

Multilayer Ceramic Chip Inductors

MHI_D Series, 0603 Size

Features:

- RoHS compliant
- Excellent Q factor and SRF characteristics
- Small size of 1005/1608 is suitable for small portable devices
- Supports operating frequency up to 6GHz with nominal inductance values from 1.0nH to 470nH.

Applications:

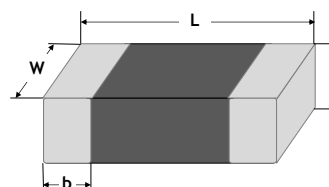
- RF resonance and impedance matching circuit
- RF and wireless communication
- Information technology equipment, computers, telecommunications, radar detectors, automotive electronics, cellular phones, pagers, PDAs, keyless remote systems
- L-C filter configurations

Ordering Code:

MHI	0603	D	10N	J	T
<u>Series Code</u>	<u>Size Code</u> inch (mm)	<u>Characteristic Code</u>	<u>Inductance Code</u>	<u>Tolerance Code</u>	<u>Package Code</u>
MHI: Multilayer ceramic chip inductor	0603 (1608)		1N0 = 1nH 10N = 10nH R10 = 100nH	J = $\pm 5\%$ K = $\pm 10\%$ S = $\pm 0.3nH$	T = Tape & Reel

Shape and Dimensions:

Unit (mm)	0603 (1608)
Length (L)	1.6 $\pm$ 0.15
Width (W)	0.8 $\pm$ 0.15
Thickness (T)	0.8 $\pm$ 0.15
Termination bandwidth (b)	0.3 $\pm$ 0.20



General Electrical Characteristics:

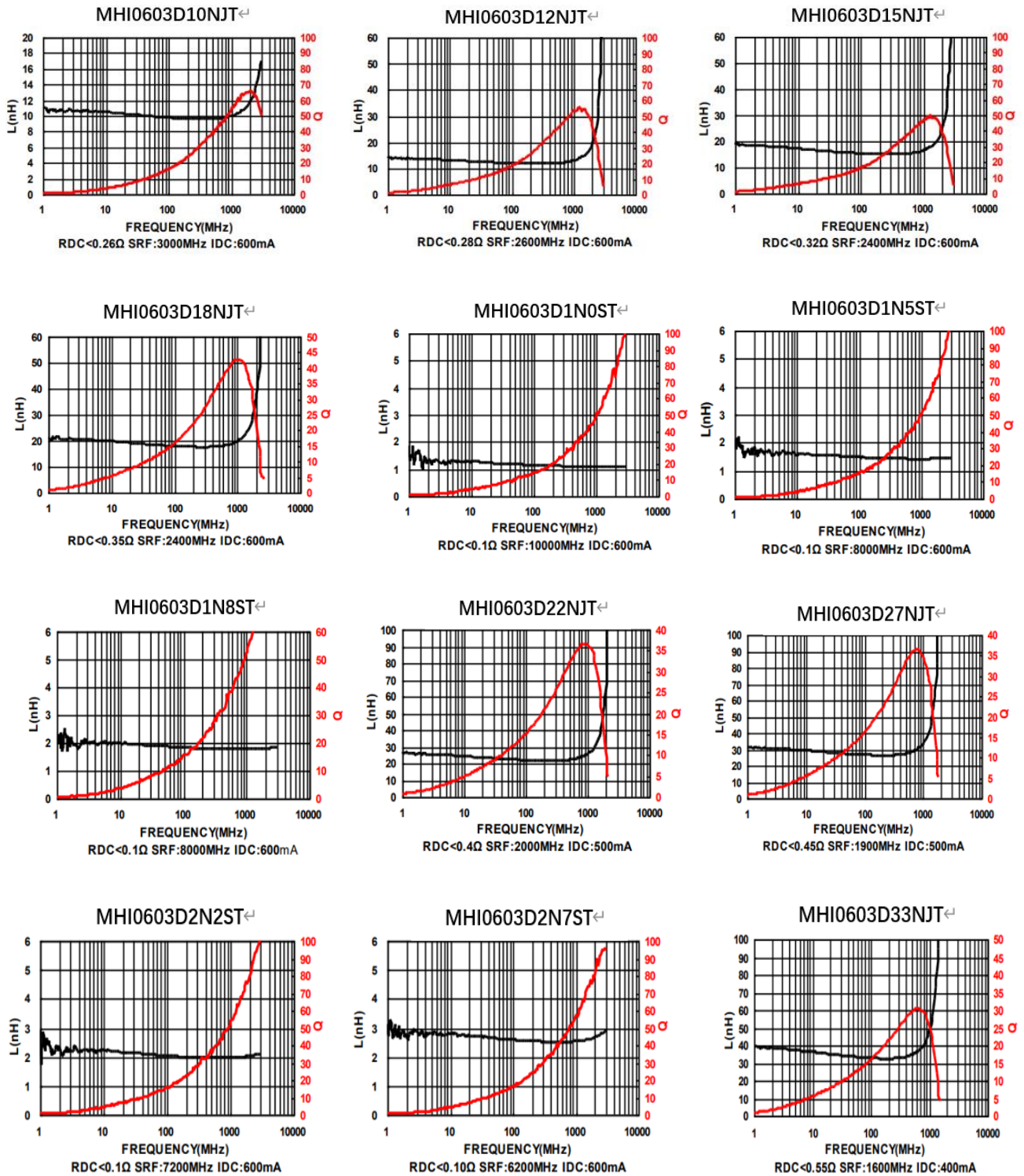
✧ Operating temperature: -55 to +125°C (including self-temperature rise)

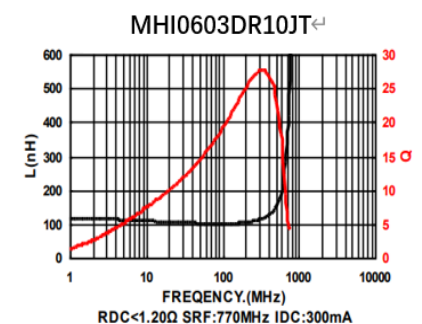
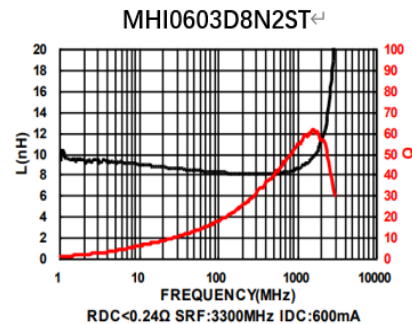
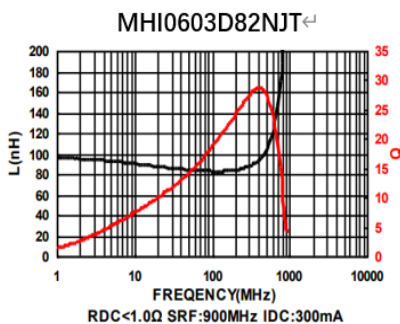
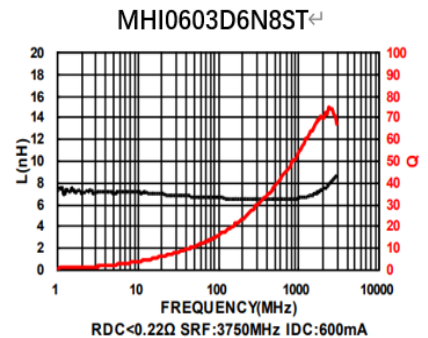
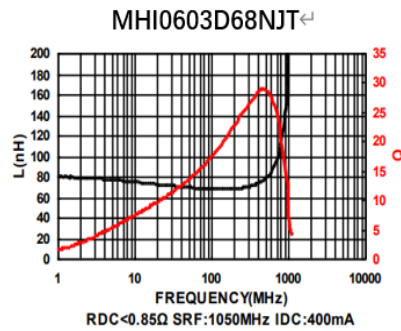
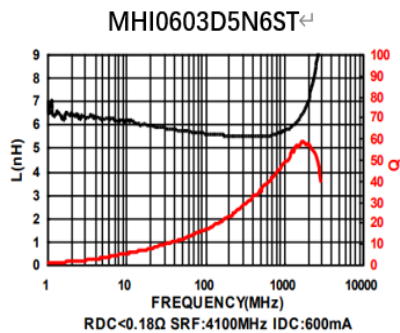
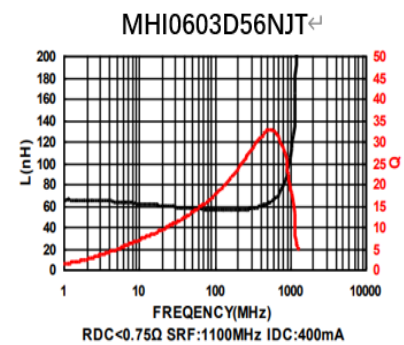
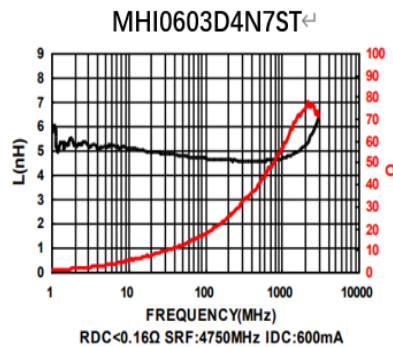
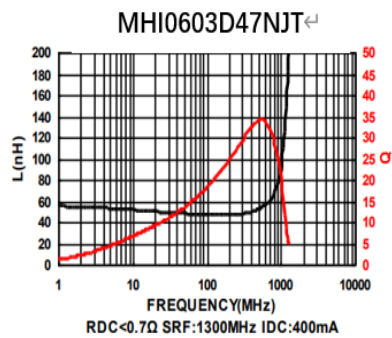
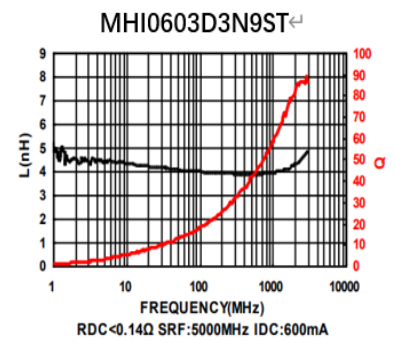
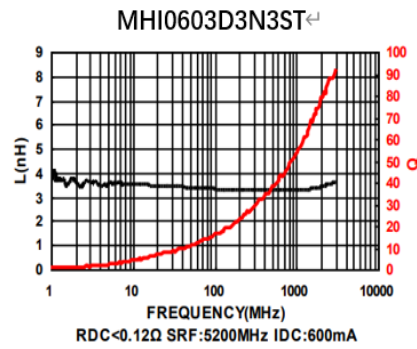
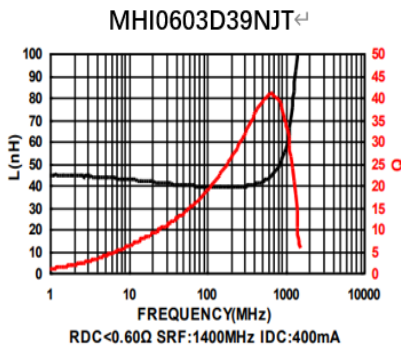
Part Number	Inductance (nH)	L Test Frequency	Q Min. @ 100MHz	SRF typ. (MHz)	RDC Max. (Ω)	IDC ¹ Max. (mA)	Tolerance
MHI0603D10NJT	10	100 MHz, 200 mV	12	3,000	0.26	600	5/10
MHI0603D12NJT	12	100 MHz, 200 mV	12	2,600	0.28	600	5/10
MHI0603D15NJT	15	100 MHz, 200 mV	12	2,500	0.32	600	5/10
MHI0603D18NJT	18	100 MHz, 200 mV	12	2,400	0.35	600	5/10
MHI0603D1N0ST	1.0	100 MHz, 200 mV	8	10,000	0.10	600	± 0.3nH
MHI0603D1N5ST	1.5	100 MHz, 200 mV	8	8,000	0.10	600	± 0.3nH
MHI0603D1N8ST	1.8	100 MHz, 200 mV	8	8,000	0.10	600	± 0.3nH
MHI0603D22NJT	22	100 MHz, 200 mV	12	2,000	0.40	500	5/10
MHI0603D27NJT	27	100 MHz, 200 mV	12	1,900	0.45	500	5/10
MHI0603D2N2ST	2.2	100 MHz, 200 mV	8	7,200	0.10	600	± 0.3nH
MHI0603D2N7ST	2.7	100 MHz, 200 mV	10	6,200	0.10	600	± 0.3nH
MHI0603D33NJT	33	100 MHz, 200 mV	12	1,600	0.55	400	5/10
MHI0603D39NJT	39	100 MHz, 200 mV	12	1,400	0.60	400	5/10
MHI0603D3N3ST	3.3	100 MHz, 200 mV	10	5,200	0.12	600	± 0.3nH/10
MHI0603D3N9ST	3.9	100 MHz, 200 mV	10	5,000	0.14	600	± 0.3nH/10
MHI0603D47NJT	47	100 MHz, 200 mV	12	1,300	0.70	400	5/10
MHI0603D4N7ST	4.7	100 MHz, 200 mV	10	4,750	0.16	600	± 0.3nH/10
MHI0603D56NJT	56	100 MHz, 200 mV	12	1,100	0.75	400	5/10
MHI0603D5N6ST	5.6	100 MHz, 200 mV	10	4,100	0.18	600	± 0.3nH/10
MHI0603D68NJT	68	100 MHz, 200 mV	12	1,050	0.85	400	5/10
MHI0603D6N8ST	6.8	100 MHz, 200 mV	10	3,750	0.22	600	5/10
MHI0603D82NJT	82	100 MHz, 200 mV	12	900	1.00	300	5/10
MHI0603D8N2ST	8.2	100 MHz, 200 mV	10	3,300	0.24	600	5/10
MHI0603DR10JT	100	100 MHz, 200 mV	12	770	1.20	300	5/10
MHI0603DR12JT	120	100 MHz, 200 mV	8	650	1.30	300	5/10
MHI0603DR15JT	150	100 MHz, 200 mV	8	2,400	1.70	250	5/10
MHI0603DR18JT	180	100 MHz, 200 mV	8	2,400	1.90	250	5/10
MHI0603DR22JT	220	100 MHz, 200 mV	8	2,000	2.00	250	5/10

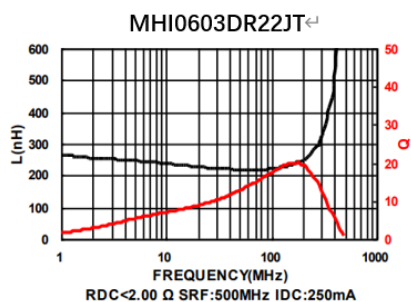
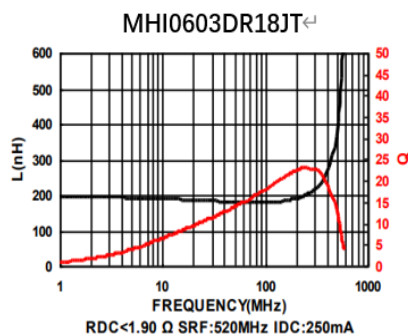
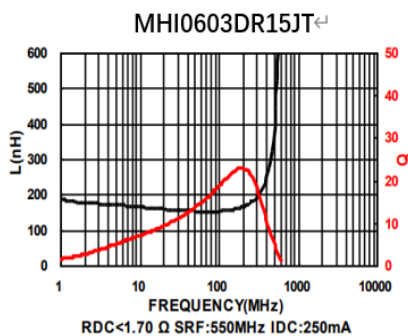
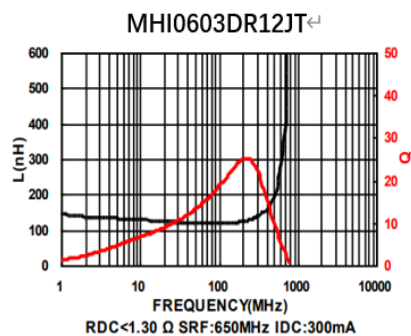
¹ IDC: Applied the current to coils, the inductance shall be less than 10% initial value.

High Frequency Characteristics:

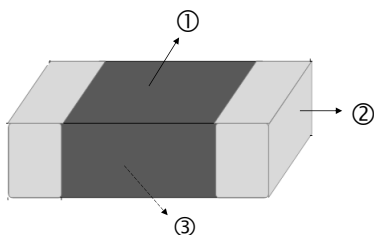
Test Instruments : Agilent E4991A Material/Impedance Analyzer





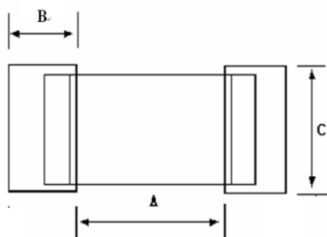


Construction and Materials:



Body ①	Al ₂ O ₃ /SiO ₂ base ceramic
Termination ②	Ag/Cu/Ni/Sn
Inner electrode ③	Ag

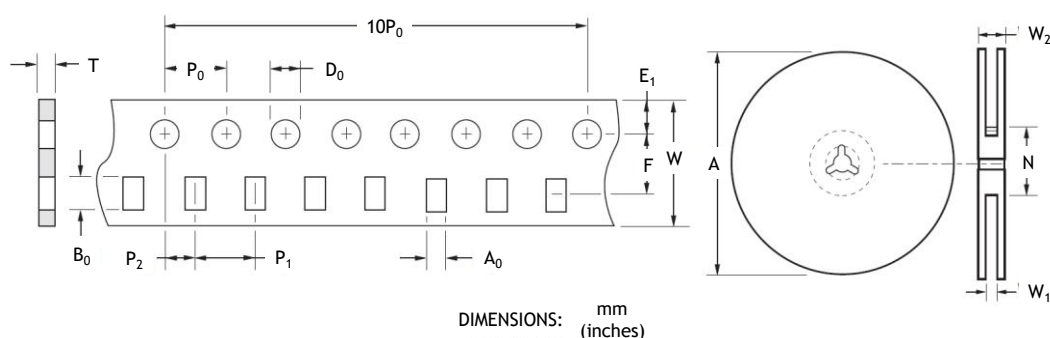
Recommended Foot Print Dimensions:



Size	A (mm)	B (mm)	C (mm)
0603	0.70~0.80	0.55~0.60	0.80~0.90

Tape and Reel Specifications:

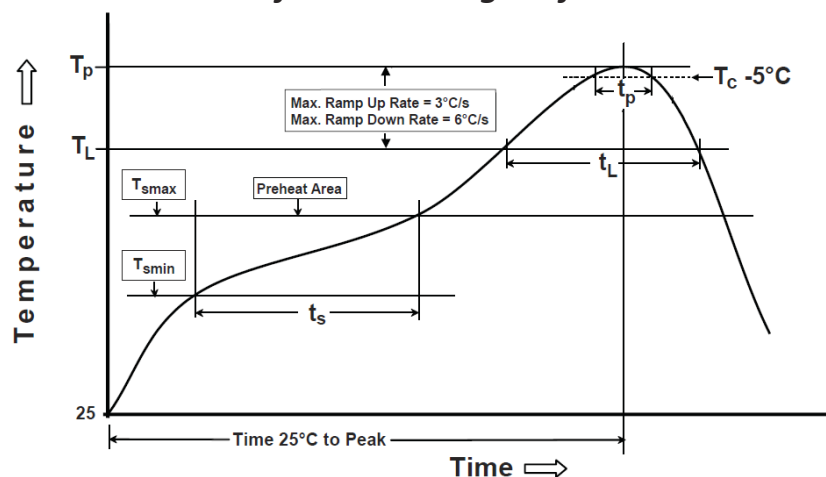
Dimensions (Tape)	MHI0603D Series	Dimensions (Reel)	MHI0603D Series
W	8.0±0.1 (0.315±0.004)	A max.	178 (7.01)
P ₀	4.0±0.1 (0.157±0.004)	N min.	60 (2.362)
P ₁	4.0±0.05 (0.157±0.002)	W ₁	9.0 (0.354)
P ₂	2.0±0.05 (0.079±0.002)	W ₂	12 (0.472)
A ₀	1.0±0.1 (0.039±0.004)		
B ₀	1.8±0.1 (0.071±0.004)		
D ₀	1.55±0.1 (0.061±0.004)		
F	3.5±0.05 (0.138±0.002)		
E ₁	1.75±0.1 (0.069±0.004)		
T	0.95±0.05 (0.037±0.002)		
10P ₀	40.0±0.1 (1.575±0.004)		



Packaging:

Chip Size	Parts on 7 inch (178mm) Reel
0603	4,000

Recommended Reflow Soldering Profile:



Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Min (T_{smin})	150°C
Temperature Max(T_{smax})	200°C
Time(t_s) from (T_{smin} to T_{smax})	60~120 seconds
Ramp-up rate (T_L to T_p)	3°C/second max.
Liquidous temperature(T_L)	217°C
Time(t_L) maintained above T_L	60~150 seconds
Peak package body temperature (T_p)	260°C
Time (t_p)*within 5°C of the specified classification temperature (T_c)	30 seconds *
Ramp-down rate (T_p to T_L)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum	

Do not use this product in any Automotive Power train or Safety equipment such as ECU, ABS systems, or Battery Pack, Battery Management System, Battery Charger for Electric Vehicles and Plug-in Hybrid Vehicles. Only AEM products clearly described as "for Automotive Use" on its catalog can be used for automobile applications such as Power train and Safety equipment.