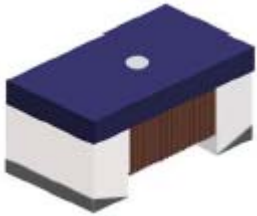


Wire Wound Chip Inductor



Features:

- Wire wound ceramic construction provide high SRF.
- Ultra-compact inductors provide exceptional Q values.
- Low profile, high current are available.
- Miniature SMD chip inductor for fully automated assembly.
- Outstanding endurance from pull-up force, mechanical shock and pressure.
- Tighter tolerance down to $\pm 2\%$.
- Smaller size of 0402 (1005).

Applications:

RF products:

Cellular phone (CDMA/GSM/PHS).

Cordless phone (DECT/CT1CT2).

Remote control, security system.

Wireless PDA.

WLL, wireless LAN/mouse/keyboard/earphone.

VCO, RF module and other wireless products.

Base station, repeater.

GPS receiver.

Broad Band Applications:

CATV filter, tuner.

Cable modem/XDSL tuner.

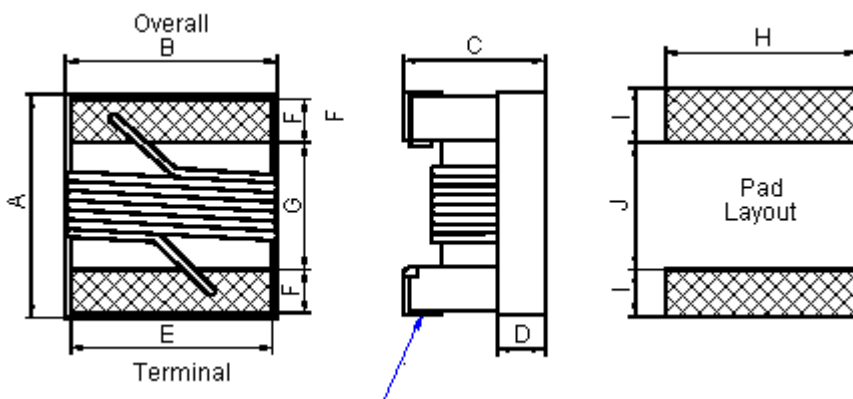
Set top box.

IT Applications:

USB 2.0.

IEEE 1394.

Dimensions



Terminal wraparound : approximately 0.007 inches/0.18mm both ends

Dimensions : Millimetres

Wire Wound Chip Inductor



Standard

Series	A (Maximum)	B (Maximum)	C (Maximum)	D (Reference)	E	F	G	H	I	J
0402	1.27	0.76	0.61	0.15	0.51	0.23	0.56	0.66	0.50	0.46
0603	1.80	1.12	1.02	0.38	0.76	0.33	0.86	1.02	0.64	0.64
0805	2.29	1.73	1.52	0.51	1.27	0.44	1.02	1.78	1.02	0.76
1206	3.56	2.16		0.50	1.60	0.50	2.20	1.93		1.78

Dimensions : Millimetres

Low Profile

Series	A (Maximum)	B (Maximum)	C (Maximum)	D (Reference)	E	F	G	H	I	J
0805	2.29	1.73	1.03	0.51	1.27	0.44	1.02	1.78	1.02	0.76

Dimensions : Millimetres

High Current/High Q

Series	A (Maximum)	B (Maximum)	C (Maximum)	D (Reference)	E	F	G	H	I	J
0603	1.80	1.12	1.02	0.38	0.76	0.33	0.86	1.02	0.64	0.64
0805	2.29	1.73	1.52	0.51	1.27	0.44	1.02	1.78	1.02	0.76

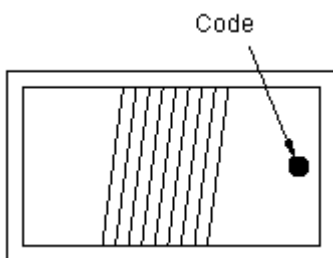
Dimensions : Millimetres

Colour Coding

0603/0805/1206 series (0402 series is no colour coding)

Because of small sizes, these parts are marked with a single colour dot.

The inductance value represented by the dot is shown on the data page for each series.



Colour Coding

Wire Wound Chip Inductor



Standard Electrical Specifications

0402 Wire Wound Chip Inductors/Standard

Inductance (nH)	Tolerance (%)	Quality Factor/Minimum	Self Resonant Frequency/Minimum (GHz)	Resistance DC/Maximum (Ω)	Current DC/Maximum (mA)	900MHz		1.7GHz		
						L	Q	L	Q	
1.0 at 250MHz	10	16	12.70	0.045	1360	1.02	77	1.02	69	
2.2 at 250MHz	10, 5	19	10.80	0.070	960	2.19	59	2.23	100	
3.3 at 250MHz			7.00	0.066	840	3.10	65	3.12	87	
4.7 at 250MHz	10, 5, 2	18	4.70	0.130	640	4.55	48	4.68	68	
6.8 at 250MHz		20	4.80	0.083	680	6.56	63	6.93	78	
10 at 250MHz		21	3.90	0.195	480	9.80	50	10.10	67	
12 at 250MHz		24	24	3.60	0.120	640	11.90	53	12.70	71
15 at 250MHz				3.28	0.172	560	14.60	55	15.50	77
18 at 250MHz		25	25	3.10	0.230	420	18.30	57	20.30	62
22 at 250MHz				2.80	0.300	400	23.20	53	26.80	53
27 at 250MHz		24	24	2.48			28.70	49	33.50	63
33 at 250MHz				2.35	0.350	34.90	31	41.70	32	
39 at 250MHz		25	25	2.10	0.550	200	41.70	47	50.20	45
47 at 250MHz					0.830	150	50.00	38	55.80	37
56 at 250MHz					100	1.76	0.970	57.40	49	72.40
68 at 250MHz		22	1.62	1.120		69.60	45	83.40	38	

Wire Wound Chip Inductor



Standard Electrical Specifications

0603 Wire Wound Chip Inductors/Standard

Inductance (nH)	Tolerance (%)	Quality Factor/Minimum	Self Resonant Frequency/ Minimum (GHz)	Resistance DC/Maximum (Ω)	Current DC/Maximum (mA)	900MHz		1.7GHz		Colour Code	
						L	Q	L	Q		
2.2 at 250MHz	10, 5	15	6.00	0.100	700	2.18	41	2.20	64	White	
3.3 at 250MHz		22	>6.00	0.080		3.35	47	3.40	65	Red	
4.7 at 250MHz		25	5.80	0.120		4.65	53	4.80	67	Violet	
6.8 at 250MHz		27		0.110		6.75	60	7.10	81	Red	
10.0 at 250MHz		31	4.80	0.130		10.0	66	10.6	83	Orange	
12.0 at 250MHz		35	4.00			12.3	72	13.5		Yellow	
15.0 at 250MHz			3.10	0.170		15.4	64	16.8	89	Green	
18.0 at 250MHz			38	3.00		0.190	18.7	70	21.4	69	Blue
22.0 at 250MHz			40	2.80		0.220	22.8	73	26.1	71	Violet
27.0 at 250MHz		40	2.30	29.2			74	34.6	65	Gray	
33.0 at 250MHz			2.20	0.250	36.0		67	49.5	42	White	
39.0 at 250MHz			38	2.00	0.280	42.7	60	60.2	40	Black	
47.0 at 200MHz		1.90		0.310	52.2	62	77.2	35	Brown		
56.0 at 200MHz		37		1.70	0.340	62.5	56	97.0	26	Red	
68.0 at 200MHz		34		1.40	0.540	80.5	54	168	21	Orange	
82.0 at 150MHz			96.2			177		Green			
100 at 150MHz		32	1.30	0.580	124.0	49	319.5	13	Blue		
120 at 150MHz					300	166.0	39	529.3	8	Gray	
150 at 100MHz		28	0.950	280	230.0	25	-	-	White		
180 at 100MHz		25	1.25	1.400	250	305.0	22	-	-	Black	
220 at 100MHz	1.20		1.600	377.0		21	-	-	Brown		
270 at 100MHz	2.100		200	523.0	19	-	-	Red			
330 at 100MHz	0.90		3.800	100	680.4	20	-	-	Blue		
390 at 100MHz					734.5	29	-	-	Yellow		
470 at 100MHz	23		0.60	3.600	80	-	-	-	White		

Wire Wound Chip Inductor



Standard Electrical Specifications

0805 Wire Wound Chip Inductors/Standard

Inductance (nH)	Tolerance (%)	Quality Factor/Minimum	Self Resonant Frequency/Minimum (GHz)	Resistance DC/Maximum (Ω)	Current DC/Maximum (mA)	Colour Code	
10.0 at 250MHz	10, 5, 2	60 at 500MHz	4.200	0.10	600	Blue	
12.0 at 250MHz		50 at 500MHz	4.000	0.15		Orange	
15.0 at 250MHz			3.400	0.17		Yellow	
18.0 at 250MHz			3.300	0.20		Green	
22.0 at 250MHz			2.600	0.22		Blue	
27.0 at 250MHz			55 at 500MHz	2.500	0.25	Violet	
33.0 at 250MHz		60 at 500MHz	2.050	0.27	500	Gray	
39.0 at 250MHz			2.000	0.29		White	
47.0 at 200MHz			1.650	0.31		Black	
56.0 at 200MHz			1.550	0.34		Brown	
68.0 at 200MHz			1.450	0.38		Red	
82.0 at 150MHz		65 at 500MHz	1.300	0.42	400	Orange	
100 at 150MHz			1.200	0.46		Yellow	
120 at 150MHz		50 at 250MHz	1.100	0.51		Green	
150 at 100MHz			0.920	0.56		Blue	
180 at 100MHz			0.870	0.64		Violet	
220 at 100MHz		48 at 250MHz	0.850	0.70	350	Gray	
270 at 100MHz			0.650	1.00		White	
300 at 100MHz			0.600	1.40		310	Black
390 at 100MHz		33 at 100MHz	0.560	1.50	290	Brown	
470 at 50MHz			0.375	1.70		250	Red
560 at 25MHz		23 at 50MHz	0.340	1.90	230	Orange	
680 at 25MHz			0.200	2.20		190	Green
820 at 25MHz			2.35	180		Violet	
1000 at 25MHz		20 at 50MHz	0.100	2.50	170	Gray	
1,500 at 7.9MHz		16 at 25MHz				Black	
2,200 at 7.9MHz		16 at 7.9MHz	0.060	2.70	160	Red	
3,300 at 7.9MHz		15 at 7.9MHz	0.040		90	Blue	
4,700 at 7.9MHz						Green	

Wire Wound Chip Inductor



Standard Electrical Specifications

1206 Wire Wound Chip Inductors/Standard

Inductance (nH)	Tolerance (%)	Quality Factor/Minimum	Self Resonant Frequency/Minimum (GHz)	Resistance DC/Maximum (Ω)	Current DC/Maximum (mA)	Colour Code	
10.0 at 100MHz	10, 5	40 at 300MHz	4.00	0.08	1000	Red	
15.0 at 100MHz			3.20	0.10		Yellow	
22.0 at 100MHz			2.20			Blue	
33.0 at 100MHz	10, 5, 2	50 at 300MHz	1.80	0.11	950	Gray	
47.0 at 100MHz			1.50	0.13		Black	
68.0 at 100MHz		55 at 300MHz	1.20	0.26	750	Red	
150 at 100MHz			60 at 300MHz	0.95	0.31	750	Blue
220 at 50MHz		45 at 150MHz	55 at 300MHz	0.76	0.50	670	Gray
330 at 50MHz			0.65	0.62	590	Black	
470 at 50MHz			0.55	1.30	490	Red	
680 at 35MHz			0.45	1.58	430	Yellow	
1000 at 35MHz	0.40		2.80	320	Blue		

Standard Electrical Specifications

0805 Wire Wound Chip Inductors/Low Profile

Inductance (nH)	Tolerance (%)	Quality Factor/Minimum	Self Resonant Frequency/Minimum (GHz)	Resistance DC/Maximum (Ω)	Current DC/Maximum (mA)	Colour Code
10.0 at 250MHz	10, 5, 2	55 at 750MHz	3.30	0.08	800	Green
12.0 at 250MHz			3.80	0.10		Blue
15.0 at 250MHz			2.95			Violet
18.0 at 250MHz		50 at 500MHz	3.10	0.13	600	Gray
22.0 at 250MHz			2.90	0.15		White
27.0 at 250MHz			2.45	0.23	600	Black
33.0 at 250MHz			2.35	0.28	Brown	
39.0 at 250MHz			2.20	0.33	Red	
47.0 at 200MHz			2.00	0.39	Orange	
56.0 at 200MHz			1.85		500	Yellow
68.0 at 200MHz			1.50	0.40	Green	
82.0 at 150MHz		0.44		Blue		
100.0 at 150MHz		1.20	0.64	400	Violet	
120.0 at 150MHz		40 at 250MHz	1.15	0.68	300	Gray
150.0 at 150MHz			1.05	0.80		White
1000.0 at 25MHz	16 at 50MHz	0.08	3.50	170	Black	

Wire Wound Chip Inductor



Standard Electrical Specifications

0603 Wire Wound Chip Inductors/High Current

Inductance (nH)	Tolerance (%)	Quality Factor/Minimum	Self Resonant Frequency/Minimum (GHz)	Resistance DC/Maximum (Ω)	Current DC/Maximum (mA)	Colour Code
6.8 at 250MHz	10, 5	35	5.80	0.054	2100	Orange
10.0 at 250MHz	10, 5, 2	38	3.70	0.071	2000	Green
12.0 at 250MHz			3.00	0.075		Blue
15.0 at 250MHz			2.80	0.080	1900	Violet
18.0 at 250MHz		40	0.099	Gray		
22.0 at 250MHz		42		2.40	1800	White

Standard Electrical Specifications

0805 Wire Wound Chip Inductors/High Q

Inductance (nH)	Tolerance (%)	Quality Factor/Minimum	Self Resonant Frequency/Minimum (GHz)	Resistance DC/Maximum (Ω)	Current DC/Maximum (mA)	Colour Code
10 at 250MHz	10, 5	80 at 1000MHz	3.00	0.060	1600	Black
12 at 250MHz				0.045		Orange
15 at 250MHz	10, 5, 2		2.80	0.100	1200	Black
18 at 250MHz		75 at 500MHz	2.55	0.060	1400	Green
22 at 250MHz		80 at 500MHz	2.00	0.100	1200	Black
27 at 250MHz		75 at 500MHz		0.070	1300	Violet
39 at 250MHz		65 at 500MHz	1.60	0.110	1100	White

Wire Wound Chip Inductor



Environmental Characteristics

Mechanical Performance

Item	Specification	Test Method
Vibration test	Appearance : no damage L change : within $\pm 5\%$ Q change : within $\pm 10\%$	Test device shall be soldered on the substrate Oscillation frequency : 10 to 55 to 10Hz for 1 minute Amplitude : 1.5mm Time : 2 hours for each axis (X, Y & Z), total 6 hours
Resistance to soldering-heat		Solder temperature : $270 \pm 5^\circ\text{C}$ Immersion time : 10 ± 2 seconds
Component adhesion (push test)	1 lbs. for 0402 2 lbs. for 0603 3 lbs. for the rest	The device should be soldered ($260 \pm 5^\circ\text{C}$ for 10 seconds) to a tinned copper subs rate. A dynamiter force gauge should be applied to the side of the component. The device must with stand a minimum force of 2 or 4 pounds without a failure of adhesion on termination
Drop Test	No damage	Dropping chip by each side and each corner. Drop 10 times in total Drop height : 100cm Drop weight : 125g
Solderability test	90% covered with solder	Inductor shall be dipped in a melted solder bath at $245 \pm 5^\circ\text{C}$ for 3 seconds.
Resistance to solvent test	No damage on appearance and marking	MIL-STD202F, Method 215D

Electrical Performance Test

Item	Specification	Test Method
Inductance	Refer to standard electrical characteristic specification	HP4291B
Q		
SRF		HP8753D
DC resistance RDC		Micro-Ohm meter (Gom-801G)
Rated current IDC		Applied the current to coils, the inductance change should be less than 10% to initial value
Over load test	Inductors shall have no evidence of electrical and mechanical damage	Applied 2 times of rated allowed DC current to inductor for a period of 5 minute
Withstanding voltage test	Inductors shall be no evidence of electrical and mechanical damage	AC voltage of 500V ac applied between inductors terminal and case for 1 minute.
Insulation resistance test	1000M Ω minute	100V dc applied between inductor terminal and case

Wire Wound Chip Inductor



Climatic Test

Item	Specification	Test Method															
Temperature Characteristic	Appearance : no damage L change : within $\pm 10\%$ Q change : within $\pm 20\%$	-40°C to +125°C															
Humidity Test		Temperature : 40 $\pm 2^\circ\text{C}$ Relative humidity : 90 to 95% Time : 96 hours ± 2 hours Measured after exposure in the room condition for 2 hours															
Low Temperature Storage Test		Temperature : -40 $\pm 2^\circ\text{C}$ Time : 96 ± 2 hours Inductors are tested after 1 hour at room temperature															
Thermal Shock Test		One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature ($^\circ\text{C}$)</th> <th>Time (minute)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25 ± 3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25 ± 2</td> <td>15</td> </tr> <tr> <td>3</td> <td>125 ± 3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25 ± 2</td> <td>15</td> </tr> </tbody> </table> Total: 5 cycles	Step	Temperature ($^\circ\text{C}$)	Time (minute)	1	-25 ± 3	30	2	25 ± 2	15	3	125 ± 3	30	4	25 ± 2	15
Step	Temperature ($^\circ\text{C}$)	Time (minute)															
1	-25 ± 3	30															
2	25 ± 2	15															
3	125 ± 3	30															
4	25 ± 2	15															
High Temperature Storage Test		Temperature : 125 $\pm 2^\circ\text{C}$ Time : 96 ± 2 hours Measured after exposure in the room condition for 1 hour															
High Temperature Load Life Test	There should be no evidence of short of open circuit.	Temperature : 85 $\pm 2^\circ\text{C}$ Time : 1000 ± 12 hours Load : allowed DC current															
Humidity Load Life		Temperature : 40 $\pm 2^\circ\text{C}$ Relative Humidity : 90 to 95% Time : 1000 ± 12 hours Load : allowed DC current															

Storage Temperature : 25 $\pm 3^\circ\text{C}$; Humidity: <80%RH

Wire Wound Chip Inductor



Part Number Table

Description	Part Number
Inductor, 0402, 1nH	MCFT000063
Inductor, 0402, 2.2nH	MCFT000064
Inductor, 0402, 3.3nH	MCFT000065
Inductor, 0402, 4.7nH	MCFT000066
Inductor, 0402, 6.8nH	MCFT000067
Inductor, 0402, 10nH	MCFT000068
Inductor, 0402, 12nH	MCFT000069
Inductor, 0402, 15nH	MCFT000070
Inductor, 0402, 18nH	MCFT000071
Inductor, 0402, 22nH	MCFT000072
Inductor, 0402, 27nH	MCFT000073
Inductor, 0402, 33nH	MCFT000074
Inductor, 0402, 39nH	MCFT000075
Inductor, 0402, 47nH	MCFT000076
Inductor, 0402, 56nH	MCFT000077
Inductor, 0402, 68nH	MCFT000078
Inductor, 0603, 2.2nH	MCFT000079
Inductor, 0603, 3.3nH	MCFT000080
Inductor, 0603, 4.7nH	MCFT000081
Inductor, 0603, 6.8nH	MCFT000082
Inductor, 0603, 10nH	MCFT000083
Inductor, 0603, 12nH	MCFT000084
Inductor, 0603, 15nH	MCFT000085
Inductor, 0603, 18nH	MCFT000086
Inductor, 0603, 22nH	MCFT000087
Inductor, 0603, 27nH	MCFT000088
Inductor, 0603, 33nH	MCFT000089
Inductor, 0603, 39nH	MCFT000090
Inductor, 0603, 47nH	MCFT000091
Inductor, 0603, 56nH	MCFT000092
Inductor, 0603, 68nH	MCFT000093
Inductor, 0603, 82nH	MCFT000094
Inductor, 0603, 100nH	MCFT000095
Inductor, 0603, 120nH	MCFT000096

Wire Wound Chip Inductor



Part Number Table

Description	Part Number
Inductor, 0603, 150nH	MCFT000097
Inductor, 0603, 180nH	MCFT000098
Inductor, 0603, 220nH	MCFT000099
Inductor, 0603, 270nH	MCFT000100
Inductor, 0603, 330nH	MCFT000101
Inductor, 0603, 390nH	MCFT000102
Inductor, 0603, 470nH	MCFT000103
Inductor, 0805, 10nH	MCFT000104
Inductor, 0805, 12nH	MCFT000105
Inductor, 0805, 15nH	MCFT000106
Inductor, 0805, 18nH	MCFT000107
Inductor, 0805, 22nH	MCFT000108
Inductor, 0805, 27nH	MCFT000109
Inductor, 0805, 33nH	MCFT000110
Inductor, 0805, 39nH	MCFT000111
Inductor, 0805, 47nH	MCFT000112
Inductor, 0805, 56nH	MCFT000113
Inductor, 0805, 68nH	MCFT000114
Inductor, 0805, 82nH	MCFT000115
Inductor, 0805, 100nH	MCFT000116
Inductor, 0805, 120nH	MCFT000117
Inductor, 0805, 150nH	MCFT000118
Inductor, 0805, 180nH	MCFT000119
Inductor, 0805, 220nH	MCFT000120
Inductor, 0805, 270nH	MCFT000121
Inductor, 0805, 330nH	MCFT000122
Inductor, 0805, 390nH	MCFT000123
Inductor, 0805, 470nH	MCFT000124
Inductor, 0805, 560nH	MCFT000125
Inductor, 0805, 680nH	MCFT000126
Inductor, 0805, 820nH	MCFT000127
Inductor, 0805, 1000nH	MCFT000128
Inductor, 0805, 1500nH	MCFT000129
Inductor, 0805, 2200nH	MCFT000130

Wire Wound Chip Inductor



Part Number Table

Description	Part Number
Inductor, 0805, 3300nH	MCFT000131
Inductor, 0805, 4700nH	MCFT000132
Inductor, 0805, 10nH	MCFT000133
Inductor, 0805, 15nH	MCFT000134
Inductor, 0805, 22nH	MCFT000135
Inductor, 0805, 33nH	MCFT000136
Inductor, 0805, 47nH	MCFT000137
Inductor, 0805, 68nH	MCFT000138
Inductor, 0805, 100nH	MCFT000139
Inductor, 1206, 10nH	MCFT000140
Inductor, 1206, 15nH	MCFT000141
Inductor, 1206, 22nH	MCFT000142
Inductor, 1206, 33nH	MCFT000143
Inductor, 1206, 47nH	MCFT000144
Inductor, 1206, 68nH	MCFT000145
Inductor, 1206, 150nH	MCFT000146
Inductor, 1206, 220nH	MCFT000147
Inductor, 1206, 330nH	MCFT000148
Inductor, 1206, 470nH	MCFT000149
Inductor, 1206, 680nH	MCFT000150
Inductor, 1206, 1000nH	MCFT000151

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