



MCI MZ Series Data Sheet

Product Name	MCI MZ Series
Series	RF Inductor
Size	EIAJ 0603
Version	A0

High Frequency Chip Ceramic Inductor for Automotive(MCI MZ Series)

Qualified based on AEC-Q200

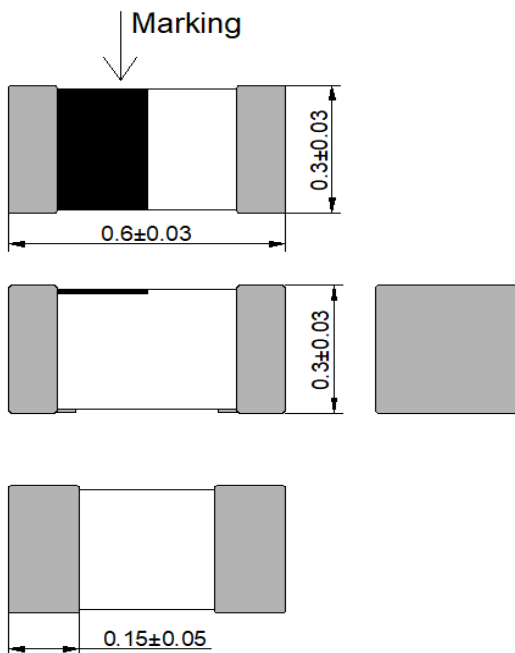
■ FEATURES

- Particular ceramic material and coil structure provide high frequency application range up to 20GHz.
- Small size and low profile.
- 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



■ : Electrode Unit : mm

■ **PART NUMBER CODE**

MCI	0603	MZ	1N0	B	H	B	P
1	2	3	4	5	6	7	8

- 1 Series Name
- 2 Dimensions L*W
- 3 Automotive Infotainment
- 4 Inductance(nH) : N means Decimal point , ex : 1.0 nH = 1N0
- 5 Tolerance : B = $\pm 0.1nH$, C = $\pm 0.2nH$, S = $\pm 0.3nH$, H = $\pm 3\%$, J = $\pm 5\%$
- 6 Mark : H = 1/8 Mark , M = 1/4 Mark , N = No Mark
- 7 Internal Code
- 8 Packaging : P = Paper tape, 7" reel

■ **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/B RF Impedance Material Analyzer or equivalent with fixture 16197A or equivalent (The residual inductance needs to be compensated : 0.48nH)
 Agilent 4338B Milliohm meter (Test Level : 500 mV)

■ PART NUMBER AND CHARACTERISTICS TABLE

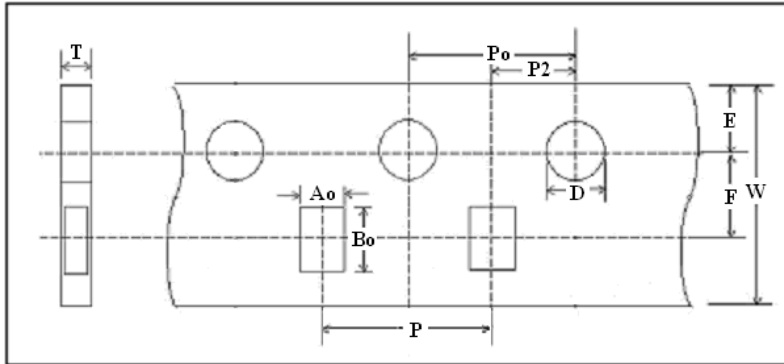
Part No.	Inductance (nH)	Inductance Tolerance	Q (Min.)	Freq. (MHz)	DCR(Ω) Max.	S.R.F (MHz) Min.	Rated Current (mA) Max.
MCI0603MZ0N6_HBP	0.6	B=±0.1nH C=±0.2nH	14	500	0.07	20,000	850
MCI0603MZ0N7_HBP	0.7		14	500	0.08	20,000	800
MCI0603MZ0N8_HBP	0.8		14	500	0.08	18,000	800
MCI0603MZ0N9_HBP	0.9		14	500	0.10	18,000	750
MCI0603MZ1N0_HBP	1.0	B=±0.1nH C=±0.2nH S=±0.3nH	14	500	0.10	17,000	750
MCI0603MZ1N1_HBP	1.1		14	500	0.10	17,000	750
MCI0603MZ1N2_HBP	1.2		14	500	0.10	17,000	750
MCI0603MZ1N3_HBP	1.3		14	500	0.15	17,000	600
MCI0603MZ1N4_HBP	1.4		14	500	0.15	16,000	600
MCI0603MZ1N5_HBP	1.5		14	500	0.15	15,000	600
MCI0603MZ1N6_HBP	1.6		14	500	0.15	15,000	600
MCI0603MZ1N7_HBP	1.7		14	500	0.15	15,000	600
MCI0603MZ1N8_HBP	1.8		14	500	0.15	15,000	600
MCI0603MZ1N9_HBP	1.9		14	500	0.15	12,500	600
MCI0603MZ2N0_HBP	2.0		14	500	0.15	12,500	600
MCI0603MZ2N1_HBP	2.1		14	500	0.15	11,000	600
MCI0603MZ2N2_HBP	2.2		14	500	0.15	11,000	600
MCI0603MZ2N3_HBP	2.3		14	500	0.20	10,000	500
MCI0603MZ2N4_HBP	2.4		14	500	0.20	10,000	500
MCI0603MZ2N5_HBP	2.5	14	500	0.20	10,000	500	
MCI0603MZ2N6_HBP	2.6	14	500	0.20	10,000	500	
MCI0603MZ2N7_HBP	2.7	14	500	0.20	10,000	500	
MCI0603MZ2N8_HBP	2.8	14	500	0.20	9,500	500	
MCI0603MZ2N9_HBP	2.9	14	500	0.20	9,500	500	
MCI0603MZ3N0_HBP	3.0	14	500	0.25	9,500	450	
MCI0603MZ3N1_HBP	3.1	14	500	0.25	8,000	450	
MCI0603MZ3N2_HBP	3.2	14	500	0.25	8,000	450	
MCI0603MZ3N3_HBP	3.3	14	500	0.25	8,000	450	
MCI0603MZ3N4_HBP	3.4	14	500	0.25	7,000	450	
MCI0603MZ3N5_HBP	3.5	14	500	0.25	7,000	450	

Part No.	Inductance (nH)	Inductance Tolerance	Q (Min.)	Freq. (MHz)	DCR(Ω) Max.	S.R.F (MHz) Min.	Rated Current (mA) Max.
MCI0603MZ3N6_HBP	3.6	B=±0.1nH C=±0.2nH S=±0.3nH	14	500	0.30	6,000	400
MCI0603MZ3N7_HBP	3.7		14	500	0.30	6,000	400
MCI0603MZ3N8_HBP	3.8		14	500	0.30	6,000	400
MCI0603MZ3N9_HBP	3.9		14	500	0.30	5,700	400
MCI0603MZ4N0_HBP	4.0		14	500	0.40	5,300	350
MCI0603MZ4N1_HBP	4.1		14	500	0.40	5,300	350
MCI0603MZ4N2_HBP	4.2		14	500	0.40	5,300	350
MCI0603MZ4N3_HBP	4.3	S=±0.3nH H=±3% J=±5%	14	500	0.40	5,300	350
MCI0603MZ4N7_HBP	4.7		14	500	0.40	4,400	350
MCI0603MZ5N1_HBP	5.1		14	500	0.40	4,200	350
MCI0603MZ5N6_HBP	5.6		14	500	0.40	4,000	350
MCI0603MZ6N2_HBP	6.2	H=±3% J=±5%	14	500	0.60	4,000	300
MCI0603MZ6N8_HBP	6.8		14	500	0.60	3,900	300
MCI0603MZ7N5_HBP	7.5		14	500	0.60	3,700	300
MCI0603MZ8N2_HBP	8.2		14	500	0.70	3,600	250
MCI0603MZ9N1_HBP	9.1		14	500	0.70	3,300	250
MCI0603MZ10N_HBP	10		14	500	0.70	3,200	250
MCI0603MZ11N_HBP	11		14	500	0.80	2,900	250
MCI0603MZ12N_HBP	12		12	500	0.70	2,900	250
MCI0603MZ13N_HBP	13		12	500	0.80	2,600	250
MCI0603MZ15N_HBP	15		12	500	0.70	2,600	250
MCI0603MZ16N_HBP	16		12	500	0.95	2,200	200
MCI0603MZ18N_HBP	18	12	500	0.80	2,200	200	

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

■ TAPE AND REEL SPECIFICATIONS

➤ Tape Dimension / 8mm

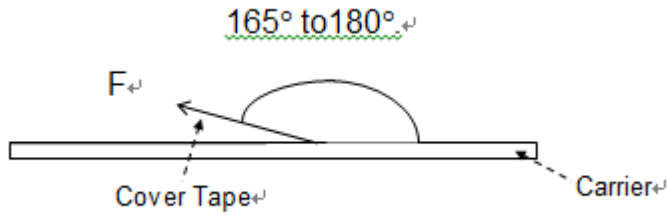


➤ Taping Dimension

Unit : mm

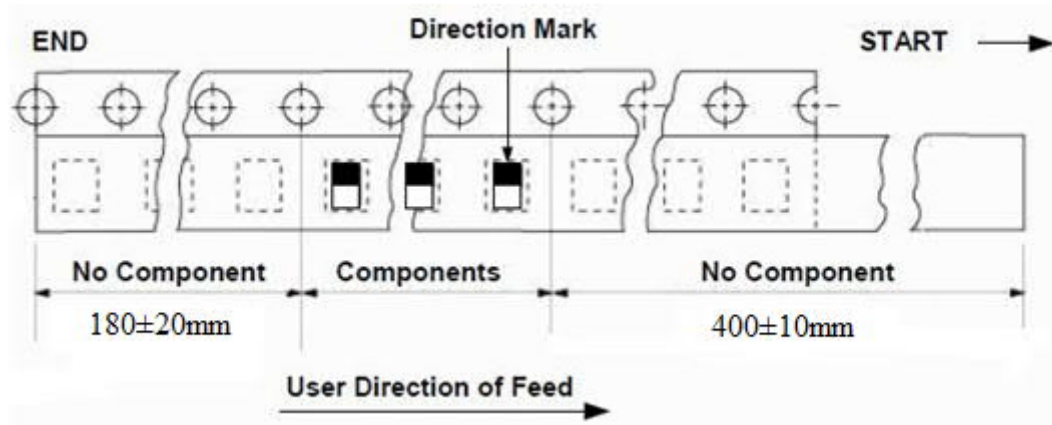
TYPE	0603
Symbol	PAPER
W	8.00 ± 0.10
P	2.00 ± 0.05
E	1.75 ± 0.05
F	3.50 ± 0.05
D	1.55 ± 0.05
P ₀	4.00 ± 0.10
P ₂	2.00 ± 0.05
A ₀	0.36 ± 0.02
B ₀	0.66 ± 0.02
T	0.42 ± 0.02

➤ **Peel-off force**

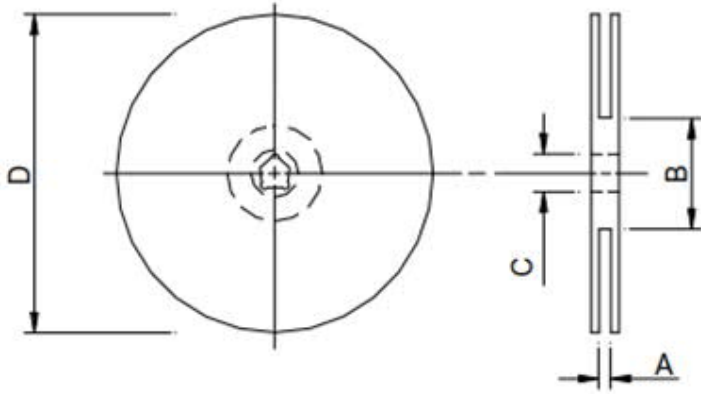


Peel-off force should be in the range of 10 ~ 50g at a peel-off of 300mm/min

➤ **Leader and Trailer Tape**



■ REEL DIMENSION



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"	10±1.5	50 or more	13.2±1.0	178±2.0

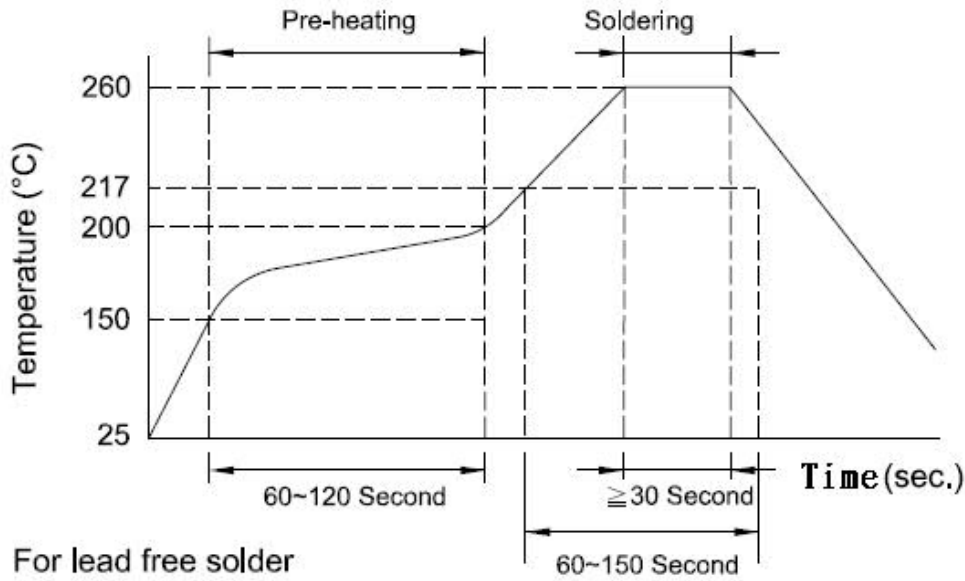
■ PACKAGING DIMENSION QUANTITY

Packaging style : Taping

Reel packaging quantity : **15,000** pcs/reel

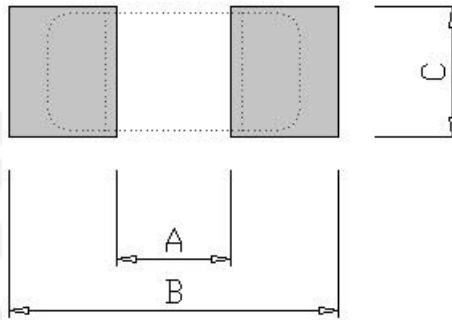
Per the box : 5 Reels

■ **RECOMMENDED SOLDERING CONDITIONS**



■ **LAND PATTERNS REFLOW SOLDERING**

Solder land information :



TYPE (mm)	A	B	C
0603 (EIA 0201)	0.20 ~ 0.30 (0.008 ~ 0.012)	0.80 ~ 0.90 (0.031 ~ 0.035)	0.20 ~ 0.30 (0.008 ~ 0.012)

■ RELIABILITY AND TEST CONDITION

Item	Test Condition	Criteria
High Temperature Exposure	1. Temperature : 125°C ± 5°C 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 value should be within ± 20% of the initial value
Temperature Cycle	1. Temperature : -55 ~ +125°C 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 value should be within ± 20% of the initial value
Biased Humidity	1. Temperature : 85°C ± 2°C 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 value should be within ± 20% of the initial value
Operational Life	1. Temperature : 125°C ± 5°C 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 value should be within ± 20% of the initial value
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 value should be within ± 20% of the initial value

Item	Test Condition	Requirements						
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 $\pm 10\%$ of the initial value 3. Q value should be within $\pm 20\%$ of the initial value						
Resistance to Solder Heat	1.Solder temperature : $260 \pm 5^\circ\text{C}$ 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 $\pm 10\%$ of the initial value 4. Q value should be within $\pm 20\%$ of the initial value						
ESD	Classification Levels 1C	1. No mechanical damage 2. Inductance variation within 10%. 3. Q value should be within $\pm 20\%$ of the initial value						
Solderability Test	1.Solder temperature : $235 \pm 5^\circ\text{C}$ 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						
Board Flex	Epoxy-PCB(1.6mm) Deflection 2mm(min) 60s minimum holding time	No mechanical damage.						
Terminal Strength	<table border="1"> <thead> <tr> <th>Size</th> <th>Apply Force(F)</th> <th>Test Time</th> </tr> </thead> <tbody> <tr> <td>0603</td> <td>2 N</td> <td>10 \pm1 sec.</td> </tr> </tbody> </table>	Size	Apply Force(F)	Test Time	0603	2 N	10 \pm 1 sec.	No mechanical damage
Size	Apply Force(F)	Test Time						
0603	2 N	10 \pm 1 sec.						

■ **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.

