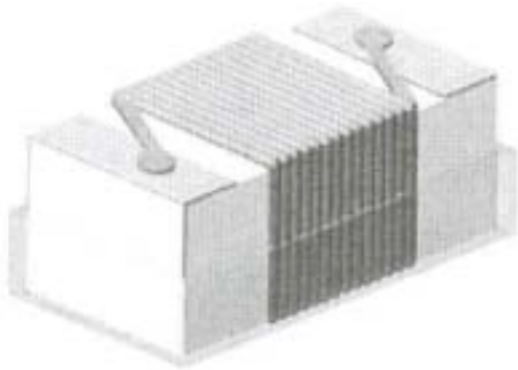


Wire Wound Chip Inductors

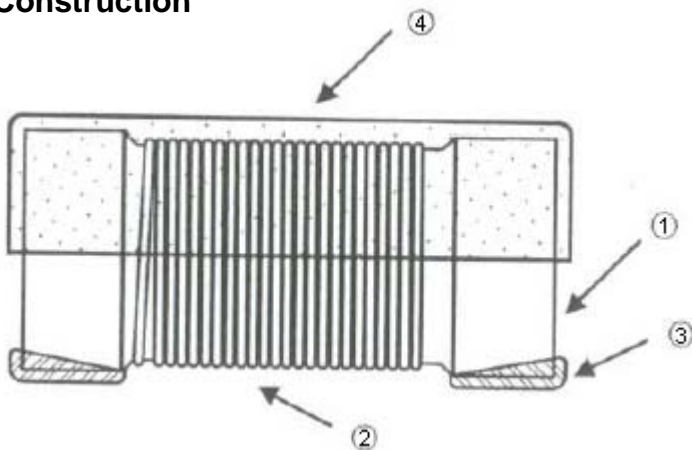


Features:

- Ceramic base provide high SRF.
- Ultra-compact inductors provide high Q factors.
- 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).

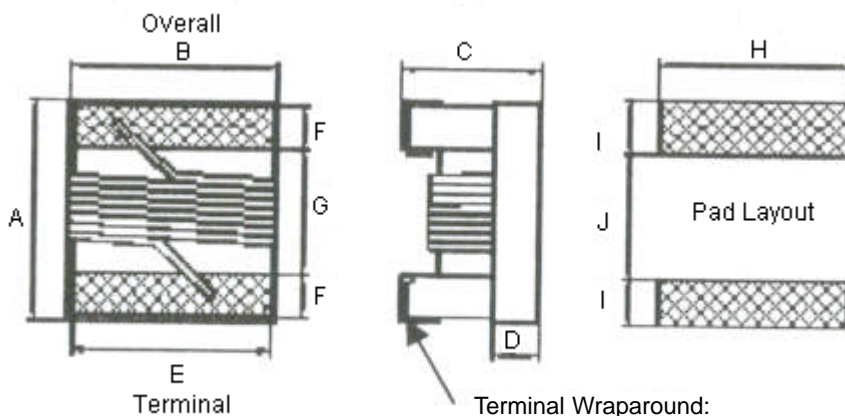


Construction



1	Ceramic Core
2	Magnet Wire
3	Electrode (Ag/Pd+Ni+Sn)
4	UV Glue

Dimensions



Terminal Wraparound:
Approximately 0.007 Inches / 0.18mm both ends

Wire Wound Chip Inductors



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.

Standard

Type	Size (Inch)	A Maximum	B Maximum	C Maximum	D Reference	E	F	G	H	I	J	Weight (g) (1000 Pieces)
MCWL02	0402	1.27	0.76	0.61	0.15	0.51	0.23	0.56	0.66	0.50	0.46	0.8
MCWL03	0603	1.80	1.12	1.02	0.38	0.76	0.33	0.86	1.02	0.64	0.64	3.46
MCWL05	0805	2.29	1.73	1.52	0.51	1.27	0.44	1.02	1.78	1.02	0.76	12.13
MCWL08	1008	2.92	2.79	2.13	0.65	2.03	0.51	1.52	2.54	1.02	1.27	30.73
MCWL06	1206	3.45	1.90	1.40	0.50	1.60	0.50	2.20	1.93	1.02	1.78	40

Unit : mm

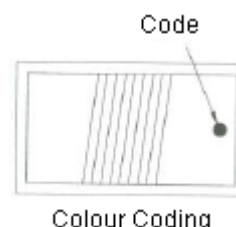
Low Profile

Type	Size (Inch)	A Maximum	B Maximum	C Maximum	D Reference	E	F	G	H	I	J
MCWL05	0805	2.29	1.73	1.03	0.51	1.27	0.44	1.02	1.78	1.02	0.76
MCWL08	1008	2.92	2.79	1.40	0.65	2.03	0.51	1.52	2.54	1.02	1.27

Unit : mm

Colour Coding

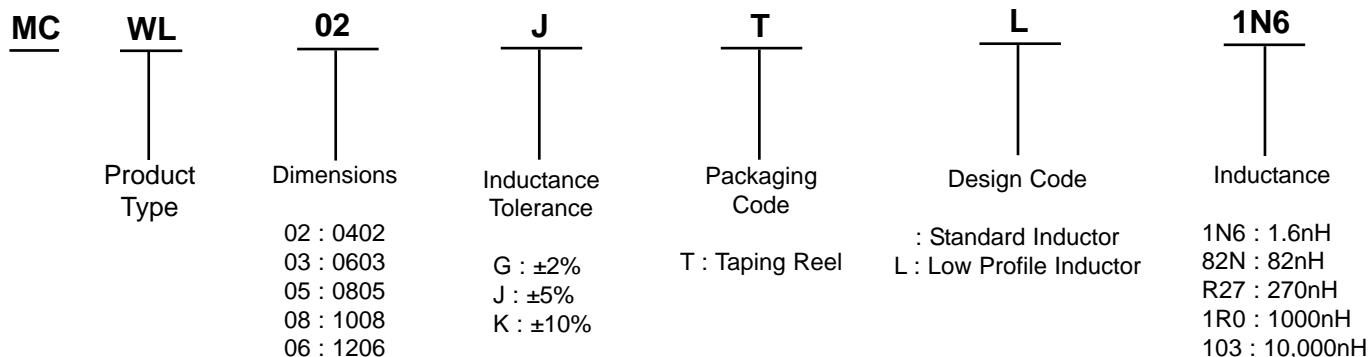
0603 / 0805 / 1008 / 1206 type (0402 type is no colour coding).
Because of small sizes, these parts are marked with a single colour dot.
The inductance value represented by the dot is shown on the data page for each type.



Wire Wound Chip Inductors



Part Numbering



Standard Electrical Specifications

MCWL02 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	900MHz		1.7GHz	
							L	Q	L	Q
1.0	±10%	250	16	12.70	0.045	1360	1.02	77	1.02	69
1.9	±10%	250	16	11.30	0.070	1040	1.72	68	1.74	82
2.0	±10%	250	16	11.10	0.070	1040	1.93	54	1.93	75
2.2	±10%	250	19	10.80	0.070	960	2.19	59	2.23	100
2.4	±10%	250	15	10.50	0.070	790	2.24	51	2.27	68
2.7	±10%	250	16	10.40	0.120	640	2.23	42	2.25	61
3.3	±10%	250	19	7.00	0.066	840	3.10	65	3.12	87
3.6	±5, ±10%	250	19	6.80	0.066	840	3.56	45	3.62	71
3.9	±5, ±10%	250	19	5.80	0.066	840	3.89	50	4.00	75
4.3	±5, ±10%	250	18	6.00	0.091	700	4.19	47	4.30	71
4.7	±5, ±10%	250	18	4.70	0.130	640	4.55	48	4.68	68
5.1	±5, ±10%	250	20	4.80	0.083	800	5.15	56	5.25	82
5.6	±5, ±10%	250	20	4.80	0.083	760	5.16	54	5.28	81
6.2	±5, ±10%	250	20	4.80	0.083	760	6.16	52	6.37	76
6.8	±5, ±10%	250	20	4.80	0.083	680	6.56	63	6.93	78
7.5	±5, ±10%	250	22	4.80	0.104	680	7.91	60	8.22	88
8.2	±5, ±10%	250	22	4.40	0.104	680	8.50	57	8.85	84
8.7	±5, ±10%	250	18	4.10	0.200	480	8.78	54	9.21	73
9.0	±5, ±10%	250	22	4.16	0.104	680	9.07	62	9.53	78
9.5	±5, ±10%	250	18	4.00	0.200	480	9.42	54	9.98	69
10	±2, ±5, ±10%	250	21	3.90	0.195	480	9.80	50	10.10	67

Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL02 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	900MHz		1.7GHz	
							L	Q	L	Q
11	±2, ±5, ±10%	250	24	3.68	0.120	640	10.70	52	11.20	78
12	±2, ±5, ±10%	250	24	3.60	0.120	640	11.90	53	12.70	71
13	±2, ±5, ±10%	250	24	3.45	0.210	440	13.40	51	14.60	57
15	±2, ±5, ±10%	250	24	3.28	0.172	560	14.60	55	15.50	77
16	±2, ±5, ±10%	250	24	3.10	0.220	560	16.60	46	18.80	47
18	±2, ±5, ±10%	250	25	3.10	0.230	420	18.30	57	20.30	62
19	±2, ±5, ±10%	250	24	3.04	0.202	480	19.10	50	21.10	67
20	±2, ±5, ±10%	250	25	3.00	0.250	420	20.70	52	23.70	53
22	±2, ±5, ±10%	250	25	2.80	0.300	400	23.20	53	26.80	53
23	±2, ±5, ±10%	250	24	2.72	0.300	400	23.80	49	26.90	64
24	±2, ±5, ±10%	250	25	2.70	0.300	400	25.10	51	29.50	50
27	±2, ±5, ±10%	250	24	2.48	0.300	400	28.70	49	33.50	63
30	±2, ±5, ±10%	250	25	2.35	0.350	400	31.10	46	38.50	39
33	±2, ±5, ±10%	250	24	2.35	0.350	400	34.90	31	41.70	32
36	±2, ±5, ±10%	250	24	2.32	0.440	320	39.50	44	48.40	53
39	±2, ±5, ±10%	250	25	2.10	0.550	200	41.70	47	50.20	45
40	±2, ±5, ±10%	250	24	2.24	0.500	320	39.00	44	47.40	33
43	±2, ±5, ±10%	250	25	2.03	0.810	100	45.80	46	61.60	34
47	±2, ±5, ±10%	250	25	2.10	0.830	150	50.00	38	55.80	37
51	±2, ±5, ±10%	250	25	1.75	0.820	100	50.40	47	59.40	37
56	±2, ±5, ±10%	250	25	1.76	0.970	100	57.40	49	72.40	40
68	±2, ±5, ±10%	250	22	1.62	1.120	100	69.60	45	83.40	38

MCWL03 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	900MHz		1.7GHz		Colour Code
							L	Q	L	Q	
1.6	±5, ±10%	250	24	12.5	0.030	700	1.53	35	1.58	55	Blue
1.8	±5, ±10%	250	16	12.5	0.045	700	1.63	35	1.66	50	Black
2.2	±5, ±10%	250	15	6.00	0.100	700	2.18	41	2.20	64	White
2.3	±5, ±10%	250	16	>4.00	0.140	700	2.32	32	2.35	40	Yellow
3.3	±2, ±5, ±10%	250	22	>6.00	0.080	700	3.35	47	3.40	65	Red
3.6	±2, ±5, ±10%	250	22	5.80	0.063	700	3.53	49	3.58	65	Violet

Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL03 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	900MHz		1.7GHz		Colour Code
							L	Q	L	Q	
3.9	$\pm 2, \pm 5, \pm 10\%$	250	22	>6.00	0.080	700	3.95	49	3.96	67	Brown
4.3	$\pm 2, \pm 5, \pm 10\%$	250	22	5.80	0.063	700	4.32	49	4.43	67	Orange
4.5	$\pm 2, \pm 5, \pm 10\%$	250	20	5.80	0.120	700	4.74	55	4.87	92	Grey
4.7	$\pm 2, \pm 5, \pm 10\%$	250	25	5.80	0.120	700	4.65	53	4.80	67	Violet
5.1	$\pm 2, \pm 5, \pm 10\%$	250	20	5.80	0.160	700	5.13	47	5.36	56	Green
5.6	$\pm 2, \pm 5, \pm 10\%$	250	20	5.80	0.170	700	5.53	56	5.86	77	Yellow
6.2	$\pm 2, \pm 5, \pm 10\%$	250	25	5.80	0.110	700	6.28	60	6.40	85	Black
6.3	$\pm 2, \pm 5, \pm 10\%$	250	25	5.80	0.110	700	6.67	41	6.86	61	Black
6.8	$\pm 2, \pm 5, \pm 10\%$	250	27	5.80	0.110	700	6.75	60	7.10	81	Red
7.5	$\pm 2, \pm 5, \pm 10\%$	250	28	4.80	0.106	700	7.70	60	7.82	65	Brown
8.2	$\pm 2, \pm 5, \pm 10\%$	250	27	4.80	0.110	700	8.25	64	8.40	81	Green
8.7	$\pm 2, \pm 5, \pm 10\%$	250	28	4.80	0.109	700	8.86	62	9.32	58	Yellow
9.1	$\pm 2, \pm 5, \pm 10\%$	250	35	4.80	0.130	700	9.20	70	9.70	80	Black
9.5	$\pm 2, \pm 5, \pm 10\%$	250	28	5.40	0.135	700	9.70	59	9.92	61	Blue
10	$\pm 2, \pm 5, \pm 10\%$	250	31	4.80	0.130	700	10.0	66	10.6	83	Orange
11	$\pm 2, \pm 5, \pm 10\%$	250	31	4.00	0.086	700	11.3	53	12.1	56	Grey
12	$\pm 2, \pm 5, \pm 10\%$	250	35	4.00	0.130	700	12.3	72	13.5	83	Yellow
15	$\pm 2, \pm 5, \pm 10\%$	250	35	4.00	0.170	700	15.4	64	16.8	89	Green
16	$\pm 2, \pm 5, \pm 10\%$	250	35	3.30	0.110	700	16.5	55	18.0	52	White
17	$\pm 2, \pm 5, \pm 10\%$	250	35	3.20	0.170	700	17.6	56	19.4	44	Red
18	$\pm 2, \pm 5, \pm 10\%$	250	35	3.10	0.170	700	18.7	70	21.4	69	Blue
20	$\pm 2, \pm 5, \pm 10\%$	250	40	3.00	0.190	700	20.7	80	23.5	30	Green
22	$\pm 2, \pm 5, \pm 10\%$	250	38	3.00	0.190	700	22.8	73	26.1	71	Violet
23	$\pm 2, \pm 5, \pm 10\%$	250	38	2.85	0.190	700	24.1	71	28.0	71	Orange
24	$\pm 2, \pm 5, \pm 10\%$	250	38	2.80	0.130	700	25.7	45	30.9	40	Black
27	$\pm 2, \pm 5, \pm 10\%$	250	40	2.80	0.220	600	29.2	74	34.6	65	Grey
30	$\pm 2, \pm 5, \pm 10\%$	250	40	2.80	0.150	600	31.4	47	39.8	28	Brown
33	$\pm 2, \pm 5, \pm 10\%$	250	40	2.30	0.220	600	36.0	67	49.5	42	White
36	$\pm 2, \pm 5, \pm 10\%$	250	37	2.30	0.250	600	39.1	47	48.9	24	Red
39	$\pm 2, \pm 5, \pm 10\%$	250	40	2.20	0.250	600	42.7	60	60.2	40	Black
43	$\pm 2, \pm 5, \pm 10\%$	200	38	2.00	0.280	600	46.9	44	60.3	21	Orange
47	$\pm 2, \pm 5, \pm 10\%$	200	38	2.00	0.280	600	52.2	62	77.2	35	Brown

Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL03 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	900MHz		1.7GHz		Colour Code
							L	Q	L	Q	
51	±2, ±5, ±10%	200	38	1.90	0.280	600	55.5	69	82.2	34	Blue
56	±2, ±5, ±10%	200	38	1.90	0.310	600	62.5	56	97.0	26	Red
62	±2, ±5, ±10%	200	37	1.80	0.340	600	68.0	40	110	10	Grey
68	±2, ±5, ±10%	200	37	1.70	0.340	600	80.5	54	168	21	Orange
72	±2, ±5, ±10%	150	34	1.70	0.490	600	82.0	53	135	20	Yellow
82	±2, ±5, ±10%	150	34	1.70	0.540	400	96.2	54	177	21	Green
91	±2, ±5, ±10%	150	30	1.70	0.500	400	110.0	50	416.4	6	Brown
100	±2, ±5, ±10%	150	34	1.40	0.580	400	124.0	49	319.5	13	Blue
110	±2, ±5, ±10%	150	32	1.35	0.610	300	138.0	43	342.7	15	Violet
120	±2, ±5, ±10%	150	32	1.30	0.650	300	166.0	39	529.3	8	Grey
130	±2, ±5, ±10%	150	30	1.40	0.720	300	185.0	60	-	-	White
140	±2, ±5, ±10%	100	28	1.30	0.870	280	190.0	80	-	-	Blue
150	±2, ±5, ±10%	100	28	1.30	0.950	280	230.0	25	-	-	White
160	±2, ±5, ±10%	100	25	1.30	1.400	280	215.0	20	-	-	Yellow
180	±2, ±5, ±10%	100	25	1.25	1.400	250	305.0	22	-	-	Black
220	±2, ±5, ±10%	100	25	1.20	1.600	250	377.0	21	-	-	Brown
260	±2, ±5, ±10%	100	25	1.00	2.000	200	469.0	21	-	-	Violet
270	±2, ±5, ±10%	100	25	0.90	2.100	200	523.0	19	-	-	Red
280	±2, ±5, ±10%	100	25	1.00	2.400	100	524.0	18	-	-	Green
300	±2, ±5, ±10%	100	25	0.75	2.500	150	539.7	21	-	-	Orange
330	±2, ±5, ±10%	100	25	0.90	3.800	100	680.4	20	-	-	Blue
390	±2, ±5, ±10%	100	25	0.90	4.350	100	734.5	29	-	-	Yellow
470	±2, ±5, ±10%	100	23	0.60	3.600	80	-	-	-	-	White

MCWL05 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
2.7	±5, ±10%	250	80 at 1500MHz	7.900	0.06	800	Brown
2.8	±5, ±10%	250	80 at 1500MHz	7.900	0.06	800	Grey
3.0	±5, ±10%	250	65 at 1500MHz	7.900	0.06	800	White
3.3	±5, ±10%	250	50 at 1500MHz	6.000	0.08	600	Black
5.6	±5, ±10%	250	65 at 1000MHz	5.500	0.08	600	Orange
6.2	±5, ±10%	250	50 at 1000MHz	5.500	0.11	600	Green

<http://www.farnell.com>
<http://www.newark.com>
<http://www.cpc.co.uk>



Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL05 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
6.8	$\pm 5, \pm 10\%$	250	50 at 1000MHz	5.500	0.11	600	Brown
7.5	$\pm 5, \pm 10\%$	250	50 at 1000MHz	4.500	0.14	600	Green
8.2	$\pm 5, \pm 10\%$	250	50 at 1000MHz	4.700	0.12	600	Red
8.7	$\pm 5, \pm 10\%$	250	50 at 1000MHz	4.000	0.21	400	White
10	$\pm 2, \pm 5, \pm 10\%$	250	60 at 500MHz	4.200	0.10	600	Blue
12	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	4.000	0.15	600	Orange
15	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	3.400	0.17	600	Yellow
18	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	3.300	0.20	600	Green
22	$\pm 2, \pm 5, \pm 10\%$	250	55 at 500MHz	2.600	0.22	500	Blue
24	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	2.000	0.22	500	Grey
27	$\pm 2, \pm 5, \pm 10\%$	250	55 at 500MHz	2.500	0.25	500	Violet
33	$\pm 2, \pm 5, \pm 10\%$	250	60 at 500MHz	2.050	0.27	500	Grey
36	$\pm 2, \pm 5, \pm 10\%$	250	55 at 500MHz	1.700	0.27	500	Orange
39	$\pm 2, \pm 5, \pm 10\%$	250	60 at 500MHz	2.000	0.29	500	White
43	$\pm 2, \pm 5, \pm 10\%$	200	60 at 500MHz	1.650	0.34	500	Yellow
47	$\pm 2, \pm 5, \pm 10\%$	200	60 at 500MHz	1.650	0.31	500	Black
56	$\pm 2, \pm 5, \pm 10\%$	200	60 at 500MHz	1.550	0.34	500	Brown
68	$\pm 2, \pm 5, \pm 10\%$	200	60 at 500MHz	1.450	0.38	500	Red
72	$\pm 2, \pm 5, \pm 10\%$	150	65 at 500MHz	1.400	0.40	500	Green
82	$\pm 2, \pm 5, \pm 10\%$	150	65 at 500MHz	1.300	0.42	400	Orange
91	$\pm 2, \pm 5, \pm 10\%$	150	65 at 500MHz	1.200	0.48	400	Black
100	$\pm 2, \pm 5, \pm 10\%$	150	65 at 500MHz	1.200	0.46	400	Yellow
110	$\pm 2, \pm 5, \pm 10\%$	150	50 at 250MHz	1.000	0.48	400	Brown
120	$\pm 2, \pm 5, \pm 10\%$	150	50 at 250MHz	1.100	0.51	400	Green
150	$\pm 2, \pm 5, \pm 10\%$	100	50 at 250MHz	0.920	0.56	400	Blue
180	$\pm 2, \pm 5, \pm 10\%$	100	50 at 250MHz	0.870	0.64	400	Violet
200	$\pm 2, \pm 5, \pm 10\%$	100	50 at 250MHz	0.860	0.66	400	Orange
220	$\pm 2, \pm 5, \pm 10\%$	100	50 at 250MHz	0.850	0.70	400	Grey
240	$\pm 2, \pm 5, \pm 10\%$	100	44 at 250MHz	0.690	1.00	350	Red
250	$\pm 2, \pm 5, \pm 10\%$	100	50 at 250MHz	0.680	1.00	350	Green
270	$\pm 2, \pm 5, \pm 10\%$	100	48 at 250MHz	0.650	1.00	350	White
300	$\pm 2, \pm 5, \pm 10\%$	100	48 at 250MHz	0.620	1.20	330	Yellow

Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL05 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
330	$\pm 2, \pm 5, \pm 10\%$	100	48 at 250MHz	0.600	1.40	310	Black
360	$\pm 2, \pm 5, \pm 10\%$	100	48 at 250MHz	0.580	1.45	300	Green
390	$\pm 2, \pm 5, \pm 10\%$	100	48 at 250MHz	0.560	1.50	290	Brown
430	$\pm 2, \pm 5, \pm 10\%$	50	33 at 100MHz	0.430	1.70	230	Blue
470	$\pm 2, \pm 5, \pm 10\%$	50	33 at 100MHz	0.375	1.70	250	Red
560	$\pm 2, \pm 5, \pm 10\%$	25	23 at 50MHz	0.340	1.90	230	Orange
600	$\pm 2, \pm 5, \pm 10\%$	25	23 at 50MHz	0.260	1.60	450	White
620	$\pm 2, \pm 5, \pm 10\%$	25	23 at 50MHz	0.220	2.20	210	Yellow
680	$\pm 2, \pm 5, \pm 10\%$	25	23 at 50MHz	0.200	2.20	190	Green
750	$\pm 2, \pm 5, \pm 10\%$	25	23 at 50MHz	0.200	2.30	180	Blue
820	$\pm 2, \pm 5, \pm 10\%$	25	23 at 50MHz	0.200	2.35	180	Violet
1000	$\pm 2, \pm 5, \pm 10\%$	25	20 at 50MHz	0.100	2.50	170	Grey
1200	$\pm 2, \pm 5, \pm 10\%$	7.9	18 at 25MHz	0.100	2.50	170	White
1500	$\pm 2, \pm 5, \pm 10\%$	7.9	16 at 25MHz	0.100	2.50	170	Black
1800	$\pm 2, \pm 5, \pm 10\%$	7.9	16 at 7.9MHz	0.080	2.50	170	Brown
2200	$\pm 2, \pm 5, \pm 10\%$	7.9	16 at 7.9MHz	0.060	2.70	160	Red
2700	$\pm 2, \pm 5, \pm 10\%$	7.9	16 at 7.9MHz	0.050	3.10	150	Orange
3300	$\pm 2, \pm 5, \pm 10\%$	7.9	15 at 7.9MHz	0.040	4.40	90	Blue
4700	$\pm 2, \pm 5, \pm 10\%$	7.9	15 at 7.9MHz	0.040	6.40	90	Green

MCWL08 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
*5.6	$\pm 5, \pm 10\%$	50	50 at 1500MHz	4.000	0.15	1000	Black
*10	$\pm 2, \pm 5, \pm 10\%$	50	50 at 500MHz	4.100	0.08	1000	Brown
*12	$\pm 2, \pm 5, \pm 10\%$	50	50 at 500MHz	3.300	0.09	1000	Red
*15	$\pm 2, \pm 5, \pm 10\%$	50	50 at 500MHz	2.500	0.11	1000	Orange
*18	$\pm 2, \pm 5, \pm 10\%$	50	50 at 350MHz	2.400	0.12	1000	Yellow
*22	$\pm 2, \pm 5, \pm 10\%$	50	55 at 350MHz	2.400	0.12	1000	Green
24	$\pm 2, \pm 5, \pm 10\%$	50	55 at 350MHz	1.900	0.13	1000	Blue
*27	$\pm 2, \pm 5, \pm 10\%$	50	55 at 350MHz	1.600	0.13	1000	Violet
*33	$\pm 2, \pm 5, \pm 10\%$	50	60 at 350MHz	1.600	0.14	1000	Grey
36	$\pm 2, \pm 5, \pm 10\%$	50	60 at 350MHz	1.600	0.15	1000	Orange

Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL08 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
*39	$\pm 2, \pm 5, \pm 10\%$	50	60 at 350MHz	1.500	0.15	1000	White
*47	$\pm 2, \pm 5, \pm 10\%$	50	65 at 350MHz	1.500	0.16	1000	Black
*56	$\pm 2, \pm 5, \pm 10\%$	50	65 at 350MHz	1.300	0.18	1000	Brown
*62	$\pm 2, \pm 5, \pm 10\%$	50	65 at 350MHz	1.250	0.20	1000	Blue
*68	$\pm 2, \pm 5, \pm 10\%$	50	65 at 350MHz	1.300	0.20	1000	Red
75	$\pm 2, \pm 5, \pm 10\%$	50	60 at 350MHz	1.100	0.21	1000	White
*82	$\pm 2, \pm 5, \pm 10\%$	50	60 at 350MHz	1.000	0.22	1000	Orange
91	$\pm 2, \pm 5, \pm 10\%$	50	50 at 350MHz	1.000	0.45	1000	White
*100	$\pm 2, \pm 5, \pm 10\%$	25	60 at 350MHz	1.000	0.56	650	Yellow
*120	$\pm 2, \pm 5, \pm 10\%$	25	60 at 350MHz	0.950	0.63	650	Green
*150	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.850	0.70	800	Blue
*180	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.750	0.77	620	Violet
*220	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.700	0.84	500	Grey
*240	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.650	0.88	500	White
*270	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.600	0.91	690	Black
*300	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.585	1.00	450	Brown
*330	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.570	1.05	450	Red
*360	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.530	1.10	470	Orange
*390	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.500	1.12	630	Yellow
*430	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.480	1.15	470	Green
*470	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.450	1.19	470	Blue
*560	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.415	1.33	580	Violet
*620	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.375	1.40	300	Grey
*680	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.375	1.47	540	White
*750	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.360	1.54	360	Black
*820	$\pm 2, \pm 5, \pm 10\%$	25	45 at 100MHz	0.350	1.61	400	Brown
*910	$\pm 2, \pm 5, \pm 10\%$	25	35 at 50MHz	0.320	1.68	380	Red
*1000	$\pm 2, \pm 5, \pm 10\%$	25	35 at 50MHz	0.290	1.75	370	Orange
*1200	$\pm 2, \pm 5, \pm 10\%$	7.9	35 at 50MHz	0.250	2.00	310	Yellow
*1500	$\pm 2, \pm 5, \pm 10\%$	7.9	28 at 50MHz	0.200	2.30	330	Green
*1800	$\pm 2, \pm 5, \pm 10\%$	7.9	28 at 50MHz	0.160	2.60	300	Blue
*2200	$\pm 2, \pm 5, \pm 10\%$	7.9	28 at 50MHz	0.160	2.80	280	Violet

Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL08 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
*2700	$\pm 2, \pm 5, \pm 10\%$	7.9	22 at 25MHz	0.140	3.20	290	Grey
*3300	$\pm 2, \pm 5, \pm 10\%$	7.9	22 at 25MHz	0.110	3.40	290	White
*3900	$\pm 2, \pm 5, \pm 10\%$	7.9	18 at 25MHz	0.100	3.60	260	Black
*4700	$\pm 2, \pm 5, \pm 10\%$	7.9	18 at 25MHz	0.090	4.00	260	Brown
5600	$\pm 2, \pm 5, \pm 10\%$	7.9	16 at 7.96MHz	0.020	4.00	240	Red
6800	$\pm 2, \pm 5, \pm 10\%$	7.9	15 at 7.96MHz	0.040	4.90	200	Orange
8200	$\pm 2, \pm 5, \pm 10\%$	7.9	15 at 7.96MHz	0.025	6.00	170	Yellow
10000	$\pm 2, \pm 5, \pm 10\%$	2.52	15 at 7.96MHz	0.020	9.00	150	Green
12000	$\pm 2, \pm 5, \pm 10\%$	2.52	15 at 7.96MHz	0.018	10.5	130	Blue
15000	$\pm 2, \pm 5, \pm 10\%$	2.52	15 at 7.96MHz	0.015	11.5	120	Violet

“ * ” Test Methods / Instrument : Network / Spectrum Analyzer

MCWL06 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
6.8	$\pm 5, \pm 10\%$	100	30 at 300MHz	5.50	0.07	1000	Brown
10	$\pm 5, \pm 10\%$	100	40 at 300MHz	4.00	0.08	1000	Red
12	$\pm 5, \pm 10\%$	100	40 at 300MHz	3.20	0.08	1000	Orange
15	$\pm 5, \pm 10\%$	100	40 at 300MHz	3.20	0.10	1000	Yellow
18	$\pm 5, \pm 10\%$	100	50 at 300MHz	2.80	0.10	1000	Green
22	$\pm 5, \pm 10\%$	100	50 at 300MHz	2.20	0.10	1000	Blue
24	$\pm 5, \pm 10\%$	100	50 at 300MHz	2.00	0.10	1000	Red
27	$\pm 2, \pm 5, \pm 10\%$	100	50 at 300MHz	1.80	0.11	1000	Violet
33	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.80	0.11	1000	Grey
39	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.80	0.12	1000	White
47	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.50	0.13	1000	Black
56	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.45	0.14	1000	Brown
62	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.20	0.20	1000	Violet
68	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.20	0.26	950	Red
82	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.20	0.21	920	Orange
91	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.10	0.24	900	White
100	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	1.10	0.26	850	Yellow

<http://www.farnell.com>
<http://www.newark.com>
<http://www.cpc.co.uk>



Wire Wound Chip Inductors



Standard Electrical Specifications

MCWL06 Wire Wound Chip Inductors / Standard Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
120	$\pm 2, \pm 5, \pm 10\%$	100	55 at 300MHz	0.75	0.26	800	Green
150	$\pm 2, \pm 5, \pm 10\%$	100	60 at 300MHz	0.95	0.31	750	Blue
180	$\pm 2, \pm 5, \pm 10\%$	50	55 at 300MHz	0.90	0.43	700	Violet
220	$\pm 2, \pm 5, \pm 10\%$	50	55 at 300MHz	0.76	0.50	670	Grey
270	$\pm 2, \pm 5, \pm 10\%$	50	55 at 300MHz	0.74	0.56	630	White
300	$\pm 2, \pm 5, \pm 10\%$	50	50 at 150MHz	0.68	0.60	600	Green
330	$\pm 2, \pm 5, \pm 10\%$	50	45 at 150MHz	0.65	0.62	590	Black
360	$\pm 2, \pm 5, \pm 10\%$	50	45 at 150MHz	0.60	0.65	550	Blue
390	$\pm 2, \pm 5, \pm 10\%$	50	45 at 150MHz	0.60	0.75	530	Brown
470	$\pm 2, \pm 5, \pm 10\%$	50	45 at 150MHz	0.55	1.30	490	Red
560	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.47	1.34	460	Orange
620	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.47	1.58	460	Grey
680	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.45	1.58	430	Yellow
750	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.44	2.25	320	White
820	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.42	1.82	400	Green
910	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.41	2.95	310	Green
1000	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.40	2.80	320	Blue
1200	$\pm 2, \pm 5, \pm 10\%$	35	45 at 150MHz	0.38	3.20	300	Violet

Low Profile Electrical Specifications

MCWL05 Wire Wound Chip Inductors / Low Profile Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
1.8	$\pm 5\%$	250	55 at 1500MHz	9.40	0.03	800	Black
3.9	$\pm 5, \pm 10\%$	250	60 at 1000MHz	6.10	0.06	800	Brown
4.7	$\pm 5, \pm 10\%$	250	50 at 1000MHz	5.50	0.06	800	Red
6.8	$\pm 5, \pm 10\%$	250	50 at 1000MHz	5.50	0.08	800	Orange
8.2	$\pm 5, \pm 10\%$	250	50 at 1000MHz	4.80	0.08	800	Yellow
10	$\pm 2, \pm 5, \pm 10\%$	250	55 at 750MHz	3.30	0.08	800	Green
12	$\pm 2, \pm 5, \pm 10\%$	250	55 at 750MHz	3.80	0.10	800	Blue
15	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	2.95	0.10	800	Violet
18	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	3.10	0.13	800	Grey
22	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	2.90	0.15	800	White

Wire Wound Chip Inductors



Low Profile Electrical Specifications

MCWL05 Wire Wound Chip Inductors / Low Profile Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
27	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	2.45	0.23	600	Black
33	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	2.35	0.28	600	Brown
39	$\pm 2, \pm 5, \pm 10\%$	250	50 at 500MHz	2.20	0.33	600	Red
47	$\pm 2, \pm 5, \pm 10\%$	200	50 at 500MHz	2.00	0.39	600	Orange
56	$\pm 2, \pm 5, \pm 10\%$	200	50 at 500MHz	1.85	0.39	500	Yellow
68	$\pm 2, \pm 5, \pm 10\%$	200	50 at 500MHz	1.50	0.40	500	Green
82	$\pm 2, \pm 5, \pm 10\%$	150	50 at 500MHz	1.50	0.44	500	Blue
100	$\pm 2, \pm 5, \pm 10\%$	150	50 at 500MHz	1.20	0.64	400	Violet
120	$\pm 2, \pm 5, \pm 10\%$	150	40 at 250MHz	1.15	0.68	300	Grey
150	$\pm 2, \pm 5, \pm 10\%$	150	40 at 250MHz	1.05	0.80	300	White
1000	$\pm 2, \pm 5, \pm 10\%$	25	16 at 50MHz	0.08	3.50	170	Black

MCWL08 Wire Wound Chip Inductors / Low Profile Type

Inductance (nH)	Tolerance	L Frequency (MHz)	Quality Factor Minimum	SRF (GHz) Minimum	DCR (Ω) Maximum	IDC (mA) Maximum	Colour Code
3.3	$\pm 5, \pm 10\%$	50	42 at 1500MHz	6.00	0.03	1000	White
4.2	$\pm 5, \pm 10\%$	50	42 at 1500MHz	6.00	0.15	1000	Black
6.8	$\pm 5, \pm 10\%$	50	50 at 1500MHz	5.40	0.17	1000	Brown
8.2	$\pm 5, \pm 10\%$	50	50 at 1500MHz	5.00	0.22	1000	Red
15	$\pm 5, \pm 10\%$	50	57 at 500MHz	3.00	0.22	1000	Orange
18	$\pm 5, \pm 10\%$	50	50 at 350MHz	2.40	0.12	1000	Grey
20	$\pm 5, \pm 10\%$	50	72 at 500MHz	2.40	0.33	1000	Yellow
27	$\pm 5, \pm 10\%$	50	50 at 350MHz	1.60	0.13	850	Green
30	$\pm 5, \pm 10\%$	50	69 at 500MHz	2.40	0.38	600	Blue
40	$\pm 5, \pm 10\%$	50	67 at 500MHz	2.00	0.43	600	Violet
50	$\pm 2, \pm 5, \pm 10\%$	50	72 at 500MHz	1.90	0.48	600	Grey
60	$\pm 2, \pm 5, \pm 10\%$	50	75 at 500MHz	1.80	0.52	600	White
70	$\pm 2, \pm 5, \pm 10\%$	50	68 at 500MHz	1.70	0.55	510	Black
80	$\pm 2, \pm 5, \pm 10\%$	50	75 at 500MHz	1.40	0.56	510	Brown
180	$\pm 2, \pm 5, \pm 10\%$	50	50 at 350MHz	0.90	0.40	450	Blue
560	$\pm 2, \pm 5, \pm 10\%$	25	40 at 100MHz	0.415	1.33	400	Red

Wire Wound Chip Inductors



Environmental Characteristics

Electrical Performance Test

Item	Requirement	Test Method
Inductance	Refer to standard electrical characteristic Specifications.	HP4286
Q		HP4286
SRF		HP4287
DC Resistance RDC		Micro-Ohm meter (Gom-801G)
Rated current IDC		Applied the current to coils, The Inductance change should be less than 10% initial value
Over load	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 minutes
Withstanding voltage	Inductors shall be no evidence of electrical and mechanical damage.	AC voltage of 500 V ac applied between inductors terminal and case for 1 minute
Insulation resistance	1000M ohm Minimum	100 V _{DC} applied between inductor terminal and case

Mechanical Performance Test

Item	Requirement	Test Method
Vibration	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 and 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)	lbs. For 0402 lbs. For 0603 lbs. For the rest	The device should be soldered (260 ± 5 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	No damage	Dropping chip by each side and each corner. Drop 10 times in total Drop height : 100cm Drop weight : 125g
Solderability	90% covered with solder	Inductor shall be dipped in a melted solder bath at 245 ± 5 for 3 seconds
Resistance to solvent	No damage on appearance and marking	MIL-STD202F, method 215D

Wire Wound Chip Inductors



Environmental Characteristics

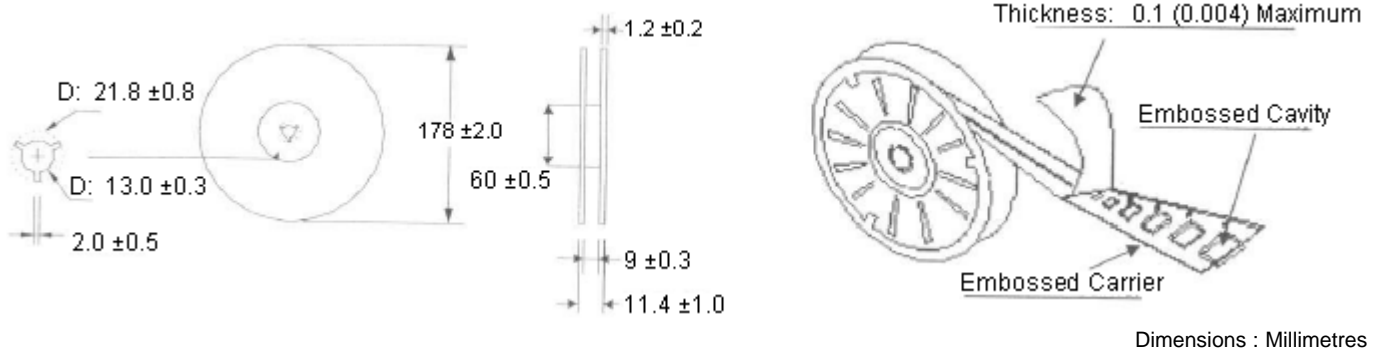
Climatic Test

Item	Requirement	Test Method															
Temperature characteristic		-40 to +125°C															
Humidity		Temperature : 40 ±2°C Relative humidity : 90 to 95% Time : 96 ±2 hours Measured after exposure in the room condition for 2 hours															
Low temperature storage		Temperature : -40 ±2°C Time : 96 ±2 hours Inductors are tested after 1 hour at room temperature															
Thermal shock	Appearance : No damage L change : Within ±10% Q change : Within ±20%	One cycle : <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (Minimum)</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 (°C)	Time (Minimum)	1	-25 ±3	30	2	25 ±2	15	3	125 ±3	30	4	25 ±2	15
Step	Temperature (°C)	Time (Minimum)															
1	-25 ±3	30															
2	25 ±2	15															
3	125 ±3	30															
4	25 ±2	15															
High temperature storage		Temperature : 125 ±2°C Time : 96 ±2 hours Measured after exposure in the room condition for 1 hour															
High temperature load life	There should be no evidence of short of open circuit	Temperature : 85 ±2°C Time : 1000 ±12 hours Load : Allowed DC current															
Damp heat with load		Temperature : 40 ±2°C Relative humidity : 90 to 95% Time : 1000 ±12 hours Load : Allowed DC current															

Storage Temperature : 25 ±3°C; Humidity <80%RH.

Packaging

Reel Dimensions and Packaging Quantity

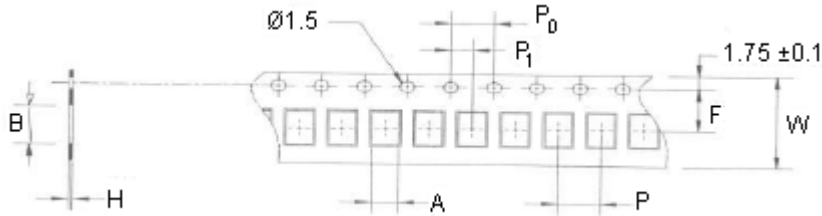


Wire Wound Chip Inductors



Packaging

Paper Tape Specification and Packaging Quantity

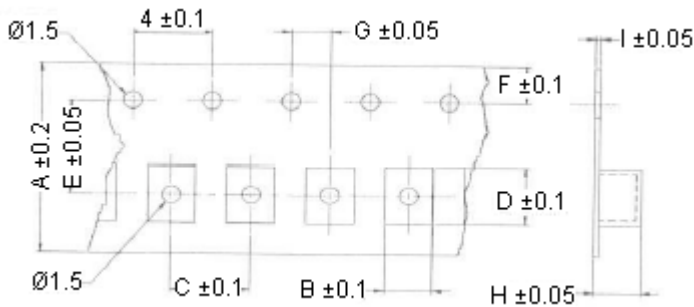


Dimensions : Millimetres

Type	A	B	H	F	P	P ₀	P ₁	W	Reel (EA)
MCWL02	0.72	1.19	0.60	3.50	4.00	4.00	2.00	8.00	4,000
MCWL03	1.35	1.95	0.95	3.50	4.00	4.00	2.00	8.00	4,000

Unit : mm

Embossed Plastic Tape Specification and Packaging Quantity



Dimensions : Millimetres

Type	A	B	C	D	E	F	G	H	I	Reel (EA)
MCWL05	8	1.85	4	2.30	3.5	1.75	2	1.45	0.23	2,000
MCWL05 (L)	8	1.80	4	2.30	3.5	1.75	2	0.90	0.23	2,000
MCWL05 (H)	8	1.85	4	2.30	3.5	1.75	2	1.45	0.23	2,000
MCWL06	8	1.95	4	3.50	3.5	1.75	2	1.50	0.23	2,000
MCWL08	8	2.70	4	2.80	3.5	1.75	2	2.00	0.23	2,000
MCWL08 (L)	8	2.70	4	2.80	3.5	1.75	2	1.50	0.23	2,000
MCWL08 (H)	8	2.70	4	2.80	3.5	1.75	2	2.00	0.23	2,000

Unit : mm

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