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SPC-F005.DWG

REVISIONS

DOC. NO. SPC-F005 \* Effective: 7/8/02 \* DCP No: 1398

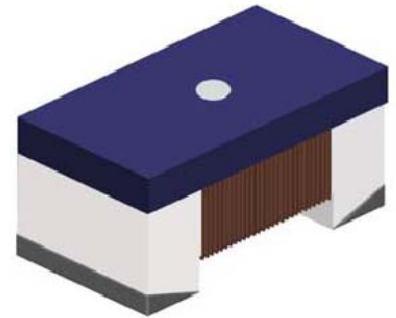
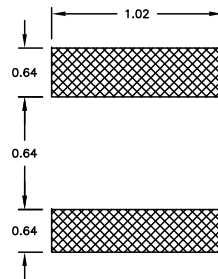
DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
2048	A	RELEASED	JN	05/21/09	JWM	05/21/09	JWM	05/21/09



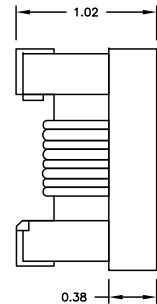
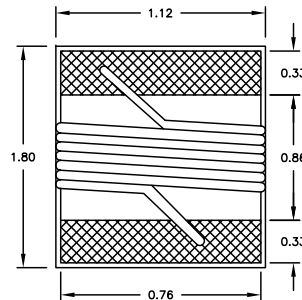
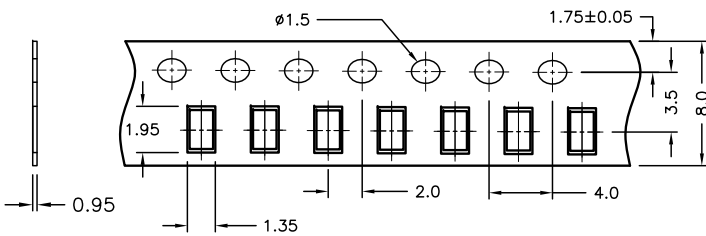
Features:

- 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 autmated assembly
- Outstanding endurance from Pull-up force, mechanical shock and pressure
- tighter tolerance down to  $\pm 2\%$

Recommended Pad Layout



Tape & Reel Dimension



DISCLAIMER: ALL STATEMENTS AND TECHNICAL INFORMATION CONTAINED HEREIN ARE BASED UPON INFORMATION AND/OR TESTS WE BELIEVE TO BE ACCURATE AND RELIABLE. SINCE CONDITIONS OF USE ARE BEYOND OUR CONTROL, THE USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE INTENDED USE AND ASSUME ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH.

TOLERANCES: UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.

DRAWN BY:	DATE:
Jason Nash	05/21/09
CHECKED BY:	DATE:
JWM	05/21/09
APPROVED BY:	DATE:
JWM	05/21/09

DRAWING TITLE:			
Wire Wound Chip Inductor - Case size 0603			
SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	Ta-1117	Ta-1117.DWG	A
SCALE: NTS		U.O.M.: Millimeters	SHEET: 1 OF 3

Mfr PN	Inductance	Inductance Tolerance	DC Resistance Max	DC Current Rating	Self Resonant Frequency	Package	Q Factor	Test Frequency
MCWL03JT10N	10nH	± 5%	0.130ohm	700mA	4.80MHz	603	Q Factor:31	250MHz
MCWL03JT12N	12nH	± 5%	0.130ohm	700mA	4.00MHz	603	Q Factor:35	250MHz
MCWL03JT15N	15nH	± 5%	0.170ohm	700mA	4.00MHz	603	Q Factor:35	250MHz
MCWL03JT18N	18nH	± 5%	0.170ohm	700mA	3.10MHz	603	Q Factor:35	250MHz
MCWL03JT22N	22nH	± 5%	0.190ohm	700mA	3.00MHz	603	Q Factor:38	250MHz
MCWL03JT27N	27nH	± 5%	0.220ohm	600mA	2.80MHz	603	Q Factor:40	250MHz
MCWL03JT2N2	2.2nH	± 5%	0.100ohm	700mA	6.00MHz	603	Q Factor:15	250MHz
MCWL03JT33N	33nH	± 5%	0.220ohm	600mA	2.30MHz	603	Q Factor:40	250MHz
MCWL03JT39N	39nH	± 5%	0.250ohm	600mA	2.20MHz	603	Q Factor:40	250MHz
MCWL03JT3N3	3.3nH	± 5%	0.080ohm	700mA	6.00MHz	603	Q Factor:22	250MHz
MCWL03JT47N	47nH	± 5%	0.280ohm	600mA	2.00MHz	603	Q Factor:38	200MHz
MCWL03JT4N7	4.7nH	± 5%	0.120ohm	700mA	5.80MHz	603	Q Factor:25	250MHz
MCWL03JT56N	56nH	± 5%	0.310ohm	600mA	1.90MHz	603	Q Factor:38	200MHz
MCWL03JT68N	68nH	± 5%	0.340ohm	600mA	1.70MHz	603	Q Factor:37	200MHz
MCWL03JT6N8	6.8nH	± 5%	0.110ohm	700mA	5.80MHz	603	Q Factor:27	250MHz
MCWL03JT82N	82nH	± 5%	0.540ohm	400mA	1.70MHz	603	Q Factor:34	150MHz
MCWL03JTR10	100nH	± 5%	0.580ohm	400mA	1.40MHz	603	Q Factor:34	150MHz
MCWL03JTR12	120nH	± 5%	0.650ohm	300mA	1.30MHz	603	Q Factor:32	150MHz
MCWL03JTR15	150nH	± 5%	0.950ohm	280mA	1.30MHz	603	Q Factor:28	150MHz
MCWL03JTR18	180nH	± 5%	1.400ohm	250mA	1.25MHz	603	Q Factor:25	150MHz
MCWL03JTR22	220nH	± 5%	1.600ohm	250mA	1.20MHz	603	Q Factor:25	150MHz
MCWL03JTR27	270nH	± 5%	2.100ohm	200mA	0.90MHz	603	Q Factor:25	100MHz
MCWL03JTR33	330nH	± 5%	3.800ohm	100mA	0.90MHz	603	Q Factor:25	100MHz
MCWL03JTR39	390nH	± 5%	4.350ohm	100mA	0.90MHz	603	Q Factor:25	100MHz
MCWL03JTR47	470nH	± 5%	3.60ohm	80mA	0.60MHz	603	Q Factor:23	100MHz

## Mechanical Performance

No.	Item	Specification	Test Methods
1	Vibration Test	Appearance: No damage L change: within ±5% Q change: within ±10%	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y, & Z), total 6hrs
2	Resistance to Soldering-Heat		Solder Temperature: 270±5°C Immersion Time: 10±2sec
3	Component Adhesion (Push Test)	1 lbs. For 0402 2 lbs. For 0603 3 lbs. For the rest	The device should be soldered (260±5°C for 10 seconds) to a lined copper substrate. A dynamometer force gauge should be applied to the side of the component. The device must withstand a minimum force of 2 or 4 pounds without a failure of adhesion on termination
4	Drop Test	No damage	Dropping chip by each side and each corner. Drop 10 times in total Drop height: 100cm Drop weight: 125g
5	Solderability Test	90% covered with solder.	Inductor shall be dipped in a melted solder bath at 245±5°C for 3 seconds.
6	Resistance to Solvent Test	No damage on appearance and marking.	MIL-STD202F, Method 215D

## Electrical Performance Test

No.	Item	Specification	Test Method
1	Inductance		HP4291B
2	Q		HP4291B
3	SRF	Refer to standard electrical characteristic spec.	HP8753D
4	DC Resistance RDC		Micro-Ohm meter (Gom-801G)
5	Rated Current IDC		Applied the current to coils. The inductance change should be less than 10% to initial value
6	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
7	Withstanding Voltage Test	Inductors shall be no evidence of electrical and mechanical damage.	AC voltage of 500 VAC applied between inductors terminal and case for 1 minute.
8	Insulation Resistance Test	1000M ohm min	100 VDC applied between inductor terminal and case

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SIZE DWG. NO.

A

Ta-1117

ELECTRONIC FILE

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REV

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SPC-F005.DWG

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SCALE: NTS

U.O.M.: INCHES [mm]

SHEET: 2 OF 3

### Climatic Test

No.	Item	Specification	Test Method														
1	Temperature Characteristic	Appearance: No damage L change: within $\pm 10\%$ Q change: within $\pm 20\%$	-40°C +125°C														
2	Humidity Test		Temperature: 40 $\pm$ 2°C Relative Humidity: 90~95% Time: 96hrs $\pm$ 2hrs Measured after exposure in the room condition for 2hrs														
3	Low Temperature Storage Test		Temperature: -40 $\pm$ 2°C Time: 96 $\pm$ 2hrs Inductors are tested after 1 hour at room temperature														
4	Thermal Shock Test		One cycle: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25<math>\pm</math>3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25<math>\pm</math>2</td> <td>15</td> </tr> <tr> <td>3</td> <td>125<math>\pm</math>3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25<math>\pm</math>2</td> <td>15</td> </tr> </tbody> </table> Total: 5 cycles	Step	Temperature	Time (min)	1	-25 $\pm$ 3	30	2	25 $\pm$ 2	15	3	125 $\pm$ 3	30	4	25 $\pm$ 2
Step	Temperature	Time (min)															
1	-25 $\pm$ 3	30															
2	25 $\pm$ 2	15															
3	125 $\pm$ 3	30															
4	25 $\pm$ 2	15															
5	High Temperature Storage Test	There should be no evidence of short of open circuit.	Temperature: 125 $\pm$ 2 Time: 96 $\pm$ 2hrs Measured after exposure in the room condition for 1hr														
6	High Temperature Load Life Test		Temperature: 85 $\pm$ 2 Time: 1000 $\pm$ 12hrs Load: Allowed DC current														
7	Humidity Load Life		Temperature: 40 $\pm$ 2C Relative Humidity: 90~95% Time: 1000 $\pm$ 12hrs Load: Allowed DC current														

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