PRODUCT SPECIFICATION

DOCUMENT NO.				
DESCRIPTION	**DRAWN BY**	**DESIGNED BY**	**CHECKED BY**	**APPROVED BY**
MCI-HW Series for Automotive	陳曉慧 Sharon Chen	陳宏銘 Addking Chen	林庭煒 Tim Lin	吳維政 Albert Wu

High Frequency Chip Ceramic Inductor for Automotive Engineering

Specification

RoHS Pb

Qualified based on AEC-Q200

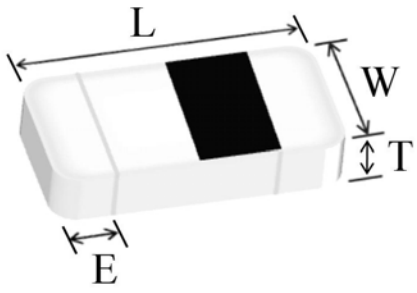
■ FEATURES

- 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	100505 (EIA 0402)
L	1.0±0.10
W	0.5±0.10
T	0.5±0.10
E	0.10~0.30
Unit	mm

■ PART NUMBER CODE

MCI	1005	HW	1N0	□	H	B	P	G0
1	2	3	4	5	6	7	8	9

1 Series Name
2 Dimensions L*W
3 HW：For Automotive
4 Inductance(nH)：N means Decimal point , ex：1.0 nH = 1N0
5 Tolerance : B = ±0.1nH，C = ±0.2nH，S = ±0.3nH，G = ±2%，H = ±3%，J = ±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℃~ +125℃
Storage Condition: Less than 40℃ and 70% RH
Storage Time: 6 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

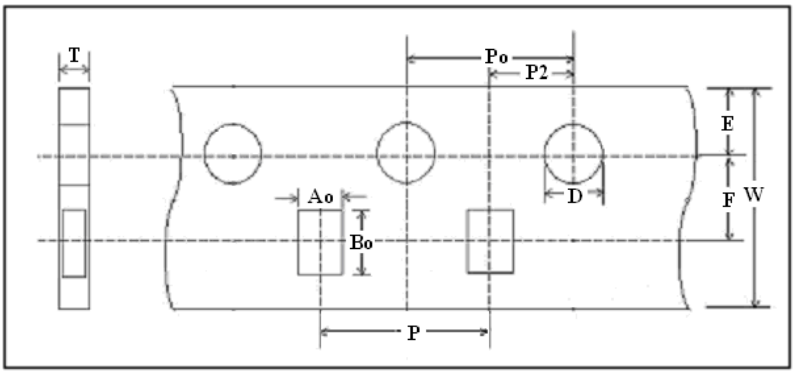
■ PART NUMBER AND CHARACTERISTICS TABLE

Part No.	Inductance (nH)	Q (Min.)	Freq. (MHz)	DCR(Ω) Max.	S.R.F(MHz) Min.	Rated Current (mA) Max.
MCI1005HW1N0SHBPG0	1.0	8	100	0.08	10,000	380
MCI1005HW1N6SHBPG0	1.6	8	100	0.10	10,000	380
MCI1005HW1N8SHBPG0	1.8	8	100	0.12	10,000	380
MCI1005HW2N2SHBPG0	2.2	8	100	0.13	10,000	380
MCI1005HW2N4SHBPG0	2.4	8	100	0.13	10,000	380
MCI1005HW2N7SHBPG0	2.7	8	100	0.16	6,000	380
MCI1005HW3N3SHBPG0	3.3	8	100	0.16	6,000	300
MCI1005HW3N6SHBPG0	3.6	8	100	0.20	6,000	300
MCI1005HW4N3SHBPG0	4.3	8	100	0.20	6,000	300
MCI1005HW5N6SHBPG0	5.6	8	100	0.23	4,500	300
MCI1005HW6N2SHBPG0	6.2	8	100	0.25	4,500	300
MCI1005HW8N2JHBPG0	8.2	8	100	0.28	3,700	300
MCI1005HW9N1JHBPG0	9.1	8	100	0.30	3,400	300
MCI1005HW10NJHBPG0	10	8	100	0.30	3,400	300
MCI1005HW12NJHBPG0	12	8	100	0.45	3,000	300
MCI1005HW13NJHBPG0	13	8	100	0.50	3,000	300
MCI1005HW15NJHBPG0	15	8	100	0.55	2,500	300
MCI1005HW18NJHBPG0	18	8	100	0.65	2,200	300
MCI1005HW27NJHBPG0	27	8	100	0.80	1,700	300
MCI1005HW39NJHBPG0	39	8	100	1.00	1,200	200

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

■ PACKAGING SPECIFICATIONS

➢ Type：Paper Carrier

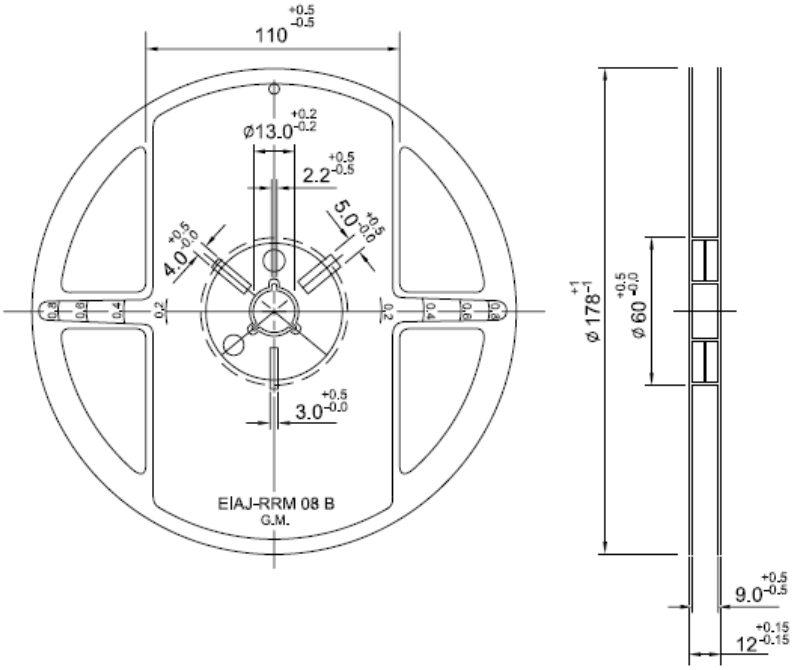


➢ Taping Dimension

(mm)	**1005**
Symbol	PAPER
W	8.00 ± 0.30
P	2.00 ± 0.10
E	1.75 ± 0.05
F	3.50 ± 0.05
D	1.50 ~ 1.60
Po	4.00 ± 0.10
P2	2.00 ± 0.05
Ao	0.62 ± 0.03
Bo	1.12 ± 0.03
T	0.60±0.03

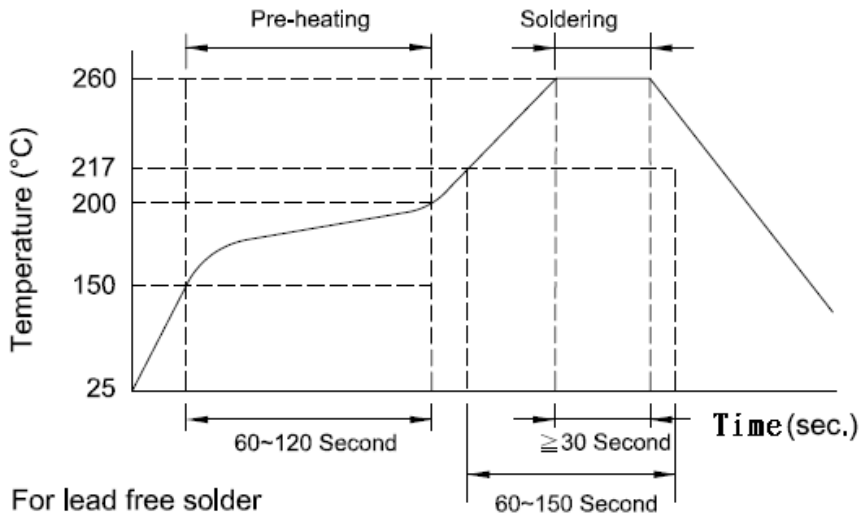
■ REEL DIMENSION

Unit：mm



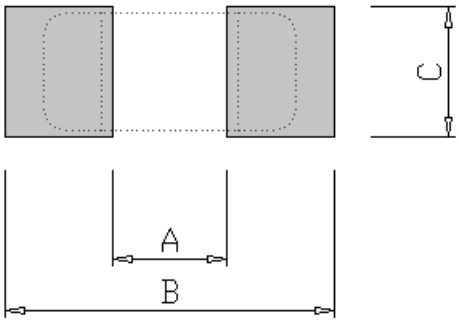
7” Reel Packaging Quantity	
PART SIZE (EIA SIZE)	**1005** **(0402)**
Qty.(pcs)	10,000
BOX	5 reels / inner box

■ RECOMMENDED SOLDERING CONDITIONS



■ LAND PATTERNS REFLOW SOLDERING

Solder land information：



Size(mm)	A	B	C
1005 (EIA 0402)	0.40 (0.016)	1.40 ～ 1.50 (0.055 ～ 0.059)	0.40 ～ 0.50 (0.016 ～ 0.020)

■ RELIABILITY AND TEST CONDITION

Item	Test Condition	Criteria
High Temperature Exposure	1.Temperature : 125℃ ± 5℃ 2.Test time : 1000 hrs 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 variation within 20%
Temperature Cycle	1.Temperature : -55 ~ +125℃ 2.Cycle : 1000 cycles 3.Dwell time : 30minutes 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 variation within 20%.

Item	Test Condition	Requirements
Biased Humidity	1.Temperature : 85℃ ± 2℃ 2.Humidity : 85 % RH 3.Test time : 1000 hrs 4.Apply current : full rated current 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 variation within 20%
Operational Life	1.Temperature : 125℃ ± 5℃ 2.Test time : 1000 hrs 3.Apply current : full rated current 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 variation within 20%.
Mechanical Shock	Condition F:1500g's/0.5ms/Half sine	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3.Q variation within 20%
Vibration Test	5g's for 20 minutes,12cycles each of 3 orientations Test from 10-2000Hz.,12cycles each of 3 orientations	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3.Q variation within 20%
Resistance to Solder Heat	1.Solder temperature : 260 ± 5℃ 2.Flux : Rosin 3.DIP time : 10 ± 1 sec	1.More than 95 % of terminal electrode should be covered with new solder 2.No mechanical damage 3.Inductance value should be within ± 10 % of the initial value 4.Q variation within 20%
ESD	Classification Levels 1C	1. No mechanical damage 2. Inductance variation within10%. 3. Q variation within 20%.

<table>
<tr><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>Solderability Test</td><td>1.Solder temperature : 235 ± 5℃
2.Flux : Rosin
3.DIP time : 5 ± 1 sec</td><td>1.More than 95 % of terminal electrode should be covered with new solder
2.No mechanical damage</td></tr>
<tr><td>Board Flex</td><td>Epoxy-PCB(1.6mm)
Deflection 2mm(min)
60s minimum holding time</td><td>No mechanical damage.</td></tr>
<tr><td>Terminal Strength</td><td><table><tr><th>Size</th><th>Apply Force(F)</th><th>Test Time</th></tr><tr><td>1005</td><td>5 N</td><td>10 ±1 sec.</td></tr></table></td><td>No mechanical damage</td></tr>
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■ 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.