



## MCI0603TG Series

# Specification

<b>Product Name</b>	<b>High Frequency Inductor</b>
<b>Series</b>	<b>MCI 0603TG Series</b>
<b>Size</b>	<b>EIAJ 0603</b>



## High Frequency Chip Ceramic Inductor (MCI-TG 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!

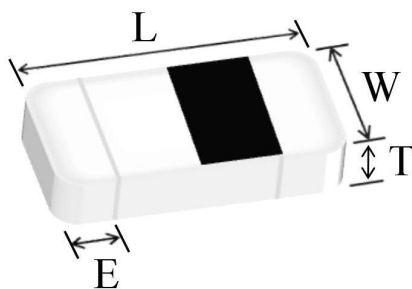
#### ■ FEATURES

- 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 (EIA 0201)
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>TG</u>	<u>1N0</u>	<u>□</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 TG : material code
- 4 Inductance(nH) : N means Decimal point , ex : 1.0 nH = 1N0
- 5 Tolerance : B =  $\pm 0.1\text{nH}$  , C =  $\pm 0.2\text{nH}$  , 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  
 Agilent 4338B Milliohm meter  
 Test Level : 500 mV

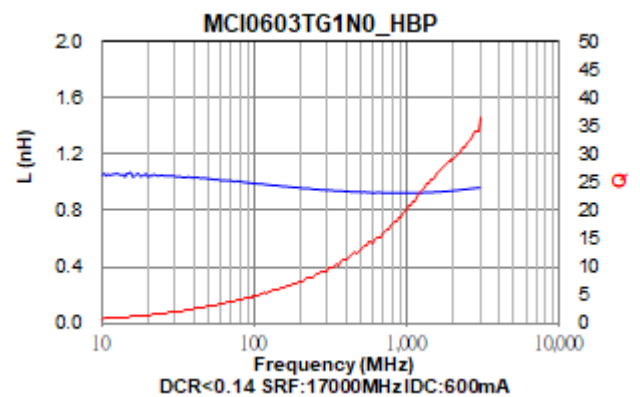
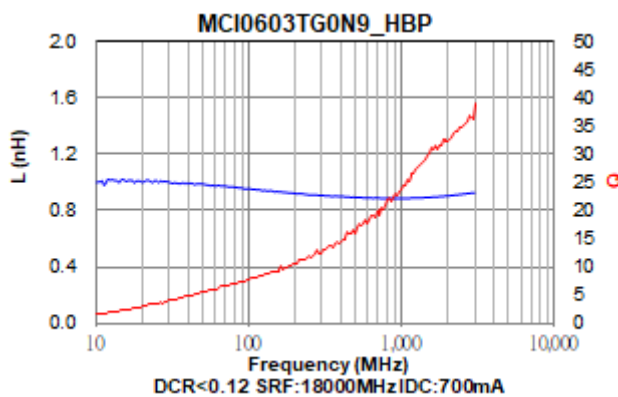
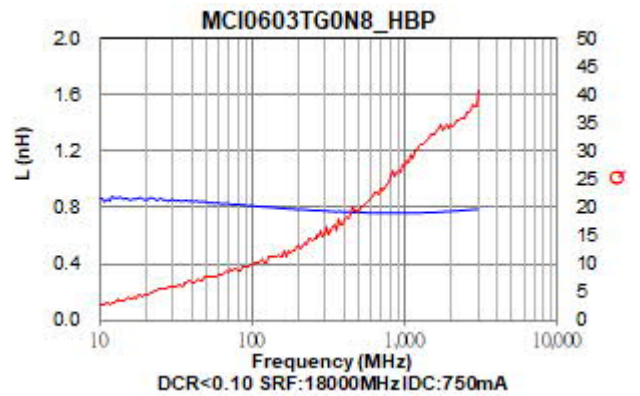
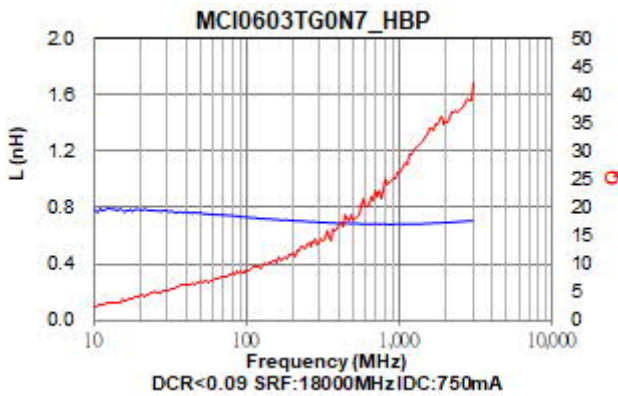
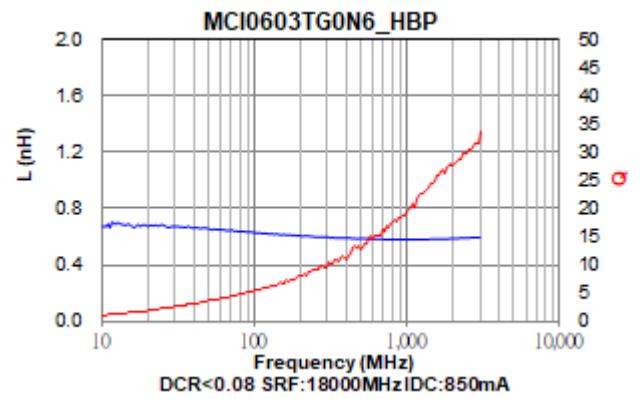
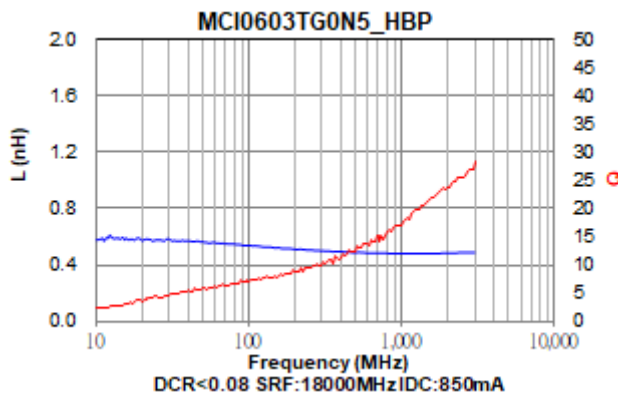
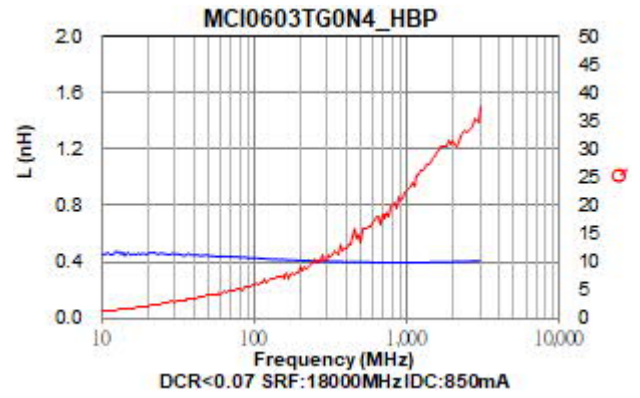
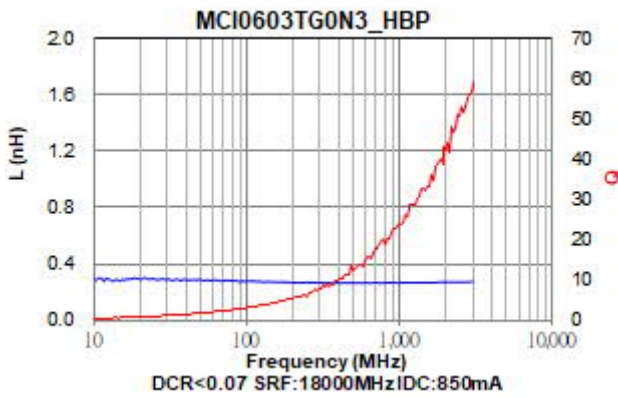
## ■ PART NUMBER AND CHARACTERISTICS TABLE

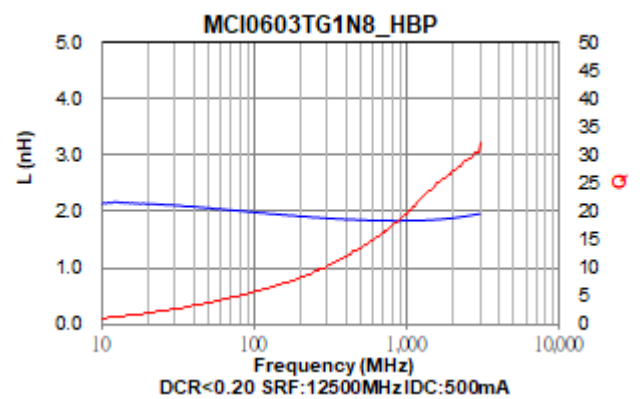
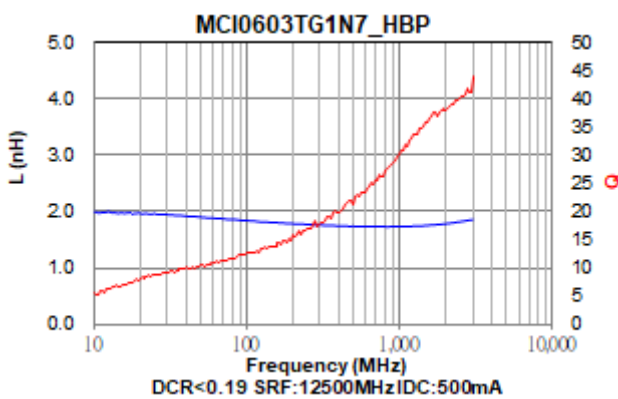
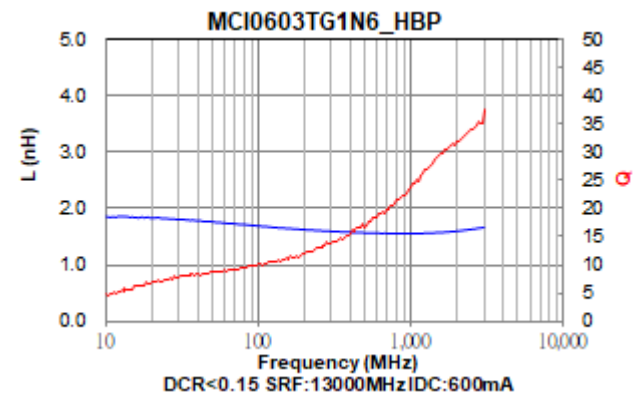
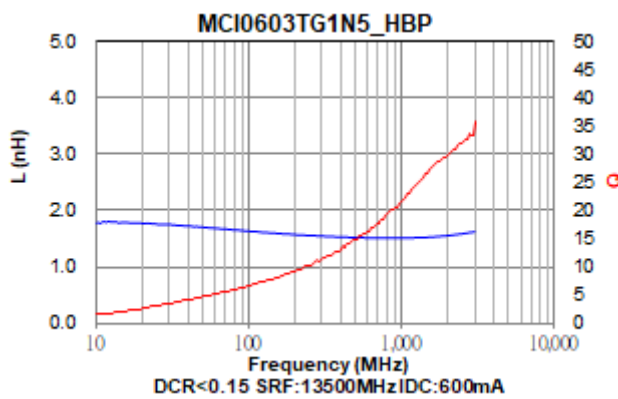
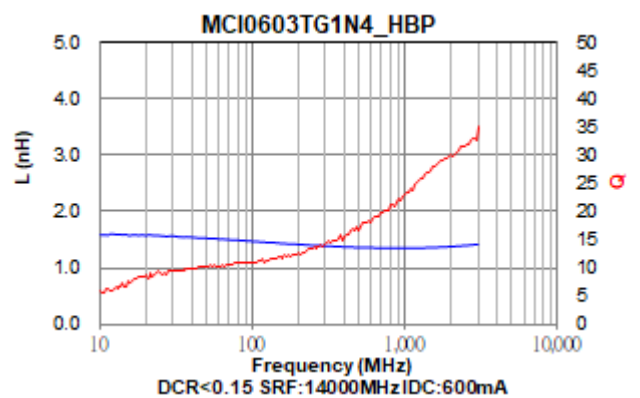
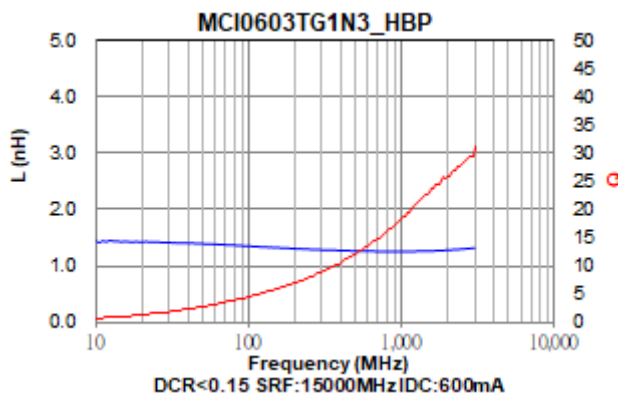
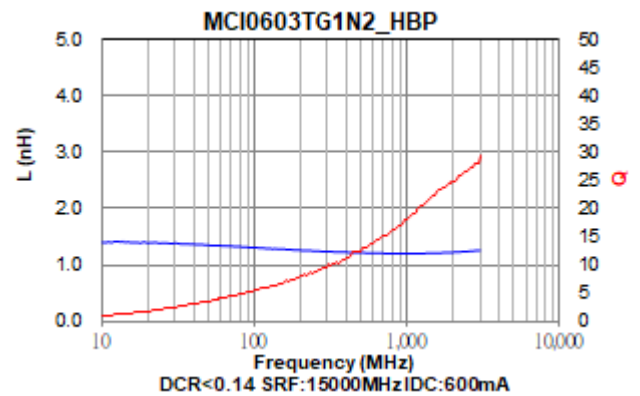
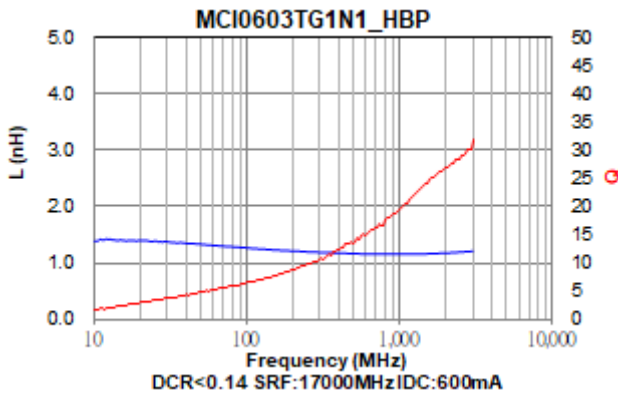
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MCI0603TG0N3_HBP	0.3	B=±0.1nH C=±0.2nH	11	500	0.07	18,000	850
MCI0603TG0N4_HBP	0.4		11	500	0.07	18,000	850
MCI0603TG0N5_HBP	0.5		11	500	0.08	18,000	850
MCI0603TG0N6_HBP	0.6		11	500	0.08	18,000	850
MCI0603TG0N7_HBP	0.7		12	500	0.09	18,000	750
MCI0603TG0N8_HBP	0.8		12	500	0.10	18,000	750
MCI0603TG0N9_HBP	0.9		12	500	0.12	18,000	700
MCI0603TG1N0_HBP	1.0		12	500	0.14	17,000	600
MCI0603TG1N1_HBP	1.1		12	500	0.14	17,000	600
MCI0603TG1N2_HBP	1.2		12	500	0.14	15,000	600
MCI0603TG1N3_HBP	1.3		12	500	0.15	15,000	600
MCI0603TG1N4_HBP	1.4		12	500	0.15	14,000	600
MCI0603TG1N5_HBP	1.5		12	500	0.15	13,500	600
MCI0603TG1N6_HBP	1.6		12	500	0.15	13,000	600
MCI0603TG1N7_HBP	1.7		12	500	0.19	12,500	500
MCI0603TG1N8_HBP	1.8		12	500	0.20	12,500	500
MCI0603TG1N9_HBP	1.9		12	500	0.20	12,500	450
MCI0603TG2N0_HBP	2.0		12	500	0.20	12,500	450
MCI0603TG2N1_HBP	2.1		12	500	0.22	12,000	450
MCI0603TG2N2_HBP	2.2		12	500	0.22	12,000	450
MCI0603TG2N3_HBP	2.3		12	500	0.24	11,500	450
MCI0603TG2N4_HBP	2.4		12	500	0.25	11,000	450
MCI0603TG2N5_HBP	2.5		12	500	0.25	11,000	450
MCI0603TG2N6_HBP	2.6		12	500	0.25	11,000	450
MCI0603TG2N7_HBP	2.7		12	500	0.25	11,000	450
MCI0603TG2N8_HBP	2.8		12	500	0.25	9,500	450
MCI0603TG2N9_HBP	2.9		12	500	0.25	9,500	450
MCI0603TG3N0_HBP	3.0		12	500	0.25	9,500	450
MCI0603TG3N1_HBP	3.1		12	500	0.30	9,500	450
MCI0603TG3N2_HBP	3.2		12	500	0.30	9,500	450
MCI0603TG3N3_HBP	3.3		12	500	0.30	9,500	400

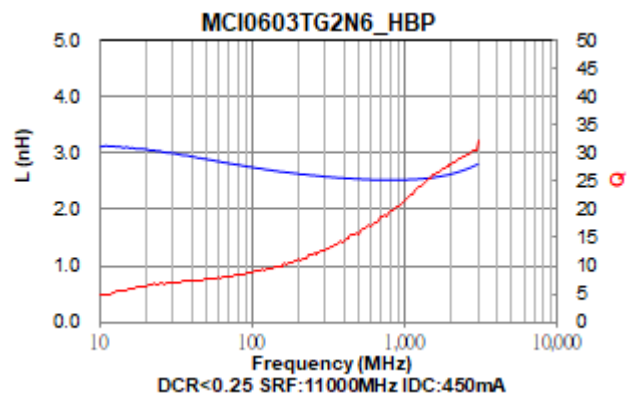
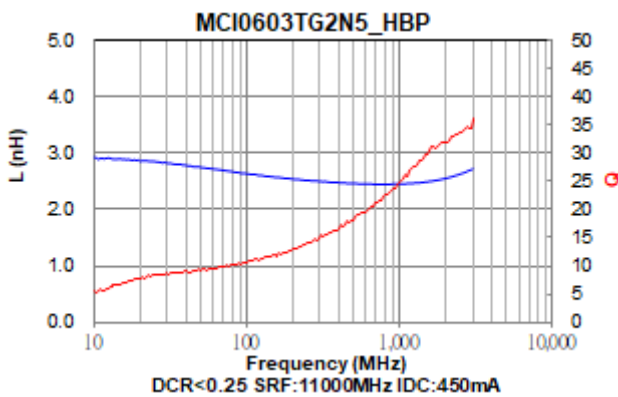
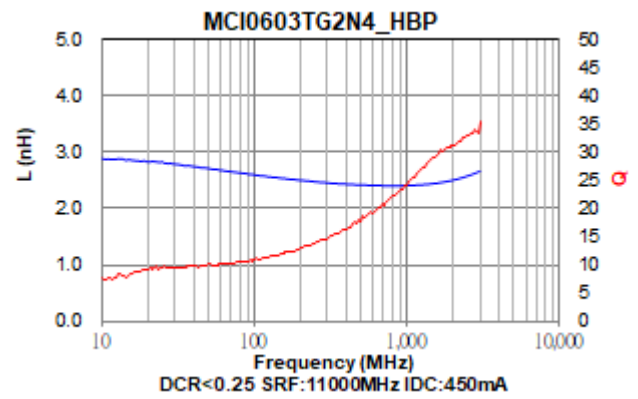
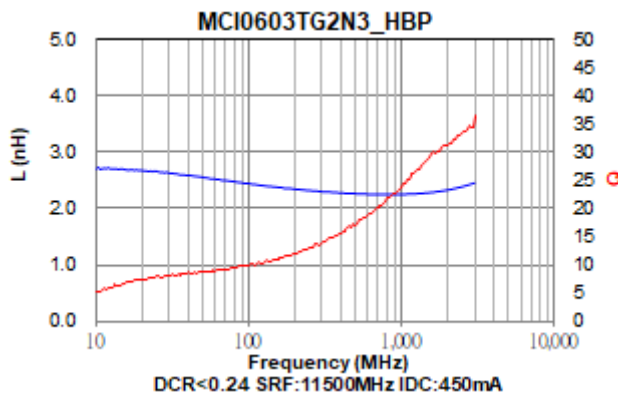
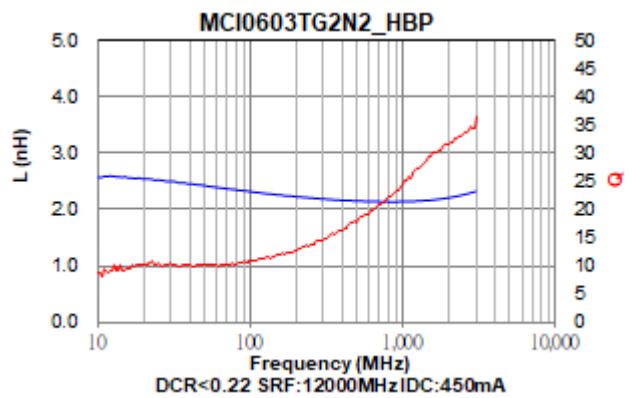
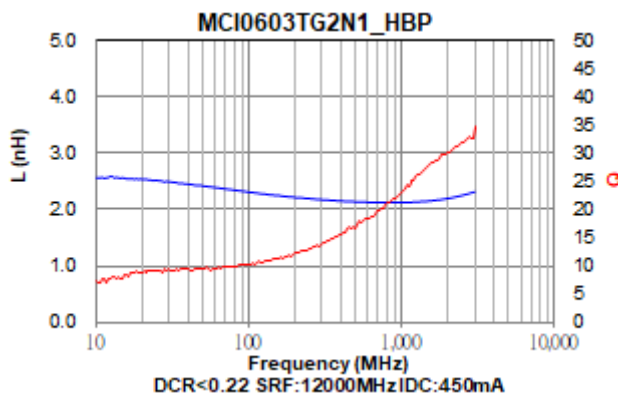
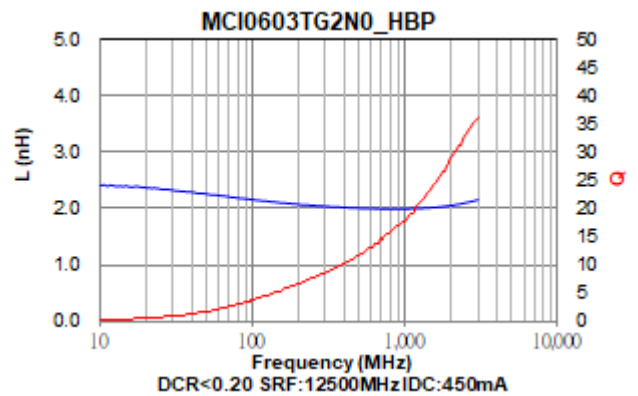
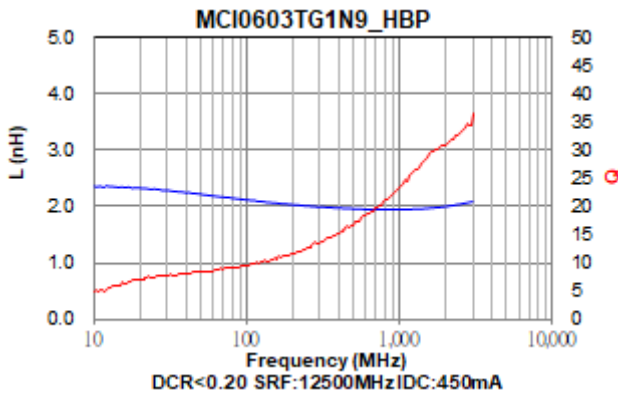
Part No.	Inductance (nH)	Inductance Tolerance	Q (Min.)	Freq. (MHz)	DCR( $\Omega$ ) Max.	S.R.F (MHz) Min.	Rated Current (mA) Max.
MCI0603TG3N4_HBP	3.4	B= $\pm$ 0.1nH C= $\pm$ 0.2nH	12	500	0.30	8,000	400
MCI0603TG3N5_HBP	3.5		12	500	0.30	8,000	400
MCI0603TG3N6_HBP	3.6		12	500	0.30	8,000	400
MCI0603TG3N7_HBP	3.7		12	500	0.30	7,000	400
MCI0603TG3N8_HBP	3.8		12	500	0.35	7,000	350
MCI0603TG3N9_HBP	3.9		12	500	0.35	6,500	350
MCI0603TG4N3_HBP	4.3	H= $\pm$ 3% J= $\pm$ 5%	12	500	0.40	6,500	350
MCI0603TG4N7_HBP	4.7		12	500	0.40	6,500	350
MCI0603TG5N1_HBP	5.1		12	500	0.40	6,500	350
MCI0603TG5N6_HBP	5.6		12	500	0.44	6,000	300
MCI0603TG6N2_HBP	6.2		12	500	0.50	6,000	300
MCI0603TG6N8_HBP	6.8		12	500	0.53	5,400	300
MCI0603TG7N5_HBP	7.5		12	500	0.55	4,800	250
MCI0603TG8N2_HBP	8.2		12	500	0.62	4,800	250
MCI0603TG9N1_HBP	9.1		12	500	0.65	4,500	250
MCI0603TG10N_HBP	10		11	500	0.70	4,000	250
MCI0603TG12N_HBP	12		11	500	0.75	3,700	250
MCI0603TG15N_HBP	15		11	500	0.85	3,100	250
MCI0603TG18N_HBP	18		11	500	1.00	2,800	200
MCI0603TG22N_HBP	22		9	500	1.20	2,500	150
MCI0603TG27N_HBP	27	9	500	1.80	1,800	140	
MCI0603TG33N_HBP	33	J= $\pm$ 5%	7	300	2.10	1,700	120
MCI0603TG39N_HBP	39		7	300	2.40	1,500	120

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

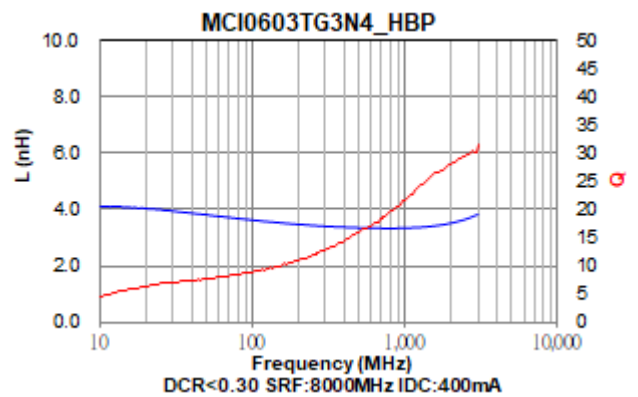
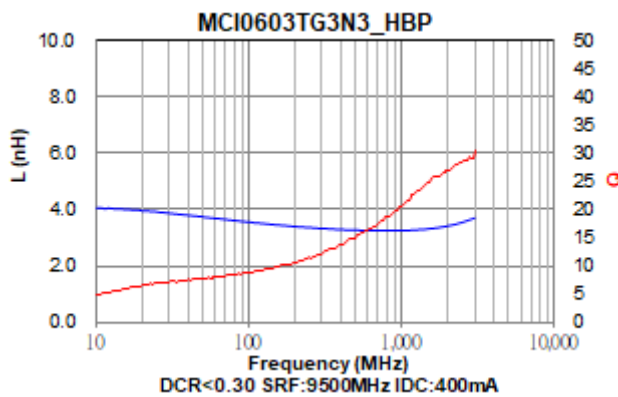
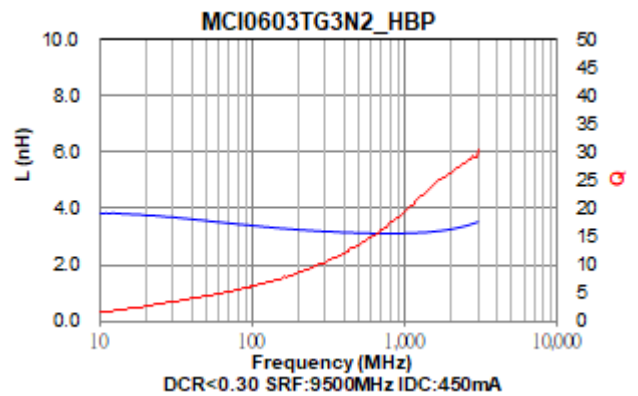
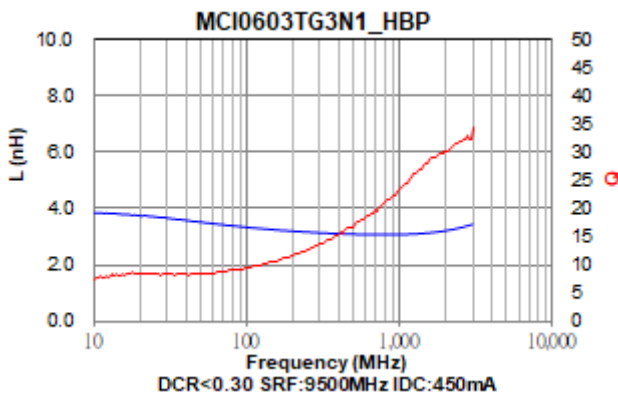
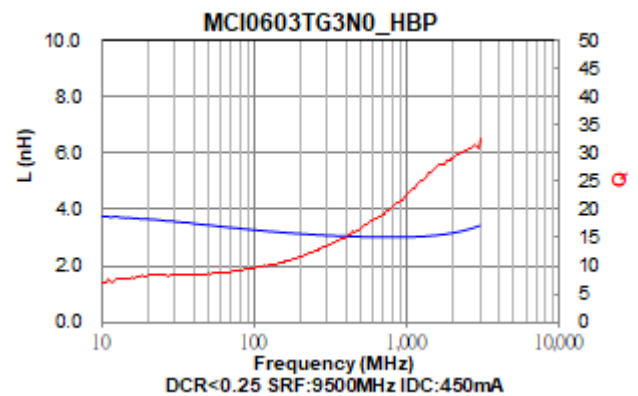
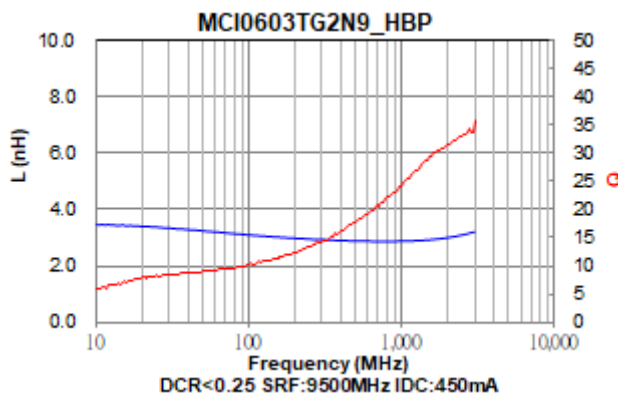
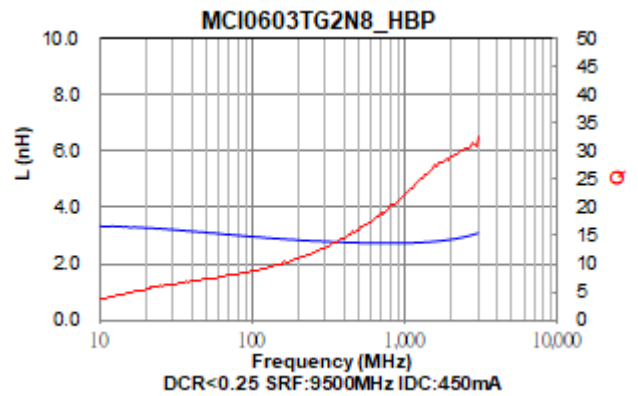
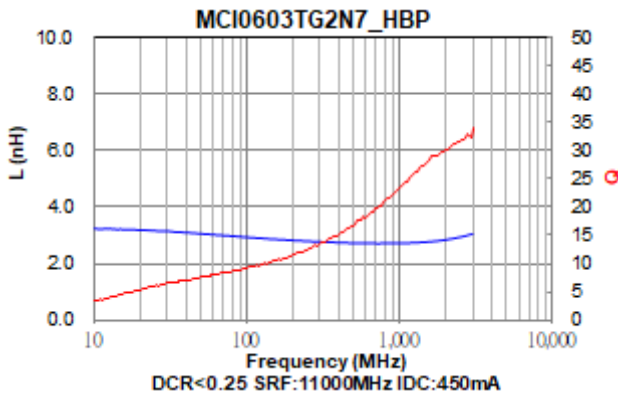
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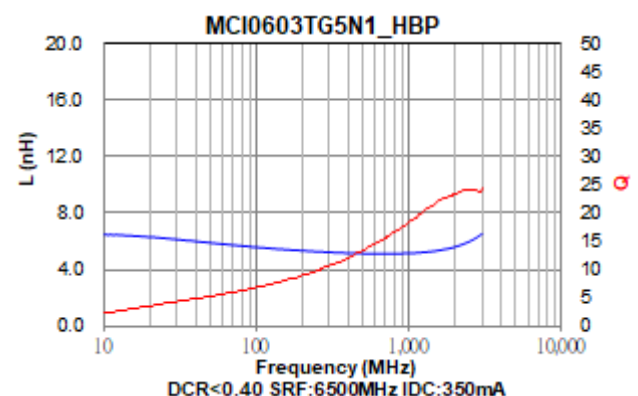
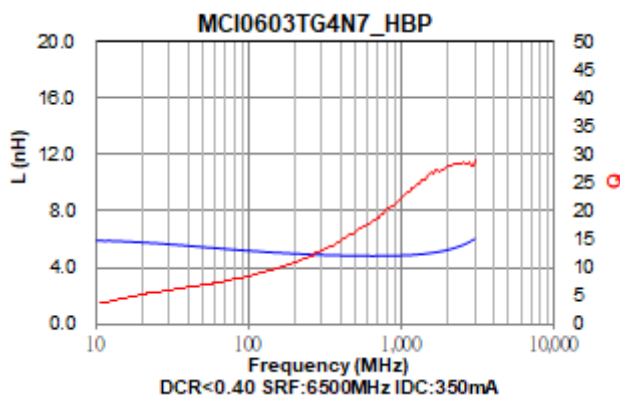
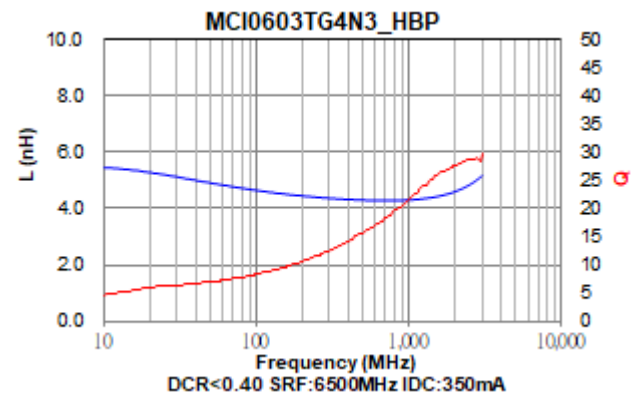
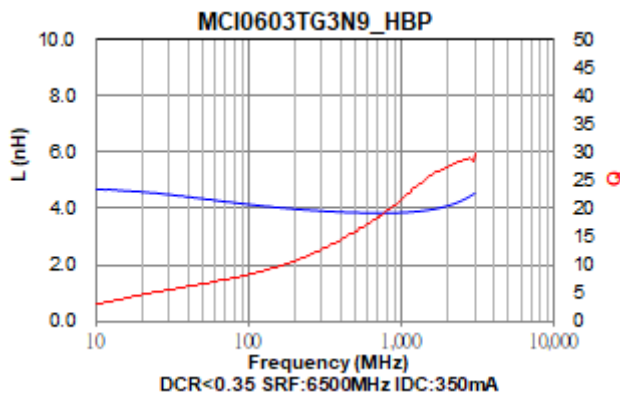
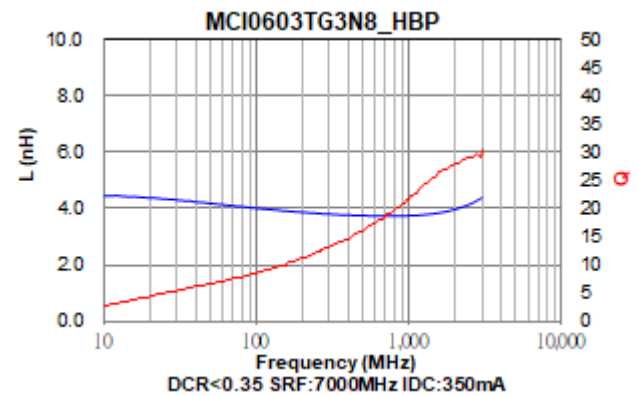
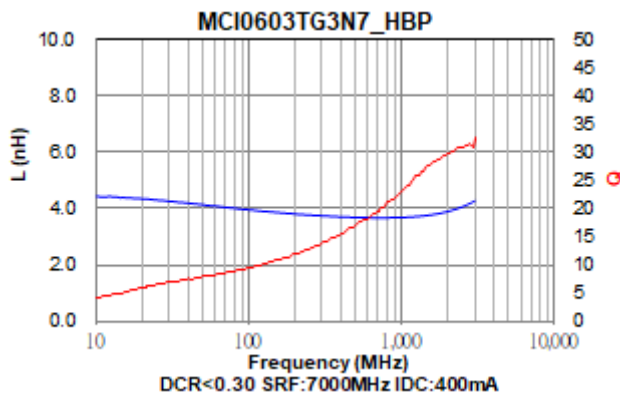
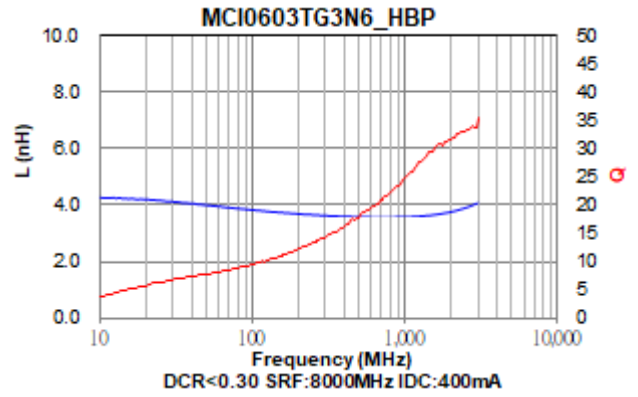
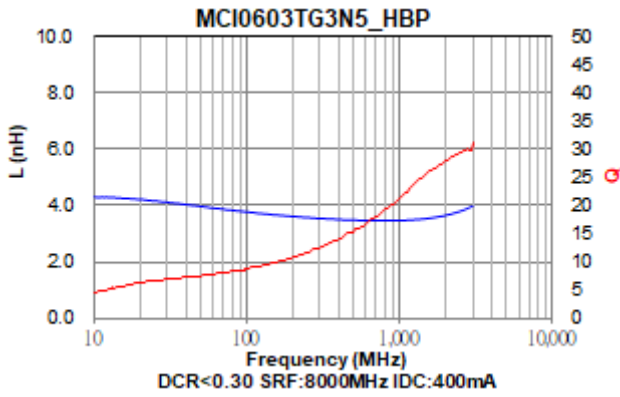


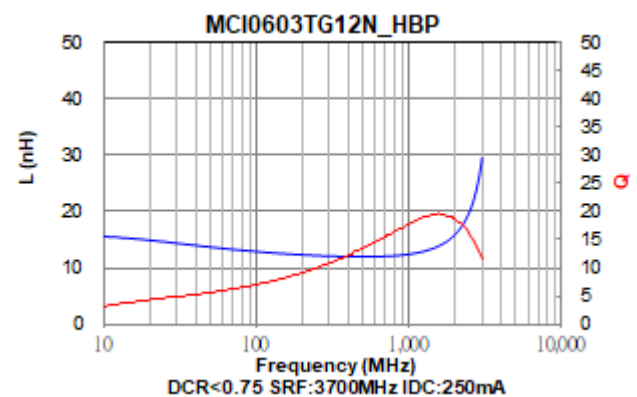
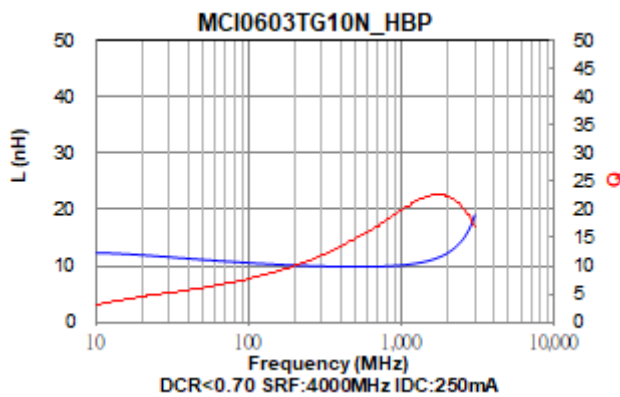
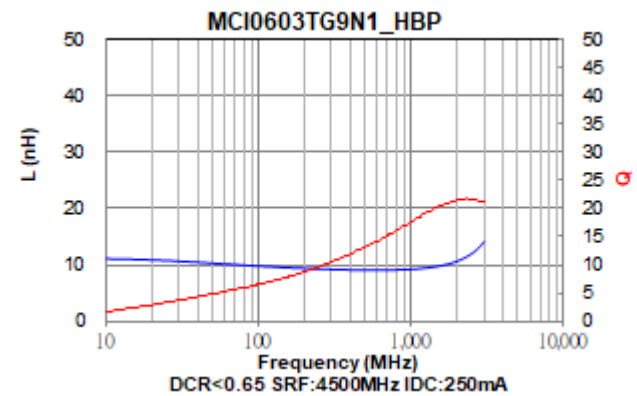
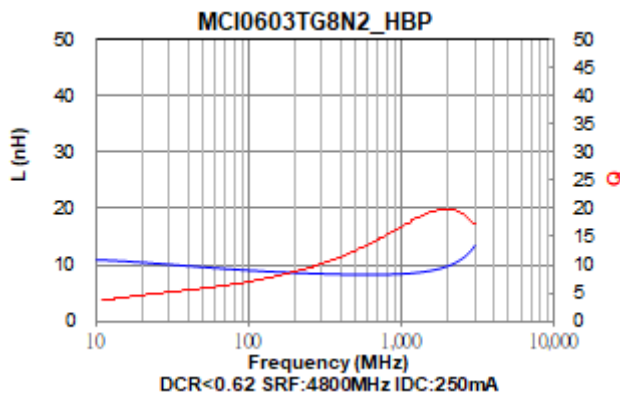
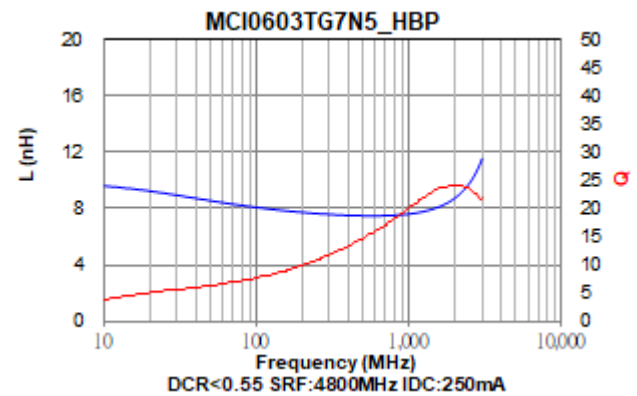
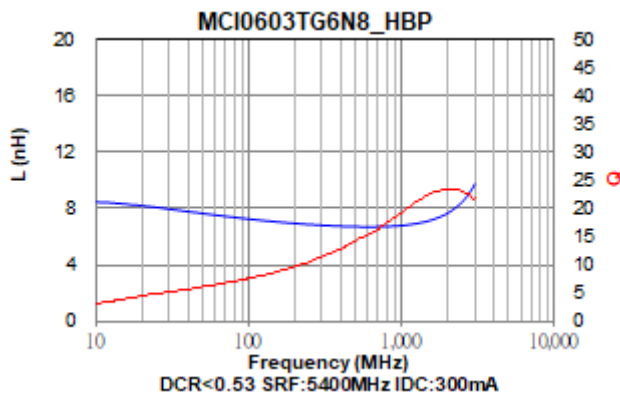
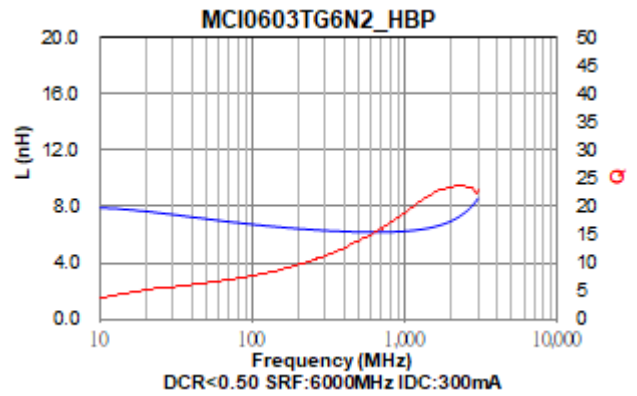
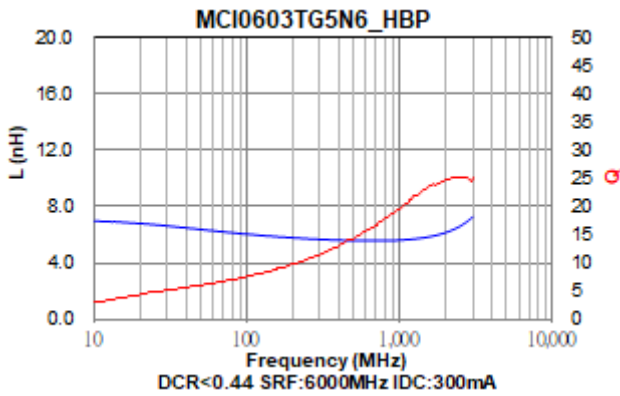


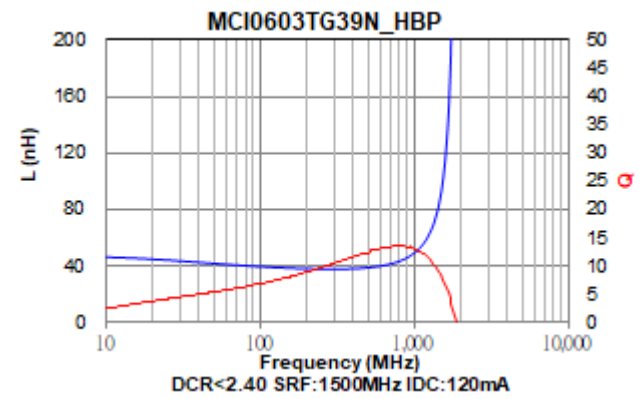
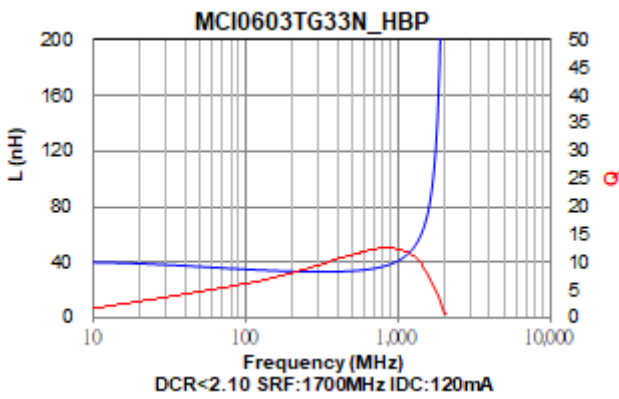
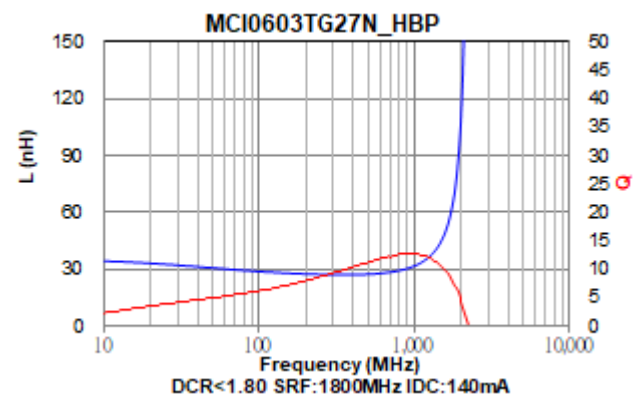
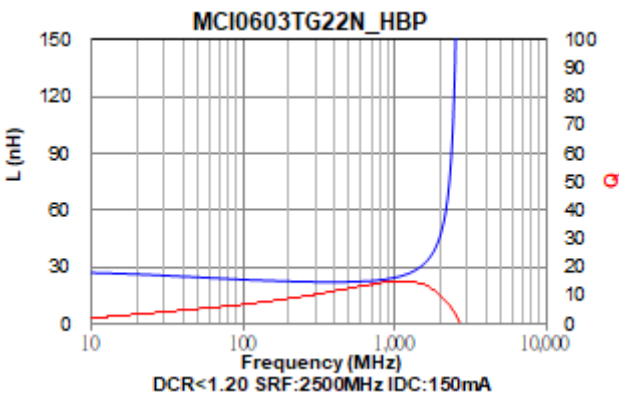
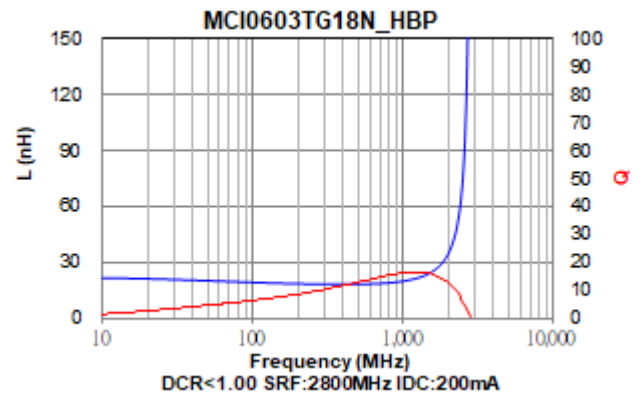
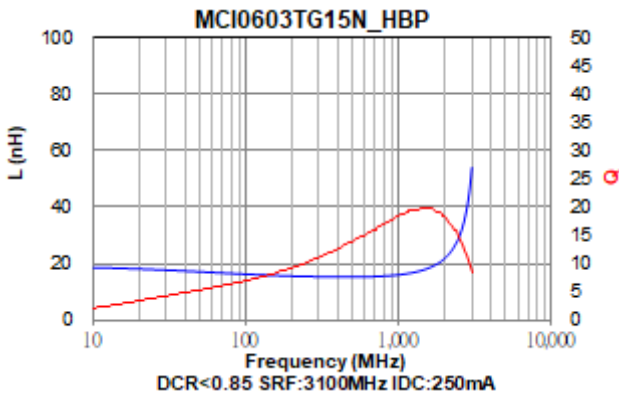






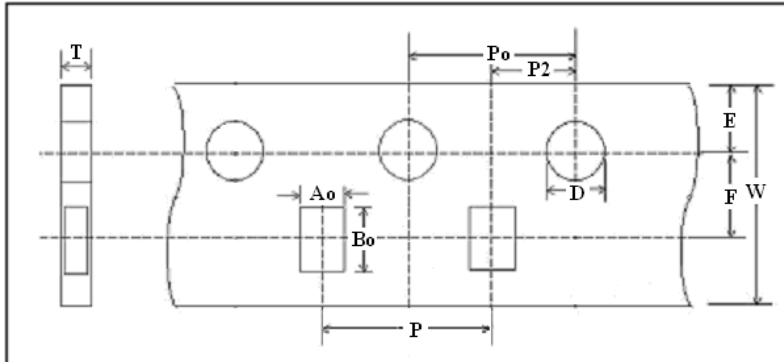






## ■ TAPE AND REEL SPECIFICATIONS

### ➤ Tape Dimension / 8mm

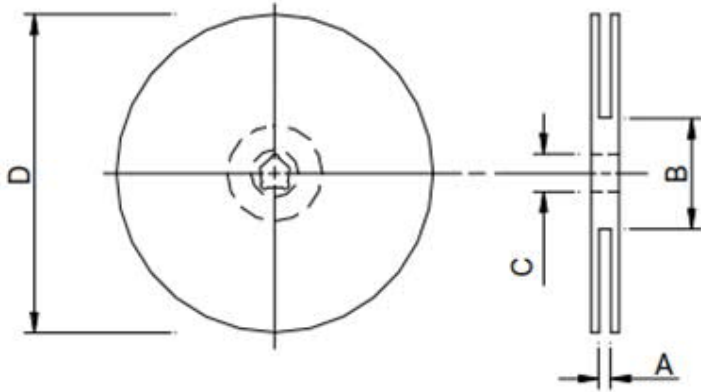


### ➤ Taping Dimension

Unit : mm

TYPE	<b>0603</b>
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 <sub>0</sub>	4.00 ± 0.10
P <sub>2</sub>	2.00 ± 0.05
A <sub>o</sub>	0.36 ± 0.02
B <sub>o</sub>	0.66 ± 0.02
T	0.42 ± 0.02

■ 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

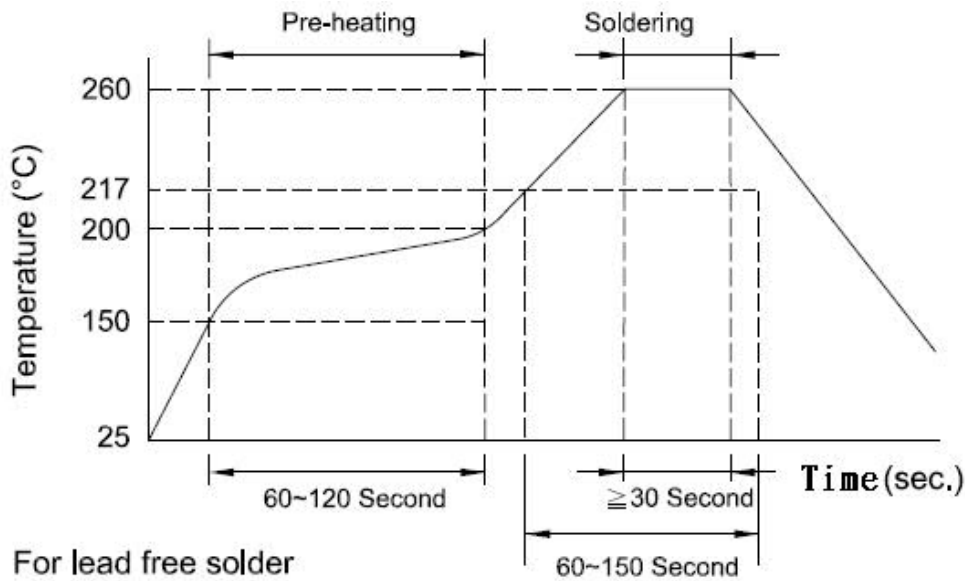
■ PACKAGING DIMENSION QUANTITY

Packaging style : Taping

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

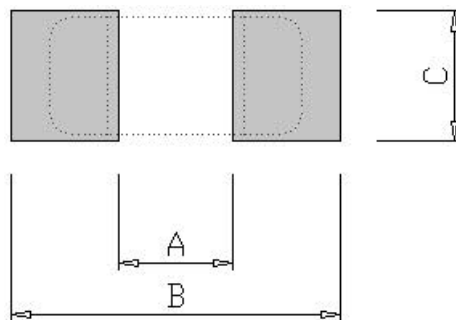
Per the box : 5 Reels

■ **RECOMMENDED SOLDERING CONDITIONS**



■ **LAND PATTERNS REFLOW SOLDERING**

Solder land information :

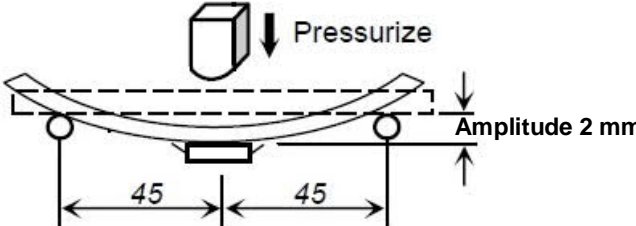


TYPE (mm)	A	B	C
0603 (EIA 0201)	0.20 ~ 0.30 (0.008 ~ 0.012)	0.80 ~ 0.90 (0.031 ~ 0.035)	0.20 ~ 0.30 (0.008 ~ 0.012)

■ **RELIABILITY AND TEST CONDITION**

Item	Test Condition	Requirements
<b>Thermal Shock</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
<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



Item	Test Condition	Requirements
<b>Bending Strength</b>	<p>1. Solder the chip to test jig then apply a force in the direction shown in below.</p> <p>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.