

Wire Wound Chip Inductor Ferrite

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**RoHS
Compliant**



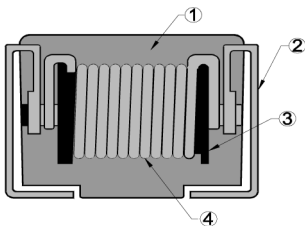
Features:

- Very strong solderability by flow soldering, soldering iron or wave soldering
- Highly accurate dimensions, can be mounted automatically
- Terminals are highly resistant to pull forces
- Highly resistant to mechanical shocks and pressure
- Highly reliable in environments of sudden temperature change and humidity. Super Q characteristics

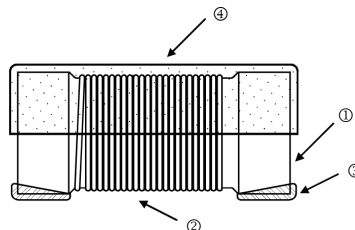
Applications:

Micro Televisions, Liquid Crystal Televisions, Video Cameras, Portable VCRs, Car Radios, Car Stereos, Thin Tape Radios, Television Tuners, Mobile Telephones, Radio and Other Electronic Devices

Construction:



1. Molded resin
2. Electrode (Tinned Copper Wire)
3. Ferrite core
4. Magnet wire



1. Ferrite core
2. Magnet wire
3. Electrode (Ag/Pd+Ni+Sn)
4. UV Glue

Part Numbering:

MCNL	05	K	T	C	1R0
Product Type	Dimensions (LxW)	Inductance Tolerance	Packaging Code	Current	Inductance
	03: 0603 05: 0805 08: 1008 10: 1210 12: 1812 20: 2220	J: $\pm 5\%$ K: $\pm 10\%$ M: $\pm 20\%$	T: Taping Reel	: Standard C: Large Current L: Low Profile	R12: 120nH R27: 270nH 2R7: 2700nH 100: 10 μ H

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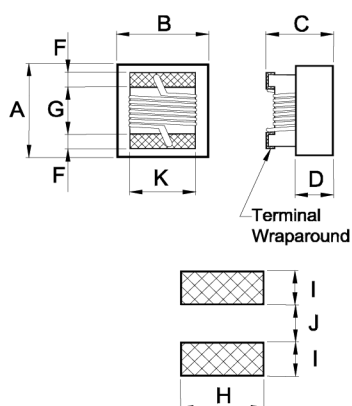


Figure 1

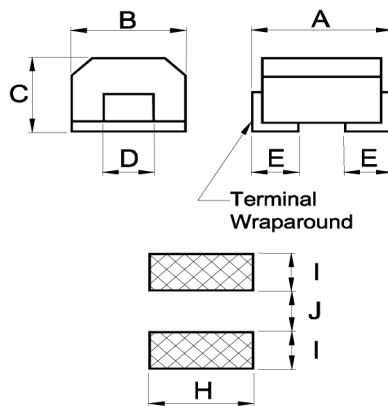


Figure 2

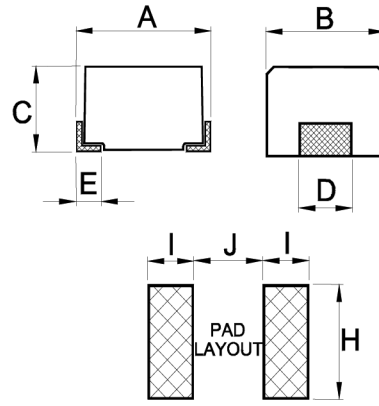


Figure 3

Type	Size (In)	Fig.	A	B	C	D	E	F	G	H	I	J	K	Weight (g) (1000pcs)
MCNL03	0603	1	1.8 max	1.2 max	1 max	0.45	-	0.33	0.95	1.02	0.64	0.64	1.05	9.6
MCNL05	0805	1	2.4 max	1.71 max	1.45 max	0.65	-	0.44	1.02	1.78	1.02	0.76	1.27	14
MCNL08	1008	1	2.92 max	2.79 max	2.1 max	1.2	-	0.45	1.52	2.54	1.02	1.27	2.03	30
MCNL10	1210	2	3.2±0.4	2.5±0.2	2.2±0.2	1±0.2	0.6-0/+0.3	-	-	1.4	1	1.8	-	40
MCNL12	1812	2	4.5±0.3	3.2±0.2	3.2±0.2	1.2	1-0/+0.3	-	-	1.6	1.5	2.2	-	160
MCNL20	2220	3	5.6±0.3	5±0.2	4±0.3	4±0.2	0.7±0.2	-	-	4.5	2	4	-	300
MCNL05(L)	0805	1	2.29 max	1.73 max	1 max	0.51	-	0.44	1.02	1.78	1.02	0.76	1.27	14
MCNL03(C)	0603	1	1.8 max	1.2 max	1.1 max	0.45	-	0.33	0.95	1.02	0.64	0.64	1.05	9.6
MCNL05(C)	0805	1	2.4 max	1.71 max	1.45 max	0.65	-	0.44	1.02	1.78	1.02	0.76	1.27	14
MCNL08(C)	1008	1	2.92 max	2.79 max	2.1 max	1.3	-	0.45	1.52	2.54	1.02	1.27	2.03	30
MCNL10(C)	1210	2	3.2±0.4	2.5±0.2	2.2±0.2	1±0.2	0.6-0/+0.3	-	-	1.4	1	1.8	-	40
MCNL12(C)	1812	2	4.5±0.3	3.2±0.2	3.2±0.2	1.2	1-0/+0.3	-	-	1.6	1.5	2.2	-	160
MCNL20(C)	2220	3	5.6±0.3	5±0.2	4±0.3	4±0.2	0.7±0.2	-	-	4.5	2	4	-	300

Dimensions : Millimetres

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Colour Coding:

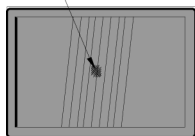
0603 / 0805 / 1008 Type (except MCNL05(L))

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 type.

0603/0805

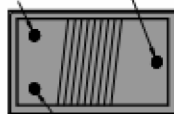
1st Code



Colour Coding

1008

1st Code 3rd Code



2nd Code

Colour Coding

Standard Electrical Specifications:

MCNL03 Wire Wound Chip Inductors (Ferrite / Open Type) / Standard Type

Codes	Inductance (μ H)	Tolerance	Q typ.	Test Freq. (MHz)	SRF (MHz) typ.	DCR (Ω) max.	IDC (mA) max.	Colour Code
1R0	1	$\pm 10, \pm 20\%$	16	7.96	390	0.416	860	Black
1R5	1.5	$\pm 10, \pm 20\%$	16	7.96	160	0.52	720	Brown
1R8	1.8	$\pm 10, \pm 20\%$	16	7.96	121	0.559	640	Red
2R2	2.2	$\pm 10, \pm 20\%$	16	7.96	103	0.728	600	Orange
2R7	2.7	$\pm 10, \pm 20\%$	16	7.96	72	0.806	540	Yellow
3R3	3.3	$\pm 10, \pm 20\%$	16	7.96	66	0.91	500	Green
3R9	3.9	$\pm 10, \pm 20\%$	16	7.96	61	1.079	460	Blue
4R7	4.7	$\pm 10, \pm 20\%$	16	7.96	51	1.261	400	Violet
5R6	5.6	$\pm 10, \pm 20\%$	16	7.96	47	1.43	380	Gray
6R8	6.8	$\pm 10, \pm 20\%$	16	7.96	43	1.95	340	White
8R2	8.2	$\pm 10, \pm 20\%$	16	7.96	40	2.184	300	Black
100	10	$\pm 10, \pm 20\%$	14	2.52	36	2.405	280	Brown
120	12	$\pm 10, \pm 20\%$	14	2.52	32	2.964	260	Red
150	15	$\pm 10, \pm 20\%$	14	2.52	29	3.38	240	Orange
180	18	$\pm 10, \pm 20\%$	14	2.52	28	3.77	220	Yellow
220	22	$\pm 10, \pm 20\%$	14	2.52	24	4.693	200	Green
270	27	$\pm 10, \pm 20\%$	14	2.52	20	6.76	140	Blue
330	33	$\pm 10, \pm 20\%$	14	2.52	15	8.58	120	Violet

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Standard Electrical Specifications:

MCNL08 Wire Wound Chip Inductors (Ferrite / Open Type) / Standard Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.	Colour Code
R11	0.11	$\pm 10\%$	25	25.2	1200	0.05	2000	White
R12	0.12	$\pm 5, \pm 10\%$	20	25.2	700	0.18	1100	Violet
R15	0.15	$\pm 5, \pm 10\%$	20	25.2	900	0.18	1100	Gray
R18	0.18	$\pm 5, \pm 10\%$	20	25.2	600	0.2	800	Black
R22	0.22	$\pm 5, \pm 10\%$	20	25.2	550	0.25	700	Brown
R27	0.27	$\pm 5, \pm 10\%$	20	25.2	550	0.38	700	Red
R33	0.33	$\pm 5, \pm 10\%$	20	25.2	550	0.35	650	Orange
R39	0.39	$\pm 5, \pm 10\%$	20	25.2	420	0.35	600	Yellow
R47	0.47	$\pm 5, \pm 10\%$	20	25.2	350	0.45	600	Green
R56	0.56	$\pm 5, \pm 10\%$	20	25.2	300	0.45	550	Blue
R62	0.62	$\pm 5, \pm 10\%$	30	25.2	640	0.45	980	Brown
R68	0.68	$\pm 5, \pm 10\%$	20	25.2	300	0.6	500	Violet
R82	0.82	$\pm 5, \pm 10\%$	20	25.2	300	0.55	500	Gray
R91	0.91	$\pm 5, \pm 10\%$	30	25.2	500	0.55	900	Yellow
1R0	1	$\pm 5, \pm 10\%$	15	7.96	280	0.8	450	White
1R2	1.2	$\pm 5, \pm 10\%$	15	7.96	280	0.9	400	Black
1R5	1.5	$\pm 5, \pm 10\%$	15	7.96	250	1.05	350	Brown
1R8	1.8	$\pm 5, \pm 10\%$	15	7.96	120	1	350	Red
2R2	2.2	$\pm 5, \pm 10\%$	15	7.96	110	1.1	320	Orange
2R7	2.7	$\pm 5, \pm 10\%$	15	7.96	70	1.2	320	Yellow
3R3	3.3	$\pm 5, \pm 10\%$	15	7.96	60	1.5	300	Green
3R9	3.9	$\pm 5, \pm 10\%$	15	7.96	55	1.75	300	Blue
4R7	4.7	$\pm 5, \pm 10\%$	15	7.96	45	2.1	200	Violet
5R6	5.6	$\pm 5, \pm 10\%$	15	7.96	40	2.3	250	Gray
6R8	6.8	$\pm 5, \pm 10\%$	15	7.96	36	2.7	200	White
8R2	8.2	$\pm 5, \pm 10\%$	15	7.96	33	3.3	180	Black
100	10	$\pm 5, \pm 10\%$	10	2.52	30	4.5	180	Brown
120	12	$\pm 5, \pm 10\%$	16	2.52	37	2.8	220	Red
150	15	$\pm 5, \pm 10\%$	16	2.52	30	3.8	200	Orange
180	18	$\pm 5, \pm 10\%$	16	2.52	23	4.48	180	Yellow
220	22	$\pm 5, \pm 10\%$	16	2.52	20	6.3	160	Green
270	27	$\pm 5, \pm 10\%$	16	2.52	19	6.85	140	Blue
330	33	$\pm 5, \pm 10\%$	16	2.52	18	7.6	120	Violet
390	39	$\pm 5, \pm 10\%$	15	2.52	16	8.2	100	Gray

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Standard Electrical Specifications:

MCNL10 Wire Wound Chip Inductors (Ferrite / Open Type) / Standard Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
R18	0.18	$\pm 20\%$	30	25.2	400	0.28	450
R22	0.22	$\pm 20\%$	30	25.2	350	0.32	450
R27	0.27	$\pm 20\%$	30	25.2	320	0.36	450
R33	0.33	$\pm 20\%$	30	25.2	300	0.4	450
R39	0.39	$\pm 20\%$	30	25.2	250	0.45	450
R47	0.47	$\pm 20\%$	30	25.2	220	0.5	450
R56	0.56	$\pm 20\%$	30	25.2	180	0.55	450
R68	0.68	$\pm 20\%$	30	25.2	160	0.6	450
R82	0.82	$\pm 20\%$	30	25.2	140	0.65	450
1R0	1	$\pm 10\%$	30	7.96	120	0.7	400
1R2	1.2	$\pm 10\%$	30	7.96	100	0.75	390
1R5	1.5	$\pm 10\%$	30	7.96	85	0.85	370
1R8	1.8	$\pm 10\%$	30	7.96	80	0.9	350
2R2	2.2	$\pm 10\%$	30	7.96	75	1	320
2R7	2.7	$\pm 10\%$	30	7.96	70	1.1	290
3R3	3.3	$\pm 10\%$	30	7.96	60	1.2	260
3R9	3.9	$\pm 10\%$	30	7.96	55	1.3	250
4R7	4.7	$\pm 10\%$	30	7.96	50	1.5	220
5R6	5.6	$\pm 10\%$	30	7.96	45	1.6	200
6R8	6.8	$\pm 10\%$	30	7.96	40	1.8	180
8R2	8.2	$\pm 10\%$	30	7.96	35	2	170
100	10	$\pm 10\%$	30	2.52	30	2.1	150
120	12	$\pm 10\%$	30	2.52	20	2.5	140
150	15	$\pm 10\%$	30	2.52	20	2.8	130
180	18	$\pm 10\%$	30	2.52	20	3.3	120
220	22	$\pm 10\%$	30	2.52	20	3.7	110
270	27	$\pm 10\%$	30	2.52	20	5	80
330	33	$\pm 10\%$	30	2.52	17	5.6	70
390	39	$\pm 10\%$	30	2.52	16	6.4	65
470	47	$\pm 10\%$	30	2.52	15	7	60
560	56	$\pm 10\%$	30	2.52	13	8	55
680	68	$\pm 10\%$	30	2.52	12	9	50
820	82	$\pm 10\%$	30	2.52	11	10	45
101	100	$\pm 10\%$	20	0.796	10	10	40
121	120	$\pm 10\%$	20	0.796	10	11	70
151	150	$\pm 10\%$	20	0.796	8	15	65

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Standard Electrical Specifications:

MCNL12 Wire Wound Chip Inductors (Ferrite / Open Type) / Standard Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
R18	0.18	$\pm 20\%$	30	25.2	220	0.24	700
R22	0.22	$\pm 20\%$	30	25.2	200	0.25	665
R27	0.27	$\pm 20\%$	30	25.2	180	0.26	635
R33	0.33	$\pm 20\%$	30	25.2	165	0.28	605
R39	0.39	$\pm 20\%$	30	25.2	150	0.3	575
R47	0.47	$\pm 20\%$	30	25.2	145	0.32	545
R56	0.56	$\pm 20\%$	30	25.2	140	0.36	520
R68	0.68	$\pm 20\%$	30	25.2	135	0.4	500
R82	0.82	$\pm 20\%$	30	25.2	130	0.45	475
1R0	1	$\pm 10\%$	50	7.96	100	0.5	450
1R2	1.2	$\pm 10\%$	50	7.96	80	0.55	430
1R5	1.5	$\pm 10\%$	50	7.96	70	0.6	410
1R8	1.8	$\pm 10\%$	50	7.96	60	0.65	390
2R2	2.2	$\pm 10\%$	50	7.96	55	0.7	380
2R7	2.7	$\pm 10\%$	50	7.96	50	0.75	370
3R3	3.3	$\pm 10\%$	50	7.96	45	0.8	355
3R9	3.9	$\pm 10\%$	50	7.96	40	0.9	330
4R7	4.7	$\pm 10\%$	50	7.96	35	1	315
5R6	5.6	$\pm 10\%$	50	7.96	33	1.1	300
6R8	6.8	$\pm 10\%$	50	7.96	27	1.2	285
8R2	8.2	$\pm 10\%$	50	7.96	25	1.4	270
100	10	$\pm 10\%$	50	2.52	20	1.6	250
120	12	$\pm 10\%$	50	2.52	18	2	225
150	15	$\pm 10\%$	50	2.52	17	2.5	200
180	18	$\pm 10\%$	50	2.52	15	2.8	190
220	22	$\pm 10\%$	50	2.52	13	3.2	180
270	27	$\pm 10\%$	50	2.52	12	3.6	170
330	33	$\pm 10\%$	50	2.52	11	4	160
390	39	$\pm 10\%$	50	2.52	10	4.5	150
470	47	$\pm 10\%$	50	2.52	10	5	140
560	56	$\pm 10\%$	50	2.52	9	5.5	135
680	68	$\pm 10\%$	50	2.52	9	6	130
820	82	$\pm 10\%$	50	2.52	8	7	120
101	100	$\pm 10\%$	40	0.796	8	8	110

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Standard Electrical Specifications:

MCNL12 Wire Wound Chip Inductors (Ferrite / Open Type) / Standard Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
121	120	$\pm 10\%$	40	0.796	6	8	110
151	150	$\pm 10\%$	40	0.796	5	9	105
181	180	$\pm 10\%$	40	0.796	5	9.5	102
221	220	$\pm 10\%$	40	0.796	4	10	100
271	270	$\pm 10\%$	30	0.796	4	15	92
331	330	$\pm 10\%$	30	0.796	3.5	15	85
391	390	$\pm 10\%$	30	0.796	3	18	80
471	470	$\pm 10\%$	30	0.796	3	26	62
561	560	$\pm 10\%$	30	0.796	3	30	50
681	680	$\pm 10\%$	30	0.796	3	30	50
821	820	$\pm 10\%$	30	0.796	2.5	43	30

MCNL20 Wire Wound Chip Inductors (Ferrite / Open Type) / Standard Type

Codes	Inductance (mH)	Tolerance	Test Freq. (MHz)	Q min.	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
122	1.2	$\pm 5, \pm 10\%$	0.252	20	1.5	17	75
152	1.5	$\pm 5, \pm 10\%$	0.252	20	1.4	20	70
182	1.8	$\pm 5, \pm 10\%$	0.252	20	1.3	30	60
222	2.2	$\pm 5, \pm 10\%$	0.252	20	1.2	35	55
272	2.7	$\pm 5, \pm 10\%$	0.252	20	1.1	55	45
332	3.3	$\pm 5, \pm 10\%$	0.252	20	1	60	40
392	3.9	$\pm 5, \pm 10\%$	0.252	20	1	70	38
472	4.7	$\pm 5, \pm 10\%$	0.252	20	0.9	78	36
562	5.6	$\pm 5, \pm 10\%$	0.252	20	0.8	85	33
682	6.8	$\pm 5, \pm 10\%$	0.252	20	0.7	110	30
822	8.2	$\pm 5, \pm 10\%$	0.252	20	0.6	125	28
103	10	$\pm 5, \pm 10\%$	0.0796	15	0.5	150	25

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Low Profile Electrical Specifications:

MCNL05 Wound Chip Inductors (Ferrite / Open Type) / Low Profile Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
1R0	1	$\pm 5, \pm 10\%$	15	L: 7.96 / Q: 25.2	115	0.9	450
3R3	3.3	$\pm 5, \pm 10\%$	13	7.96	70	1.4	450
4R7	4.7	$\pm 5, \pm 10\%$	15	7.96	65	1.9	400
6R8	6.8	$\pm 5, \pm 10\%$	15	7.96	41	2.4	400
100	10	$\pm 5, \pm 10\%$	14	7.96	31	2.7	400
150	15	$\pm 5, \pm 10\%$	12	7.96	28	5	300
220	22	$\pm 5, \pm 10\%$	10	7.96	25	6	250

Large Current Electrical Specifications:

MCNL03 Wound Chip Inductors (Ferrite / Open Type) / Large Current Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.	Colour Code
47N	0.047	$\pm 10\%$	12	7.96	2000	0.075	1800	White
51N	0.051	$\pm 10\%$	12	7.96	1500	0.075	1800	Violet
68N	0.068	$\pm 10\%$	12	7.96	1500	0.12	1800	Gray
72N	0.072	$\pm 10\%$	12	7.96	1500	0.12	1800	Brown
R10	0.1	$\pm 10\%$	12	7.96	1150	0.13	1700	Black
R12	0.12	$\pm 5, \pm 10\%$	12	7.96	1100	0.15	1700	Orange
R15	0.15	$\pm 5, \pm 10\%$	15	7.96	1050	0.15	1600	Brown
R18	0.18	$\pm 5, \pm 10\%$	15	7.96	950	0.15	1500	Green
R22	0.22	$\pm 5, \pm 10\%$	15	7.96	900	0.3	1200	Red
R24	0.24	$\pm 5, \pm 10\%$	15	7.96	850	0.16	1460	Green
R27	0.27	$\pm 5, \pm 10\%$	15	7.96	835	0.3	1460	Yellow
R33	0.33	$\pm 5, \pm 10\%$	15	7.96	725	0.4	1420	Orange
R39	0.39	$\pm 5, \pm 10\%$	15	7.96	680	0.41	1400	Blue
R47	0.47	$\pm 5, \pm 10\%$	15	7.96	640	0.43	1400	Black
R56	0.56	$\pm 5, \pm 10\%$	15	7.96	630	0.44	1400	Brown
R68	0.68	$\pm 5, \pm 10\%$	15	7.96	510	0.52	1340	Red
R78	0.78	$\pm 5, \pm 10\%$	15	7.96	465	0.63	1300	Orange
R82	0.82	$\pm 5, \pm 10\%$	15	7.96	460	0.69	1200	Yellow
1R0	1	$\pm 5, \pm 10\%$	15	7.96	320	0.81	1100	Green
1R2	1.2	$\pm 5, \pm 10\%$	15	7.96	270	0.87	1000	Blue

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Large Current Electrical Specifications:

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Codes	Inductance (μH)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.	Colour Code
1R5	1.5	±5, ±10%	15	7.96	230	0.96	920	Violet
1R8	1.8	±5, ±10%	15	7.96	210	1.1	900	Gray
2R2	2.2	±5, ±10%	15	7.96	115	1.2	740	White
2R7	2.7	±5, ±10%	15	7.96	100	1.38	700	Black
3R3	3.3	±5, ±10%	15	7.96	84	1.5	680	Brown
3R9	3.9	±5, ±10%	15	7.96	75	1.5	600	Red
4R7	4.7	±5, ±10%	15	7.96	67	2.1	580	Orange
5R6	5.6	±5, ±10%	15	7.96	55	2.37	540	Yellow
6R8	6.8	±5, ±10%	15	7.96	48	3.1	500	Green
7R8	7.8	±5, ±10%	15	7.96	40	3.35	460	Blue
8R2	8.2	±5, ±10%	15	7.96	38	3.5	440	Violet
100	10	±5, ±10%	15	7.96	32	4.46	400	Gray

MCNL05 Wound Chip Inductors (Ferrite / Open Type) / Large Current Type

Codes	Inductance (μH)	Tolerance	Q typ.	Test Freq. (MHz)	SRF (MHz) typ.	DCR (Ω) max.	IDC (mA) max.	Colour Code
R47	0.47	±10, ±20%	14	25.2	850	0.156	1400	Blue
R68	0.68	±10, ±20%	14	25.2	765	0.195	1200	Gray
1R0	1	±10, ±20%	14	7.96	208	0.169	1100	Black
1R2	1.2	±10, ±20%	14	7.96	159	0.208	960	Red
1R5	1.5	±10, ±20%	14	7.96	159	0.221	920	Brown
1R8	1.8	±10, ±20%	14	7.96	112	0.260	860	Orange
2R2	2.2	±10, ±20%	13	7.96	87	0.286	740	Red
2R7	2.7	±10, ±20%	13	7.96	72	0.325	680	Yellow
3R3	3.3	±10, ±20%	12	7.96	70	0.364	620	Orange
3R9	3.9	±10, ±20%	14	7.96	61	0.494	580	Green
4R7	4.7	±10, ±20%	14	7.96	51	0.559	520	Yellow
5R6	5.6	±10, ±20%	12	7.96	47	0.650	480	Blue
6R8	6.8	±10, ±20%	14	7.96	46	0.884	420	Green
8R2	8.2	±10, ±20%	13	7.96	33	0.949	400	Violet
100	10	±5, ±10, ±20%	14	2.52	31	1.105	360	Blue
120	12	±5, ±10, ±20%	14	2.52	30	1.17	340	Gray
150	15	±5, ±10, ±20%	15	2.52	28	1.82	300	Violet

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Large Current Electrical Specifications:

MCNL05 Wound Chip Inductors (Ferrite / Open Type) / Large Current Type

Codes	Inductance (µH)	Tolerance	Q typ.	Test Freq. (MHz)	SRF (MHz) typ.	DCR (Ω) max.	IDC (mA) max.	Colour Code
180	18	±5, ±10, ±20%	15	2.52	27	2.01	280	White
220	22	±5, ±10, ±20%	15	2.52	20	2.28	240	Gray
270	27	±5, ±10, ±20%	15	2.52	17	2.6	220	Black
330	33	±5, ±10, ±20%	15	2.52	17	3.05	200	White
470	47	±5, ±10, ±20%	14	2.52	15	4.42	160	Black
560	56	±5, ±10, ±20%	14	2.52	10	5.74	150	Yellow
680	68	±5, ±10, ±20%	14	2.52	10	5.78	140	Brown
820	82	±5, ±10, ±20%	14	2.52	10	9.75	100	Orange
101	100	±5, ±10, ±20%	10	1	9	9.75	100	Red

Large Current Electrical Specifications:

MCNL08 Wound Chip Inductors (Ferrite / Open Type) / Large Current Type

Codes	Inductance (µH)	Tolerance	Q typ.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.	Colour Code		
								1st	2nd	3rd
R10	0.1	±5, ±10%	35	25.2	1500	0.05	3200	Brown	Red	Brown
R22	0.22	±5, ±10%	35	25.2	800	0.15	2600	Red	Red	Brown
R39	0.39	±5, ±10%	35	25.2	460	0.2	2100	Orange	White	Brown
R47	0.47	±10%	35	25.2	460	0.2	2400	Yellow	Violet	Brown
R56	0.56	±5, ±10%	35	25.2	360	0.26	1800	Green	Blue	Brown
R68	0.68	±5, ±10%	35	25.2	400	0.3	1700	Blue	Gray	Brown
R82	0.82	±5, ±10%	35	25.2	360	0.35	1400	Gray	Red	Brown
1R0	1	±10%	22	7.96	245	0.35	800	Brown	Black	Red
1R2	1.2	±5, ±10%	25	7.96	230	0.4	550	Brown	Red	Red
1R5	1.5	±5, ±10%	25	7.96	182	0.45	550	Brown	Green	Red
1R8	1.8	±5, ±10%	25	7.96	135	0.55	550	Brown	Gray	Red
2R2	2.2	±5, ±10%	22	7.96	105	0.6	500	Red	Red	Red
2R7	2.7	±5, ±10%	25	7.96	70	0.7	500	Red	Violet	Red
3R3	3.3	±5, ±10%	22	7.96	55	0.75	450	Orange	Orange	Red
3R9	3.9	±5, ±10%	25	7.96	50	0.8	450	Orange	White	Red
4R7	4.7	±5, ±10%	22	7.96	45	0.9	400	Yellow	Violet	Red
5R6	5.6	±5, ±10%	22	7.96	42	1.05	400	Green	Blue	Red
6R8	6.8	±5, ±10%	22	7.96	40	1.05	400	Blue	Gray	Red

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Large Current Electrical Specifications:

MCNL08 Wound Chip Inductors (Ferrite / Open Type) / Large Current Type

Codes	Inductance (μ H)	Tolerance	Q typ.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.	Colour Code		
								1st	2nd	3rd
8R2	8.2	$\pm 5, \pm 10\%$	22	7.96	36	1.3	350	Gray	Red	Red
100	10	$\pm 5, \pm 10\%$	20	2.52	35	1.55	300	Brown	Black	Orange
120	12	$\pm 5, \pm 10\%$	20	2.52	30	2.1	280	Brown	Red	Orange
150	15	$\pm 5, \pm 10\%$	20	2.52	24	2.38	250	Brown	Green	Orange
180	18	$\pm 5, \pm 10\%$	20	2.52	20	2.6	200	Brown	Gray	Orange
220	22	$\pm 5, \pm 10\%$	20	2.52	18	2.92	200	Red	Red	Orange
330	33	$\pm 5, \pm 10\%$	20	2.52	16	4.1	180	Orange	Orange	Orange
470	47	$\pm 5, \pm 10\%$	23	2.52	17	7.8	350	Yellow	Violet	Orange
101	100	$\pm 5, \pm 10\%$	13	1	4	13.2	200	Brown	Black	Yellow
221	220	$\pm 5, \pm 10\%$	13	1	3	26.5	140	Red	Red	Yellow
331	330	$\pm 5, \pm 10\%$	13	1	2	32.5	110	Orange	Orange	Yellow

MCNL10 Wire Wound Chip Inductors (Ferrite / Molding Type) / Large Current Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
1R0	1	$\pm 20\%$	10	7.96	100	0.156	770
1R5	1.5	$\pm 20\%$	10	7.96	80	0.195	580
2R2	2.2	$\pm 20\%$	10	7.96	65	0.26	480
3R3	3.3	$\pm 20\%$	10	7.96	55	0.325	400
4R7	4.7	$\pm 20\%$	10	7.96	45	0.52	320
6R8	6.8	$\pm 20\%$	10	7.96	35	0.65	280
100	10	$\pm 10\%$	15	2.52	28	1.105	220
150	15	$\pm 10\%$	15	2.52	25	1.69	180
220	22	$\pm 10\%$	15	2.52	20	2.6	145
270	27	$\pm 10\%$	15	2.52	17	3	125
330	33	$\pm 10\%$	15	2.52	15	3.64	115
470	47	$\pm 10\%$	20	2.52	13	5.46	105
680	68	$\pm 10\%$	20	2.52	10	8.45	85
820	82	$\pm 10\%$	20	2.52	9	8.71	80
101	100	$\pm 10\%$	20	0.796	8	10.14	75

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Large Current Electrical Specifications:

MCNL12 Wound Chip Inductors (Ferrite / Open Type) / Large Current Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
1R0	1	$\pm 10\%$	10	7.96	200	0.11	1,050
1R2	1.2	$\pm 10\%$	10	7.96	160	0.12	1,000
1R5	1.5	$\pm 10\%$	10	7.96	130	0.15	950
1R8	1.8	$\pm 10\%$	10	7.96	100	0.16	900
2R2	2.2	$\pm 10\%$	10	7.96	80	0.18	850
2R7	2.7	$\pm 10\%$	10	7.96	60	0.2	800
3R3	3.3	$\pm 10\%$	10	7.96	45	0.22	750
3R9	3.9	$\pm 10\%$	10	7.96	40	0.24	700
4R7	4.7	$\pm 10\%$	10	7.96	35	0.27	650
5R6	5.6	$\pm 10\%$	10	7.96	30	0.3	650
6R8	6.8	$\pm 10\%$	10	7.96	28	0.35	600
8R2	8.2	$\pm 10\%$	10	7.96	25	0.4	600
100	10	$\pm 10\%$	10	2.52	22	0.5	550
120	12	$\pm 10\%$	10	2.52	21	0.6	500
150	15	$\pm 10\%$	10	2.52	20	0.7	450
180	18	$\pm 10\%$	10	2.52	19	0.8	400
220	22	$\pm 10\%$	10	2.52	18	0.9	370
270	27	$\pm 10\%$	10	2.52	16	1.2	330
330	33	$\pm 10\%$	10	2.52	14	1.4	300
390	39	$\pm 10\%$	10	2.52	12	1.6	280
470	47	$\pm 10\%$	10	2.52	11.5	1.9	260
560	56	$\pm 10\%$	10	2.52	11	2.2	240
680	68	$\pm 10\%$	10	2.52	10	2.6	220
820	82	$\pm 10\%$	10	2.52	9	3.5	200
101	100	$\pm 10\%$	20	0.796	8	4	180
121	120	$\pm 10\%$	20	0.796	7.5	4.5	160
151	150	$\pm 10\%$	20	0.796	7	6.5	140
181	180	$\pm 10\%$	20	0.796	6.5	7.5	120
221	220	$\pm 10\%$	20	0.796	5.5	9	120
271	270	$\pm 10\%$	20	0.796	5	11	100
331	330	$\pm 10\%$	20	0.796	4	13	90
391	390	$\pm 10\%$	20	0.796	3.8	23	80
471	470	$\pm 10\%$	20	0.796	3.5	26	75
561	560	$\pm 10\%$	20	0.796	2.8	30	70
681	680	$\pm 10\%$	20	0.796	2.6	40	65
821	820	$\pm 10\%$	20	0.796	2.5	45	60

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MCNL20 Wound Chip Inductors (Ferrite / Open Type) / Large Current Type

Codes	Inductance (μ H)	Tolerance	Q min.	Test Freq. (MHz)	SRF (MHz) min.	DCR (Ω) max.	IDC (mA) max.
1R0	1	$\pm 10, \pm 20\%$	10	7.96	95	0.03	1,800
1R2	1.2	$\pm 10, \pm 20\%$	10	7.96	70	0.035	1,700
1R5	1.5	$\pm 10, \pm 20\%$	10	7.96	55	0.04	1,600
1R8	1.8	$\pm 10, \pm 20\%$	10	7.96	47	0.05	1,400
2R2	2.2	$\pm 10, \pm 20\%$	10	7.96	42	0.06	1,300
2R7	2.7	$\pm 10, \pm 20\%$	10	7.96	37	0.07	1,200
3R3	3.3	$\pm 10, \pm 20\%$	10	7.96	34	0.08	1,120
3R9	3.9	$\pm 10, \pm 20\%$	10	7.96	32	0.09	1,050
4R7	4.7	$\pm 10, \pm 20\%$	10	7.96	29	0.11	950
5R6	5.6	$\pm 10, \pm 20\%$	10	7.96	26	0.13	880
6R8	6.8	$\pm 10, \pm 20\%$	10	7.96	24	0.15	810
8R2	8.2	$\pm 10, \pm 20\%$	10	7.96	22	0.18	750
100	10	$\pm 10, \pm 20\%$	10	2.52	19	0.21	690
120	12	$\pm 10, \pm 20\%$	10	2.52	17	0.25	630
150	15	$\pm 10, \pm 20\%$	10	2.52	16	0.3	580
180	18	$\pm 10, \pm 20\%$	10	2.52	14	0.36	530
220	22	$\pm 5, \pm 10\%$	10	2.52	13	0.43	480
270	27	$\pm 5, \pm 10\%$	10	2.52	11.5	0.52	440
330	33	$\pm 5, \pm 10\%$	10	2.52	10.5	0.62	400
390	39	$\pm 5, \pm 10\%$	10	2.52	9.5	0.72	370
470	47	$\pm 5, \pm 10\%$	10	2.52	8.5	0.85	340
560	56	$\pm 5, \pm 10\%$	10	2.52	7.8	1	310
680	68	$\pm 5, \pm 10\%$	10	2.52	7	1.2	290
820	82	$\pm 5, \pm 10\%$	10	2.52	6.4	1.4	270
101	100	$\pm 5, \pm 10\%$	20	0.796	6	1.6	250
121	120	$\pm 5, \pm 10\%$	20	0.796	5.4	1.9	230
151	150	$\pm 5, \pm 10\%$	20	0.796	4.8	2.2	210
181	180	$\pm 5, \pm 10\%$	20	0.796	4.4	2.8	190
221	220	$\pm 5, \pm 10\%$	20	0.796	3.9	3.4	170
271	270	$\pm 5, \pm 10\%$	20	0.796	3.6	4.2	155
331	330	$\pm 5, \pm 10\%$	20	0.796	3.2	4.9	140
391	390	$\pm 5, \pm 10\%$	20	0.796	2.9	5.8	130
471	470	$\pm 5, \pm 10\%$	20	0.796	2.6	7	120
561	560	$\pm 5, \pm 10\%$	20	0.796	2.4	8.5	110
681	680	$\pm 5, \pm 10\%$	20	0.796	2.2	10	100
821	820	$\pm 5, \pm 10\%$	20	0.796	2	13	90
102	1,000	$\pm 5, \pm 10\%$	20	0.252	1.8	15	85

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Environmental Characteristics:

Electrical Performance Test

Item	Requirement	Test Method
Inductance	Refer to standard electrical characteristic spec.	HP4291 or HP4284
Q		HP4291 or HP4284
SRF		HP4291
DC Resistance DCR		Agilent 34401A
Rated Current IDC		Applied the current to coils, The inductance change should be less than 10% to initial value

Mechanical Performance Test

Item	Requirement	Test Method
Solderability	The electrodes shall be at least 90% covered with new solder coating	Lead-free inductor: after fluxing(alpha 100 or equiv), inductor shall be dipped in a melted solder bath at 245±5°C, 5±0.5 seconds
Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150°C, 1min. Solder Temperature: 260±5°C Immersion Time: 10±1 seconds
Vibration	Appearance: No damage L change: within±10% Q change: within±30% DCR: within specification	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1 min. Amplitude: 1.5 mm Time: 2 hrs for each axis (X, Y & Z), total 6 hrs

Climatic Test

Item	Requirement	Test Method															
Temperature Cycle	Appearance: No damage L change: within±10% Q change: within±30% DCR: within specification	One cycle: <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>-25±3</td><td>30</td></tr><tr><td>2</td><td>25±2</td><td>3</td></tr><tr><td>3</td><td>85±3</td><td>30</td></tr><tr><td>4</td><td>25±2</td><td>3</td></tr></table>	Step	Temperature (°C)	Time (min.)	1	-25±3	30	2	25±2	3	3	85±3	30	4	25±2	3
Step		Temperature (°C)	Time (min.)														
1		-25±3	30														
2		25±2	3														
3		85±3	30														
4	25±2	3															
Damp Heat with Load	Total: 100 cycles Measured after exposure in the room condition for 24 hrs																
High Temperature Storage	Temperature: 40±2°C Relative Humidity: 90 to 95%; Time: 1,000 hrs Measured after exposure in the room condition for 24 hrs																
Low Temperature Storage	Temperature: 85±3°C Applied Current: Rated Current Time: 1,000 hrs Measured after exposure in the room condition for 24 hrs																
		Temperature: -25±3°C Time: 1,000 hrs Measured after exposure in the room condition for 24 hrs															

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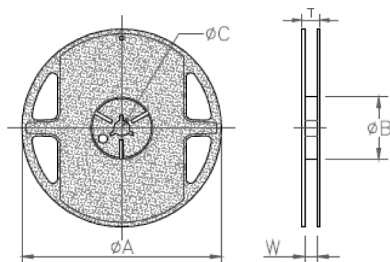
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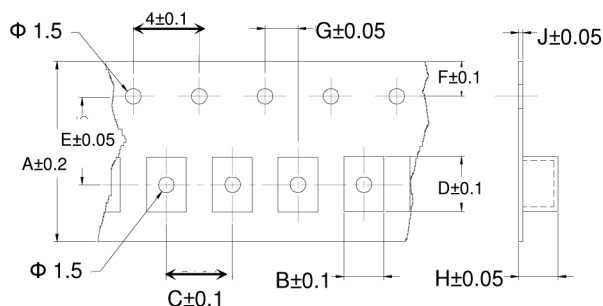
Storage Temperature : 25±3°C; Humidity < 80%RH
Operating Temperature Range : -40 to +85°C

Packaging:

Packaging Quantity & Reel Specifications



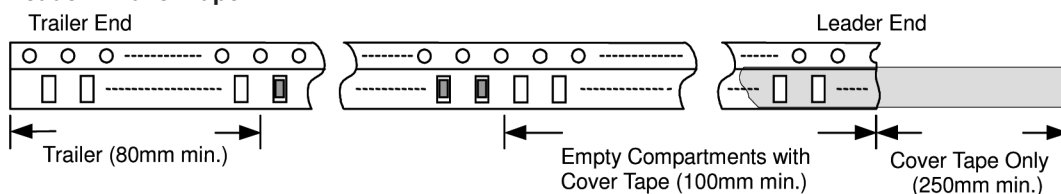
Type	A	B	C	W	T	Quantity (EA)
MCNL03	178±2	60±0.5	13±0.3	9±0.3	12±1	4,000
MCNL05	178±2	60±0.5	13±0.3	9±0.3	12±1	2,000
MCNL08	178±2	60±0.5	13±0.3	9±0.3	12±1	2,000
MCNL10	178±2	60±0.5	13±0.3	9±0.3	12±1	2,000
MCNL12	178±2	80±0.5	13±0.3	13.2±0.3	16±1	500
MCNL20	330±2	100±0.5	13±0.3	17.4±0.3	22±1	1,000



Type	A	B	C	D	E	F	G	H	J
MCNL03	8	1.25	4	1.9	3.5	1.75	2	1	0.23
MCNL05	8	1.85	4	2.55	3.5	1.75	2	1.45	0.23
MCNL08	8	2.8	4	2.95	3.5	1.75	2	2.22	0.23
MCNL10	8	2.96	4	3.6	3.5	1.75	2	2.4	0.23
MCNL12	12	3.3	8	5	5.5	1.75	2	3.5	0.3
MCNL20	16	5.35	12	6.1	7.5	1.75	2	5.5	0.35

Dimensions : Millimetres

Leader / Trailer Tape:



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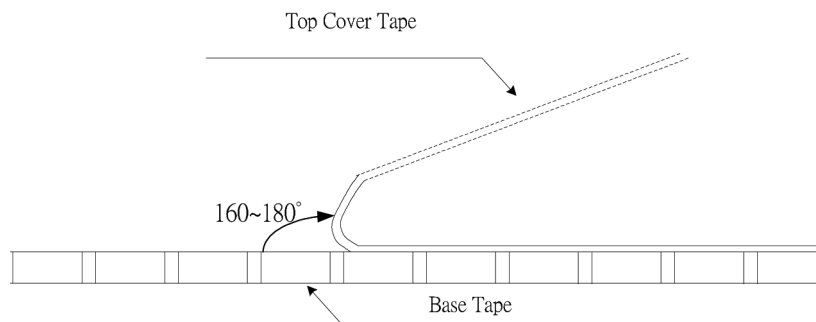
Cover Tape Peel Strength:

The force for tearing off cover tape is 0.1 to 0.6 (N) in the arrow direction at the following conditions:

Temperature : 5 to 35°C

Humidity : 45 to 85%

Atmospheric pressure : 860 to 1,060hpa



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