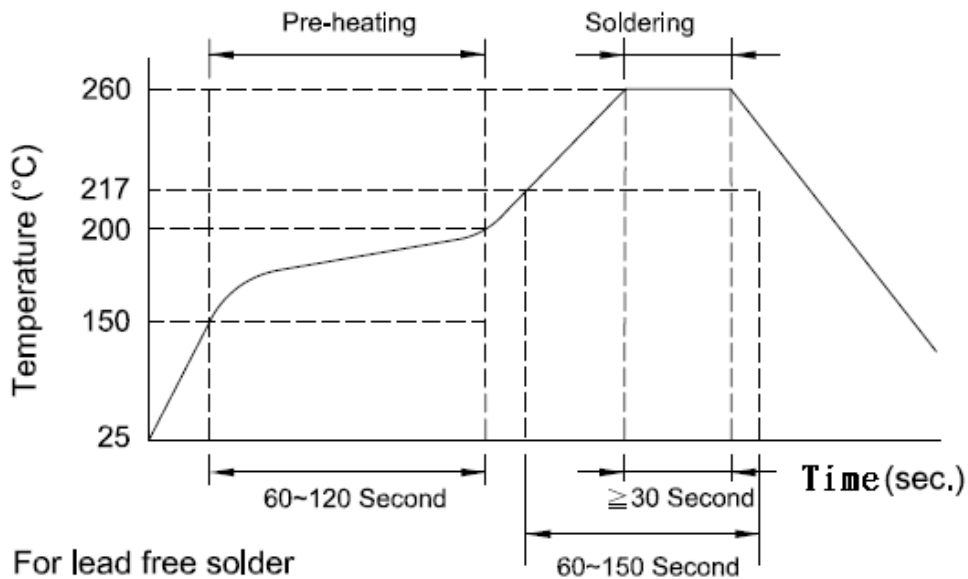
■ REEL DIMENSION

Unit : mm



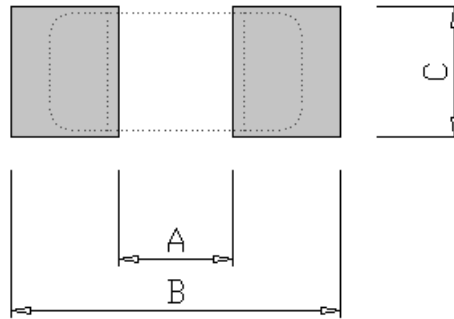
7" Reel Packaging Quantity	
PART SIZE (EIA SIZE)	<b>1608 (0603)</b>
Qty.(pcs)	4,000
BOX	5 reels / inner box

■ RECOMMENDED SOLDERING CONDITIONS



■ LAND PATTERNS REFLOW SOLDERING

Solder land information :

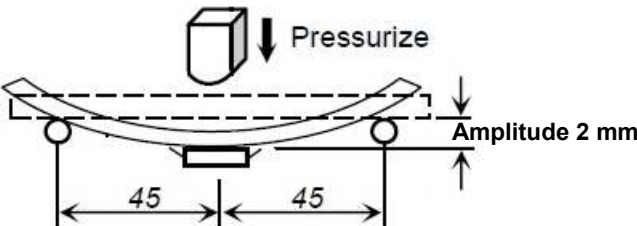


Size(mm)	A	B	C
1608	0.5 ~ 0.7	2.1 ~ 3.1	0.65 ~ 0.95
(EIA 0603)	(0.019 ~ 0.027)	(0.083 ~ 0.122)	(0.026 ~ 0.037)

■ RELIABILITY AND TEST CONDITION

Item	Test Condition	Requirements
<b>Temperature Cycle</b>	1. Temperature : -55 ~ +125°C 2. Cycle : 100 cycles 3. Dwell time : 30minutes 4. Measurement : at ambient temperature 24 hrs after test completion	1. No mechanical damage 2. Inductance value should be within ± 10 % of the initial value 3. Q vale should be within ± 20% of the initial value
<b>Operational Life</b>	1. Temperature: 85 ± 5°C 2. Testing time: 1000 hrs 3. Applied current: Full rated current 4. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance value should be within ± 10 % of the initial value 3. Q vale should be within ± 20% of the initial value



Item	Test Condition	Requirements
<b>Biased Humidity</b>	1. Temperature : 40°C ± 2°C 2. Humidity : 90 ~ 95 % RH 3. Test time : 1000 hrs 4. Apply current : full rated current 5. Measurement : at ambient temperature 24 hrs after test completion	1. No mechanical damage 2. Inductance value should be within ± 10 % of the initial value 3. Q vale should be within ± 20% of the initial value
<b>Resistance to Solder Heat</b>	1. Solder temperature : 260 ± 5°C 2. Flux : Rosin 3. DIP time : 10 ± 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. Inductance value should be within ± 10 % of the initial value 3. Q vale should be within ± 20% of the initial value
<b>Solderability</b>	1. Solder temperature : 235 ± 5°C 2. Flux : Rosin 3. DIP time : 5 ± 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. No mechanical damage
<b>Bending Strength</b>	1. Solder the chip to test jig then apply a force in the direction shown in below. 2. The soldering shall be done with the reflow method and shall be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div style="text-align: center;">  </div>	No mechanical damage

■ **NOTE**

The storage atmosphere must be free of gas containing sulfur and chlorine. Also, avoid exposing the product to saline moisture. If the product is exposed to such atmospheres, the terminals will oxidize and solderability will be affected.