



PRODUCT SPECIFICATION

DOCUMENT NO. ENS000124550

DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	APPROVED BY
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High Frequency Chip Ceramic Inductor (MCI-TN Series) Engineering Specification

This product belongs to the 3C and industrial grade standard, not for automotive application. If customer privately uses to automotive parts and results in any consequences, INPAQ is not responsible for after-sales service, thank you!

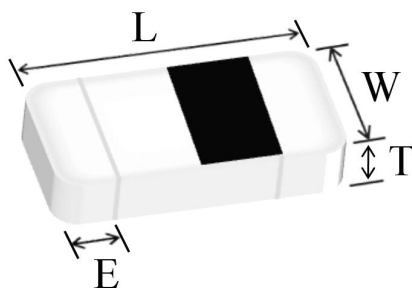
■ FEATURES

- 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	060303 (EIA0201)
L	0.6±0.03
W	0.3±0.03
T	0.3±0.03
E	0.10~0.20
Unit	mm

■ PART NUMBER CODE

<u>MCI</u>	<u>0603</u>	<u>TN</u>	<u>1N0</u>	<u>B</u>	<u>H</u>	<u>B</u>	<u>P</u>
1	2	3	4	5	6	7	8

- 1 Series Name
- 2 Dimensions L*W
- 3 TN : material code
- 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 Soldering : Green Parts , B= Lead-Free for whole chip
- 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 : 6 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.
MCI0603TN0N6_HBP	0.6	B : ±0.1nH C : ±0.2nH	14	500	0.07	20,000	850
MCI0603TN0N7_HBP	0.7		14	500	0.08	20,000	800
MCI0603TN0N8_HBP	0.8		14	500	0.08	18,000	800
MCI0603TN0N9_HBP	0.9	B : ±0.1nH C : ±0.2nH S : ±0.3nH	14	500	0.10	18,000	750
MCI0603TN1N0_HBP	1.0		14	500	0.10	17,000	750
MCI0603TN1N1_HBP	1.1		14	500	0.10	17,000	750
MCI0603TN1N2_HBP	1.2		14	500	0.10	17,000	750
MCI0603TN1N3_HBP	1.3		14	500	0.15	17,000	600
MCI0603TN1N4_HBP	1.4		14	500	0.15	16,000	600
MCI0603TN1N5_HBP	1.5		14	500	0.15	15,000	600
MCI0603TN1N6_HBP	1.6		14	500	0.15	15,000	600
MCI0603TN1N7_HBP	1.7		14	500	0.15	15,000	600
MCI0603TN1N8_HBP	1.8		14	500	0.15	15,000	600
MCI0603TN1N9_HBP	1.9		14	500	0.15	12,500	600
MCI0603TN2N0_HBP	2.0		14	500	0.15	12,500	600
MCI0603TN2N1_HBP	2.1		14	500	0.15	11,000	600
MCI0603TN2N2_HBP	2.2		14	500	0.15	11,000	600
MCI0603TN2N3_HBP	2.3		14	500	0.20	10,000	500
MCI0603TN2N4_HBP	2.4		14	500	0.20	10,000	500
MCI0603TN2N5_HBP	2.5		14	500	0.20	10,000	500
MCI0603TN2N6_HBP	2.6	14	500	0.20	10,000	500	
MCI0603TN2N7_HBP	2.7	14	500	0.20	10,000	500	
MCI0603TN2N8_HBP	2.8	14	500	0.20	9,500	500	
MCI0603TN2N9_HBP	2.9	14	500	0.20	9,500	500	
MCI0603TN3N0_HBP	3.0	14	500	0.25	9,500	450	
MCI0603TN3N1_HBP	3.1	14	500	0.25	8,000	450	
MCI0603TN3N2_HBP	3.2	14	500	0.25	8,000	450	
MCI0603TN3N3_HBP	3.3	14	500	0.25	8,000	450	
MCI0603TN3N4_HBP	3.4	14	500	0.25	7,000	450	
MCI0603TN3N5_HBP	3.5	14	500	0.25	7,000	450	

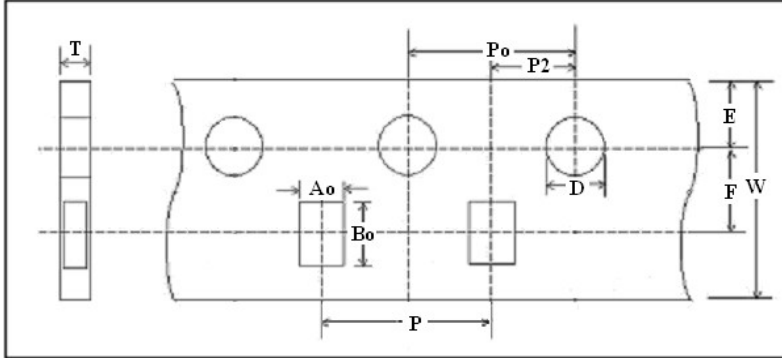
** For special part number which is not shown in the above table, please refer to appendix.

Part No.	Inductance (nH)	Inductance Tolerance	Q (Min.)	Freq. (MHz)	DCR(Ω) Max.	S.R.F (MHz) Min.	Rated Current (mA) Max.
MCI0603TN3N6_HBP	3.6	B : ±0.1nH C : ±0.2nH S : ±0.3nH	14	500	0.30	6,000	400
MCI0603TN3N7_HBP	3.7		14	500	0.30	6,000	400
MCI0603TN3N8_HBP	3.8		14	500	0.30	6,000	400
MCI0603TN3N9_HBP	3.9		14	500	0.30	5,700	400
MCI0603TN4N0_HBP	4.0		14	500	0.40	5,300	350
MCI0603TN4N1_HBP	4.1		14	500	0.40	5,300	350
MCI0603TN4N2_HBP	4.2		14	500	0.40	5,300	350
MCI0603TN4N3_HBP	4.3	S : ±0.3nH H : ±3% J : ±5%	14	500	0.40	5,300	350
MCI0603TN4N7_HBP	4.7		14	500	0.40	4,400	350
MCI0603TN5N1_HBP	5.1		14	500	0.40	4,200	350
MCI0603TN5N6_HBP	5.6		14	500	0.40	4,000	350
MCI0603TN6N2_HBP	6.2	H : ±3% J : ±5%	14	500	0.60	4,000	300
MCI0603TN6N8_HBP	6.8		14	500	0.60	3,900	300
MCI0603TN7N5_HBP	7.5		14	500	0.60	3,700	300
MCI0603TN8N2_HBP	8.2		14	500	0.70	3,600	250
MCI0603TN9N1_HBP	9.1		14	500	0.70	3,300	250
MCI0603TN10N_HBP	10		14	500	0.70	3,200	250
MCI0603TN11N_HBP	11		14	500	0.80	2,900	250
MCI0603TN12N_HBP	12		12	500	0.70	2,900	250
MCI0603TN13N_HBP	13		12	500	0.80	2,600	250
MCI0603TN15N_HBP	15		12	500	0.70	2,600	250
MCI0603TN16N_HBP	16		12	500	0.95	2,200	200
MCI0603TN18N_HBP	18		12	500	0.80	2,200	200
MCI0603TN20N_HBP	20		12	500	2.30	2,200	150
MCI0603TN22N_HBP	22	12	500	1.90	2,200	150	

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

■ TAPE AND REEL SPECIFICATIONS

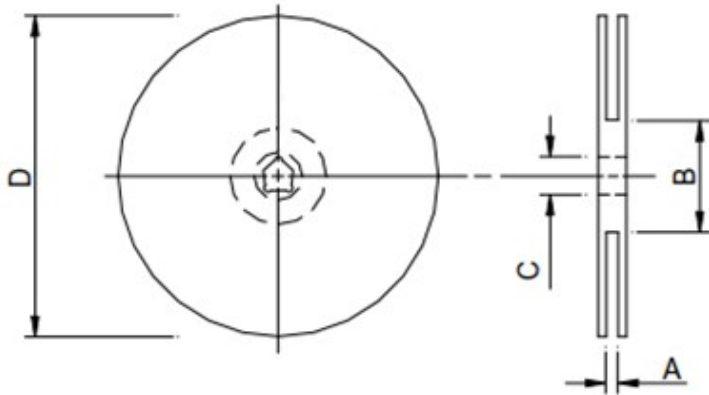
➤ Tape Dimension / 8mm



➤ Taping Dimension

TYPE	0603
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	0.36 ± 0.02
Bo	0.66 ± 0.02
T	0.42 ± 0.02
Unit	mm

■ 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

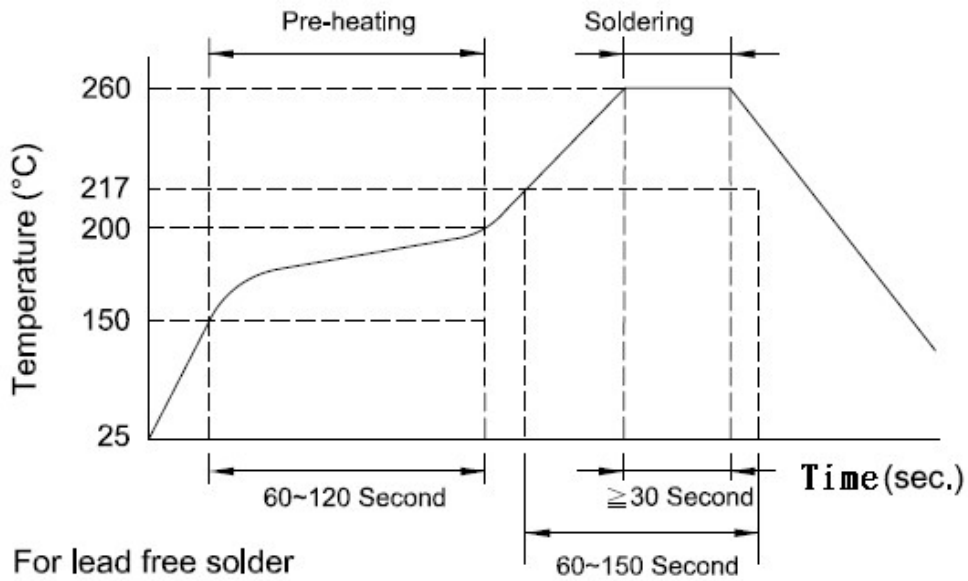
■ STANDARD QUANTITY FOR PACKAGING

Packaging style : Taping

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

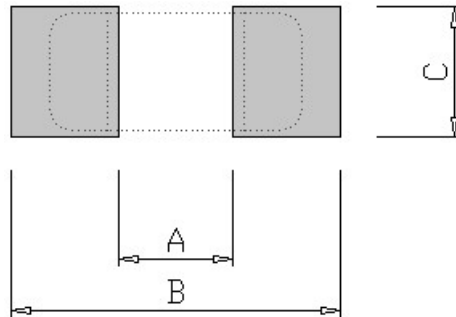
Per the box : 5 Reels

■ RECOMMENDED SOLDERING CONDITIONS



■ LAND PATTERNS REFLOW SOLDERING

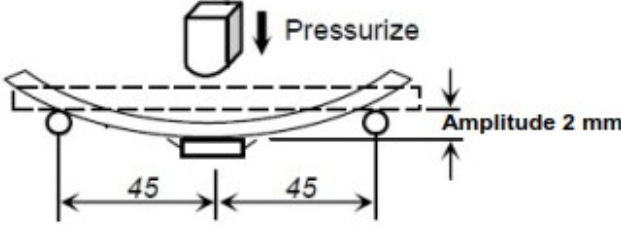
Solder land information :



Size(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	Requirements
Thermal Shock	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 $\pm 10\%$ of the initial value 3. Q value should be within $\pm 20\%$ of the initial value
Operational Life	1. Temperature: 125 \pm 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 $\pm 10\%$ of the initial value 3. Q value should be within $\pm 20\%$ of the initial value
Biased Humidity	1. Temperature : 40°C \pm 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 $\pm 10\%$ 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°C 2. Flux : Rosin 3. DIP time : 10 \pm 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. Inductance value should be within $\pm 10\%$ of the initial value 3. Q value should be within $\pm 20\%$ of the initial value
Solderability	1. Solder temperature : 235 \pm 5°C 2. Flux : Rosin 3. DIP time : 5 \pm 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. No mechanical damage

Item	Test Condition	Requirements
<p>Bending Strength</p>	<p>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.</p> 	<p>No mechanical damage</p>

■ **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.