

Multilayer Chip Inductor for Choke – MCL – N Series



Operating Temp ◆ $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

Features

- ◆ Monolithic structure for high reliability
- ◆ Excellent solderability and high heat resistance
- ◆ No cross coupling due to magnetic shield
- ◆ High DC bias current due to developed material
- ◆ Low AC resistance, low power loss.

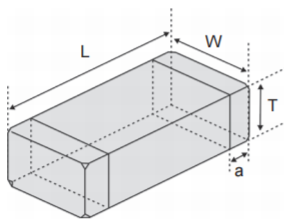
Applications

- ◆ NFC output filtering and matching circuit, Power line, etc

Product Identification

1 MCL	2 1608	3 N	4 R16	5 J	6 T														
1 Type <table><tr><td>MCL</td><td>Chip Power Inductor</td></tr></table>		MCL	Chip Power Inductor	2 External Dimensions (L×W) (mm) <table><tr><td>1005 [0402]</td><td>1.0×0.5</td></tr><tr><td>1608 [0603]</td><td>1.6×0.8</td></tr></table>		1005 [0402]	1.0×0.5	1608 [0603]	1.6×0.8	3 Feature Type <table><tr><td>N</td><td>NFC</td></tr></table>		N	NFC						
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4 Nominal Inductance <table><tr><td>Example</td><td>Nominal Value</td></tr><tr><td>R16</td><td>0.16μH</td></tr><tr><td colspan="2">※R=decimal point</td></tr></table>		Example	Nominal Value	R16	0.16μH	※R=decimal point		5 Inductance Tolerance <table><tr><td>J</td><td>±5%</td></tr><tr><td>K</td><td>±10%</td></tr><tr><td>M</td><td>±20%</td></tr></table>		J	±5%	K	±10%	M	±20%	6 Packing <table><tr><td>T</td><td>Tape & Reel</td></tr></table>		T	Tape & Reel
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T	Tape & Reel																		

Shape and Dimensions



Unit mm [inch]

Type	L	W	T	a
MCL1005N [0402]	1.0±0.15 [0.039±0.006]	0.5±0.15 [0.020±0.006]	0.5±0.15 [0.020±0.006]	0.25±0.1 [0.010±0.004]
MCL1608N [0603]	1.60±0.15 [0.063±0.006]	0.8±0.15 [0.031±0.006]	0.8±0.15 [0.031±0.006]	0.3±0.2 [0.012±0.008]
MCL1608N-A01 [0603]	1.60±0.15 [0.063±0.006]	0.8±0.15 [0.031±0.006]	0.55±0.1 [0.021±0.004]	0.3±0.2 [0.012±0.008]

Specifications

MCL1005N TYPE

Part Number	Inductance	L Test Freq.	DC Resistance	Min. Self-resonant Frequency	Saturation Current Typ.	Heat Rating Current Max.
Units	nH	MHz	Ω	MHz	mA	mA
Symbol	L	Freq.	DCR	S.R.F	Isat	Irms
MCL1005N77N □ T	77	25	0.27	200	550	550
MCL1005N96N □ T	96	25	0.35	200	500	500
MCL1005NR10 □ T	100	25	0.35	200	500	500
MCL1005NR11 □ T	110	25	0.39	200	450	450
MCL1005NR12 □ T	120	25	0.39	200	450	450
MCL1005NR13 □ T	130	25	0.39	200	450	450
MCL1005NR14 □ T	140	25	0.45	200	450	450
MCL1005NR15 □ T	150	25	0.45	200	450	450
MCL1005NR16 □ T	160	25	0.52	200	550	400
MCL1005NR18 □ T	180	25	0.58	200	370	400
MCL1005NR20 □ T	200	25	0.58	200	370	400
MCL1005NR22 □ T	220	25	0.58	180	370	400
MCL1005NR27 □ T	270	25	0.65	180	350	350
MCL1005NR33 □ T	330	25	0.65	120	300	350
MCL1005NR39 □ T	390	25	0.97	120	300	300
MCL1005NR47 □ T	470	25	0.97	120	250	300
MCL1005NR56 □ T	560	25	1.40	120	250	250

MCL1608N TYPE

Part Number	Inductance	L Test Freq.	DC Resistance	Min. Self-resonant Frequency	Saturation Current Typ.	Heat Rating Current Max.
Units	nH	MHz	Ω	MHz	mA	mA
Symbol	L	Freq.	DCR	S.R.F	Isat	Irms
MCL1608N77N □ T	77	25	0.11	200	1100	1100
MCL1608N85N □ T	85	25	0.11	200	1100	1100
MCL1608NR10 □ T	100	25	0.12	200	1000	1000
MCL1608NR12 □ T	120	25	0.14	200	1000	800
MCL1608NR16 □ T	160	25	0.156	200	1100	700
MCL1608NR20 □ T	200	25	0.22	200	700	650
MCL1608NR21 □ T	210	25	0.26	200	700	600
MCL1608NR22 □ T	220	25	0.26	200	700	600
MCL1608NR27 □ T	270	25	0.286	200	650	550
MCL1608NR33 □ T	330	25	0.312	180	650	500
MCL1608NR39 □ T	390	25	0.36	180	600	450
MCL1608NR47 □ T	470	25	0.494	120	600	400
MCL1608NR56 □ T	560	25	0.52	120	550	400
MCL1608NR65 □ T	650	25	0.65	100	450	350
MCL1608NR82 □ T	820	25	0.75	80	400	300

MCL1608N-A01 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance	Min. Self-resonant Frequency	Saturation Current Typ.	Heat Rating Current Max.
Units	nH	MHz	Ω	MHz	mA	mA
Symbol	L	Freq.	DCR	S.R.F	Isat	Irms
MCL1608NR16 □ TA01	160	25	0.156	300	550	700
MCL1608N2R2MTA01	2200	1	0.3	80	130 Isat1	800

※ Isat: DC current at which the inductance drops approximate 10% from its value without current;

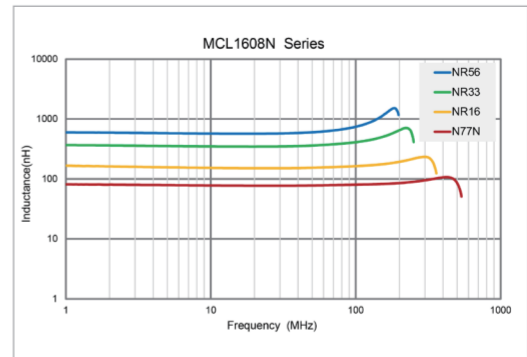
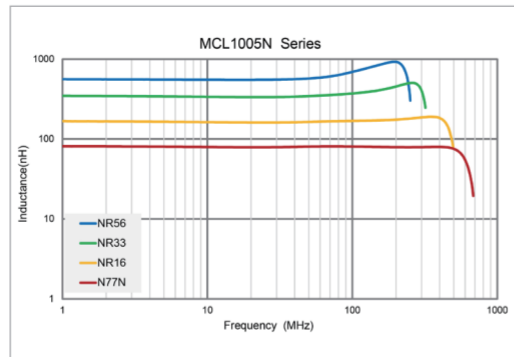
※ Isat1: DC current at which the inductance drops approximate 30% from its value without current;

※ Irms: DC current that causes the temperature rise ($\Delta T=25^{\circ}\text{C}$) from 20°C ambient.

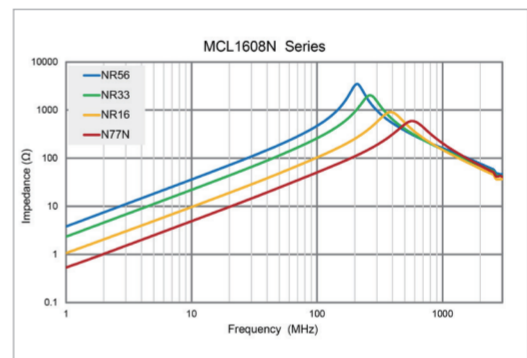
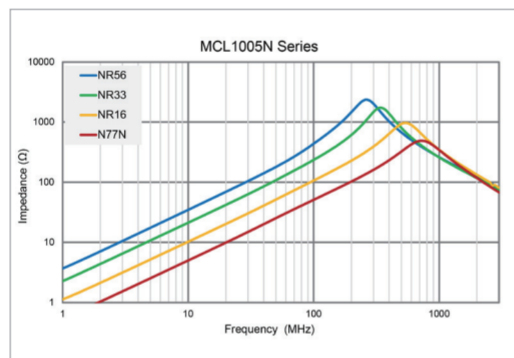
※ □: Please specify the inductance tolerance code (J=±5%,K=±10%,M=±20%).

Typical Electrical Characteristics

Inductance vs. Frequency Characteristics



Impedance vs. Frequency Characteristics



Inductance vs. DC Current Characteristics

