



Wire Wound Chip Inductors

SWI0603CT Series



千如電子集團
ABC ELECTRONICS GROUP.

AOBA Technology (M) Sdn. Bhd.

INTRODUCTION

The SWI series are wire wound chip inductors widely used in the communication applications such as cellular phones, cable modem, ADSL, repeaters, Bluetooth, and other electronic devices. The wire wound inductors advance in higher self resonate frequency, better Q factor, and much more stable performance. Precious tolerance of 2% is available.

FEATURES

- Operating temperature -40 to +125°C for ceramic series.
- Excellent solderability and resistance to soldering heat.
- Suitable for reflow soldering.
- High reliability and easy surface mount assembly.
- Wide range of inductance values are available for flexible needs.

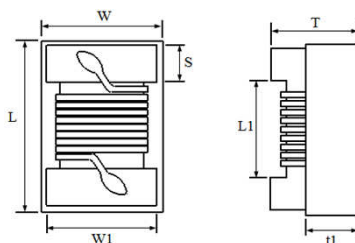
PART NUMBER

SWI 0603 C T 10N J - □□

1 2 3 taping 4 5 6

1 Product Type

2 Chip Dimension



Size (inch) mm	Length (L) (inch) mm	Width (W) (inch) mm	Thickness (T) (inch) mm	Terminal (S) (inch) mm	L1 (Ref.) mm	W1 (Ref.) mm	t1 (Ref.) mm
SWI0603 1608	(0.063 ± 0.008) 1.60 ± 0.20	(0.041 ± 0.008) 1.05 ± 0.20	(0.041 ± 0.008) 1.05 ± 0.20	(0.014 ± 0.004) 0.35 ± 0.10	0.80	0.95	0.50

3 Material Type C : Ceramic

4 Inductance Value 1N6 = 1.6nH 10N = 10nH R10 = 100nH

5 Tolerance B = ±0.2nH S = ±0.3nH G = ±2% J = ±5% K = ±10%

6 Internal Code

1 Scope

This specification applies to fixed inductors of the following types used in electronic equipment :

*Ceramic Type : For lower inductance with high Q factor at high frequency and stable circuit requirement.

2 Construction

*Configuration & Dimension : Please refer to the attached figures and tables.

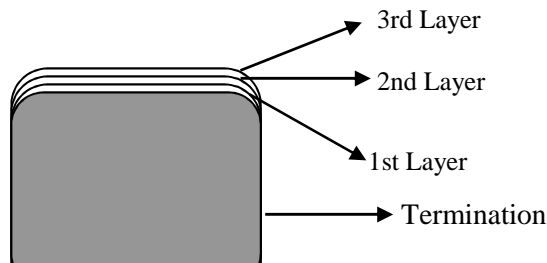
*Terminals : Consist of Ag alloy followed by Nickel, then Au plating for easier soldering.

3 Operating Temperature Range

Operating Temperature Range is the scope of ambient temperature at which the inductor can be operated continuously at rated current.

*Temp. Range : Ceramic material : -40°C ~ +125°C

4 Ingredient of terminals electrode



Ceramic Type :

1st Layer : Ag

2nd Layer : Nickel (Ni)

3rd Layer : Gold (Au)

5 Characteristics

Standard Atmospheric Conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows:

Ambient Temperature : 25°C ± 2°C

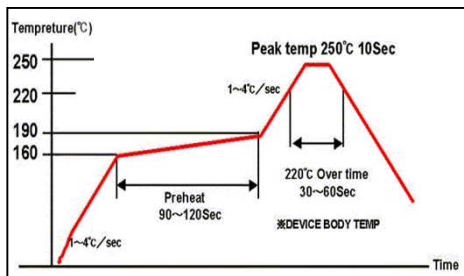
Relative Humidity : 60% to 70%

Air Pressure : 86Kpa to 106Kpa

Temperature Profile

1 Reflow Temperature Profile

(Temperature of the mounted parts surface on the printed circuit board)



Recommended Peak Temperature : 250°C Max

250°C up /within 10secs

Max. Reflow temperature : 260°C

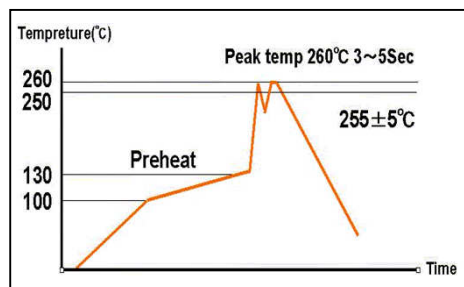
Gradient of temperature rise : av 1-4°C/sec

Preheat : 160-190°C/within 90-120secs

220°C up /within 30-60secs

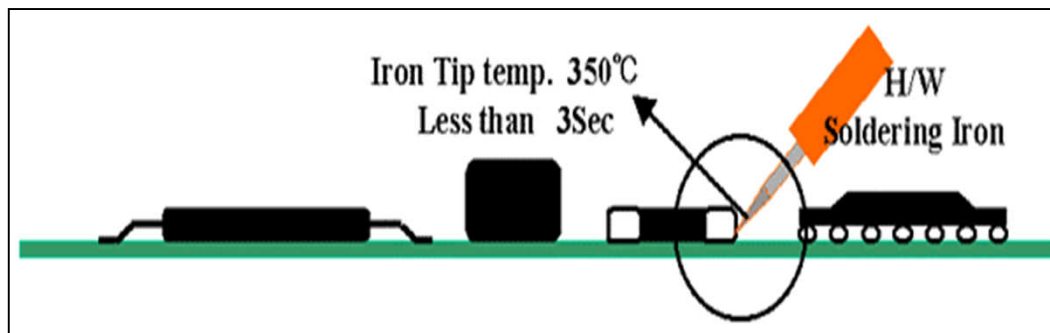
Composition of solder Sn-3Ag-0.5Cu

2 Dip Temperature

Solder bathtub temperature : 260°C max
within 5secs.Preheating temperature : 100~130°C
deposit solder temperature.

Composition of solder Sn-3Ag-0.5Cu

3 Soldering iron tip temperature : 350°C max / within 3 seconds.



SWI0603CT Series

Part No.	Inductance ¹ (nH)	Tolerance	Q ²		S.R.F. ³ Min (MHz)	RDC ⁴ Max (Ω)	IDC ⁵ Max (mA)	Marking
			Min	Typical @900MHz				
SWI0603CT 1N6 □-□□	1.6 @ 250MHz	B, S	24	40	12500	0.030	700	-
SWI0603CT 1N8 □-□□	1.8 @ 250MHz	B, S	16	35	12500	0.045	700	-
SWI0603CT 2N0 □-□□	2.0 @ 250MHz	B, S	16	31	6900	0.080	700	-
SWI0603CT 3N9 □-□□	3.9 @ 250MHz	B, S	22	51	6900	0.080	700	-
SWI0603CT 4N3 □-□□	4.3 @ 250MHz	B, S	22	45	5900	0.080	700	-
SWI0603CT 4N7 □-□□	4.7 @ 250MHz	B, S	20	47	5800	0.130	700	-
SWI0603CT 5N1 □-□□	5.1 @ 250MHz	K, J	20	47	5700	0.140	700	-
SWI0603CT 5N6 □-□□	5.6 @ 250MHz	K, J	16	40	5500	0.150	700	-
SWI0603CT 6N8 □-□□	6.8 @ 250MHz	K, J, B	30	63	5800	0.110	700	-
SWI0603CT 7N5 □-□□	7.5 @ 250MHz	K, J, B	28	64	4800	0.106	700	-
SWI0603CT 8N2 □-□□	8.2 @ 250MHz	K, J, B	30	72	4600	0.100	700	-
SWI0603CT 8N7 □-□□	8.7 @ 250MHz	K, J	28	66	4600	0.109	700	-
SWI0603CT 9N1 □-□□	9.1 @ 250MHz	K, J	28	60	4000	0.135	700	-
SWI0603CT 9N5 □-□□	9.5 @ 250MHz	K, J	28	62	4500	0.135	700	-
SWI0603CT 10N □-□□	10 @ 250MHz	K, J, G	30	66	3800	0.130	700	-
SWI0603CT 11N □-□□	11 @ 250MHz	K, J	33	68	4000	0.090	700	-
SWI0603CT 12N □-□□	12 @ 250MHz	K, J, G	35	72	4000	0.130	700	-
SWI0603CT 13N □-□□	13 @ 250MHz	K, J	38	75	4000	0.106	700	-
SWI0603CT 15N □-□□	15 @ 250MHz	K, J, G	35	68	4000	0.170	700	-
SWI0603CT 16N □-□□	16 @ 250MHz	K, J	34	66	3300	0.170	700	-
SWI0603CT 18N □-□□	18 @ 250MHz	K, J, G	38	77	3100	0.170	700	-
SWI0603CT 20N □-□□	20 @ 250MHz	K, J	38	72	3000	0.220	700	-
SWI0603CT 22N □-□□	22 @ 250MHz	K, J, G	38	70	3000	0.220	700	-
SWI0603CT 24N □-□□	24 @ 250MHz	K, J	37	75	2650	0.135	700	-
SWI0603CT 27N □-□□	27 @ 250MHz	K, J, G	40	75	2800	0.220	600	-
SWI0603CT 30N □-□□	30 @ 250MHz	K, J	45	57	2300	0.220	600	-
SWI0603CT 33N □-□□	33 @ 250MHz	K, J, G	43	78	2300	0.220	600	-
SWI0603CT 36N □-□□	36 @ 250MHz	K, J	43	70	2200	0.250	600	-
SWI0603CT 39N □-□□	39 @ 250MHz	K, J, G	43	66	2200	0.250	600	-
SWI0603CT 43N □-□□	43 @ 250MHz	K, J	38	62	2000	0.280	600	-
SWI0603CT 47N □-□□	47 @ 200MHz	K, J, G	40	65	2000	0.280	600	-
SWI0603CT 51N □-□□	51 @ 200MHz	K, J	40	66	1900	0.310	600	-
SWI0603CT 56N □-□□	56 @ 200MHz	K, J, G	40	66	1900	0.310	600	-
SWI0603CT 62N □-□□	62 @ 200MHz	K, J	40	60	1700	0.340	600	-
SWI0603CT 68N □-□□	68 @ 200MHz	K, J, G	40	57	1700	0.340	600	-

SWI0603CT Series

Part No.	Inductance ¹ (nH)	Tolerance	Q ²		S.R.F. ³ Min (MHz)	RDC ⁴ Max (Ω)	IDC ⁵ Max (mA)	Marking
			Min	Typical @900MHz				
SWI0603CT 72N □-□□	72 @ 150MHz	K, J, G	35	60	1700	0.490	400	-
SWI0603CT 82N □-□□	82 @ 150MHz	K, J, G	35	58	1700	0.540	400	-
SWI0603CT 90N □-□□	90 @ 150MHz	K, J	35	52	1700	0.540	400	-
SWI0603CT R10 □-□□	100 @ 150MHz	K, J, G	35	51	1400	0.630	400	-
SWI0603CT R11 □-□□	110 @ 150MHz	K, J, G	35	22	1400	0.630	400	-
SWI0603CT R12 □-□□	120 @ 150MHz	K, J, G	35	45	1300	0.650	300	-
SWI0603CT R13 □-□□	130 @ 150MHz	K, J	35	40	1000	0.920	280	-
SWI0603CT R15 □-□□	150 @ 150MHz	K, J, G	35	33	1000	0.920	280	-
SWI0603CT R16 □-□□	160 @ 100MHz	K, J, G	30	27	1000	1.000	250	-
SWI0603CT R18 □-□□	180 @ 100MHz	K, J, G	30	26	1000	1.250	240	-
SWI0603CT R20 □-□□	200 @ 100MHz	K, J	30	23	1000	1.250	240	-
SWI0603CT R21 □-□□	210 @ 100MHz	K, J	27	23	1000	1.700	200	-
SWI0603CT R22 □-□□	220 @ 100MHz	K, J, G	30	23	1000	1.700	200	-
SWI0603CT R24 □-□□	240 @ 100MHz	K, J	30	15	1000	1.700	200	-
SWI0603CT R27 □-□□	270 @ 100MHz	K, J, G	30	10	1000	1.800	170	-
SWI0603CT R33 □-□□	330 @ 100MHz	K, J	25	-	450	2.000	150	-
SWI0603CT R39 □-□□	390 @ 100MHz	K, J	20	-	350	2.000	170	-

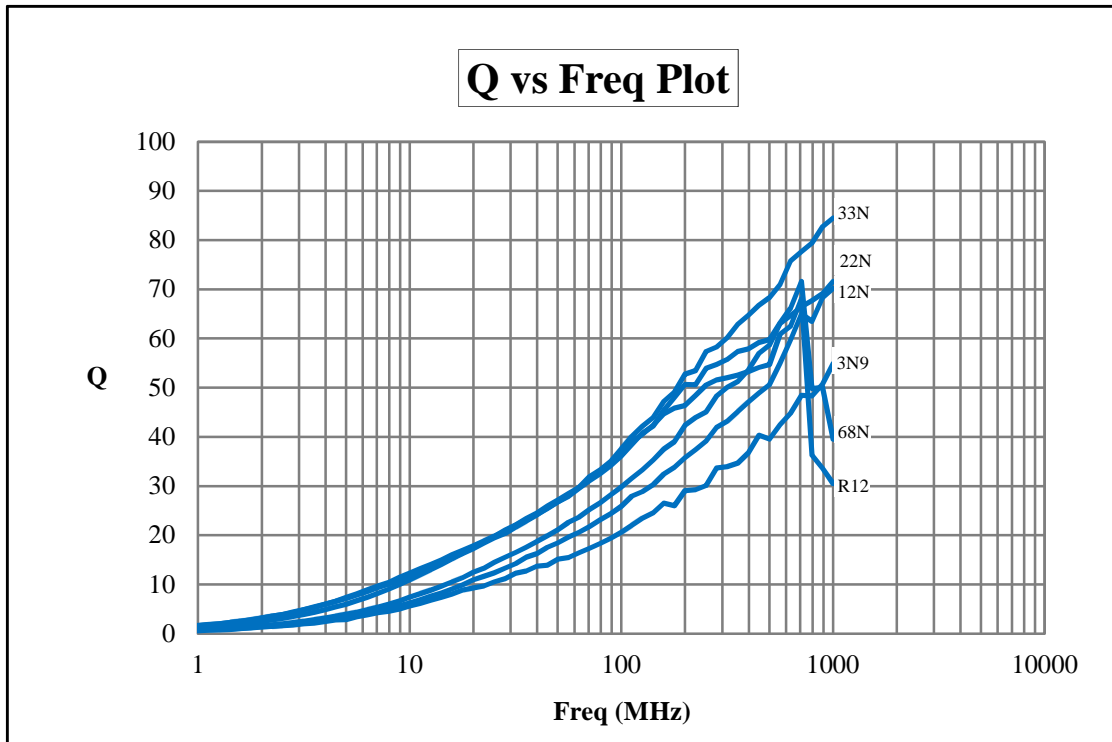
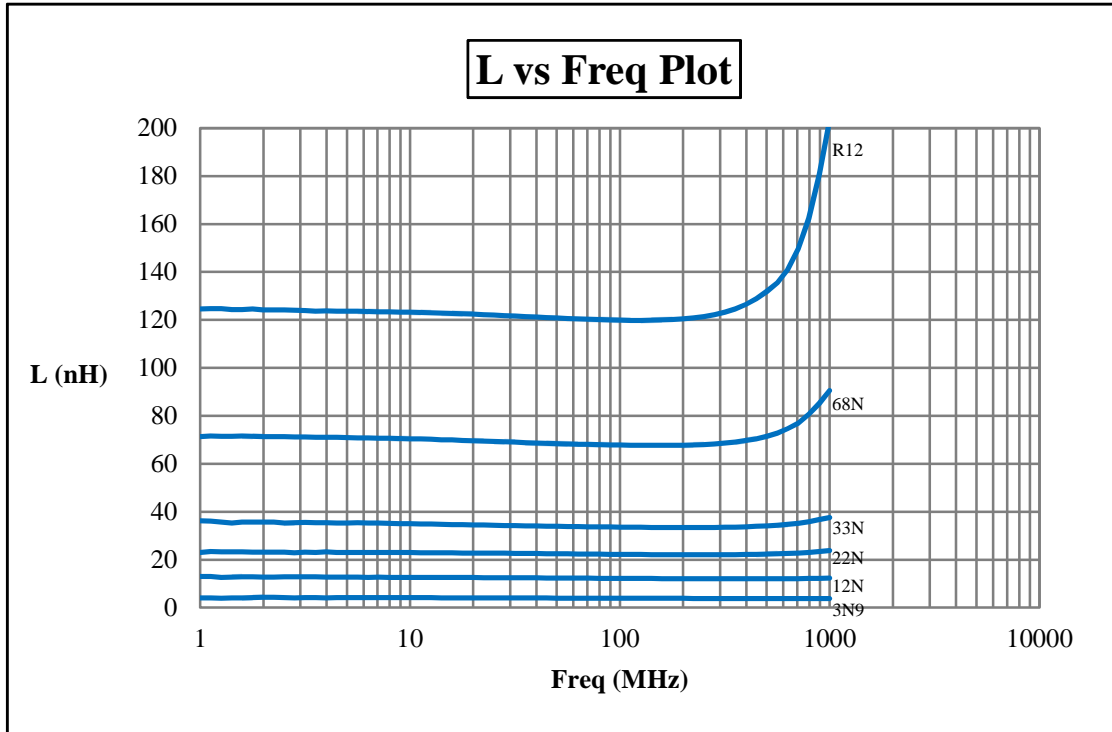
1. Inductance is measured in HP-4287A RF LCR meter with HP-16193 fixture.
2. Q is measured in HP-4287A RF LCR meter with HP-16193 fixture.
3. SRF is measured in ENA E5071B network analyzer or equivalent.

4. RDC is measured in HP-4338B milliohmeter or equivalent.

5. For 15 °C Rise.

Remarks :

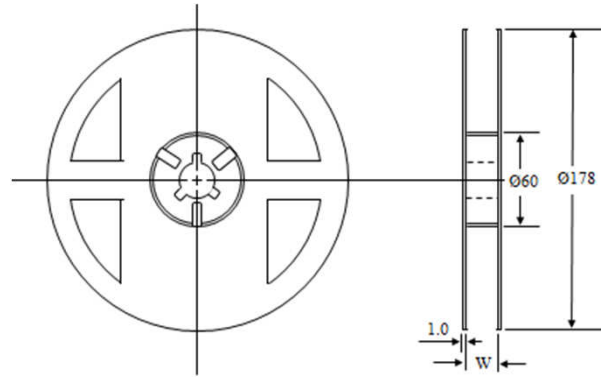
Unit weight = 0.0049g (for ref.)



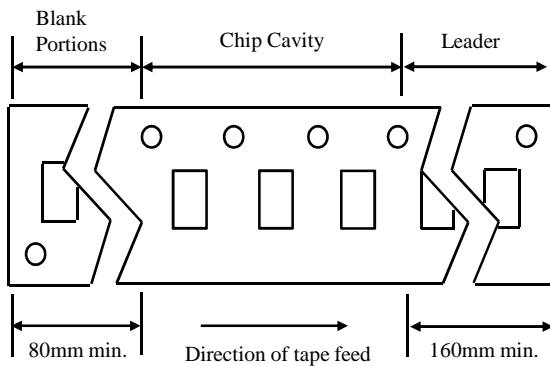
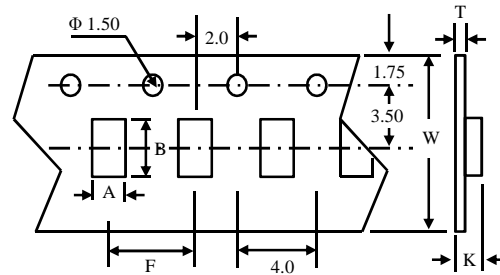
ITEM		CONDITION	SPECIFICATION
Electrical Characteristics	Inductance and Tolerance	Measuring Frequency : As shown in Product Table	Within Specified Tolerance
	Quality Factor	Measuring Temperature : +25°C	
	Insulation Resistance	Measured at 100V DC between inductor terminals and center of case.	1000 mega ohms minimum
	Dielectric Withstanding Voltage	Measured at 500V AC between inductor terminals and center of case for a maximum of 1 minute.	No damage occurs when the test voltage is applied.
	Temperature Coefficient of Inductance (TCL)	Over -40°C to +85°C at frequency specified in Product Table.	+25 to 500 ppm/°C $TCL = \frac{L1 - L2}{L1(T1 - T2)} \times 10^6$ (ppm /°C)
Mechanical Characteristics	Component Adhesion (Push Test)	The component shall be reflow soldered onto a P.C. Board (240°C ± 5°C for 20 seconds). Then a dynamometer force gauge shall be applied to any side of the component.	0402 series - 350g 0603 series - 1.0Kg Other series - 0805 ~ 1210 Minimum 1Kg for Ag termination and 2Kg for Mo/Mn termination.
	Drop Test	The inductor shall be dropped two times on the concrete floor or the vinyl tile from 1M naturally.	Change In Inductance: No more than 5%
	Thermal Shock Test	Each cycle shall consist of 30 minutes at -40°C followed by 30 minutes at +85°C with a 5 minutes transition time between temperature extremes. Test duration is 10 cycles.	Change In Q: No more than 10% Change In Appearance: Without distinct damage
Endurance Characteristics	Solderability	Dip pads in flux and dip in solder pot containing lead free solder at 240°C ± 5°C for 5 seconds.	A minimum of 80% of the metalized area must be covered with solder.
	Resistance to Soldering Heat	Dip the components into flux and dip into solder pot containing lead free solder at 260°C ± 5°C for 5 ± 2 seconds.	Change In Inductance: No more than 5% Change In Q: No more than 10% Change In Appearance: Without distinct damage
	Vibration (Random)	Inductors shall be randomly vibrated at amplitude of 1.5mm and frequency of 10-55Hz : 0.04G/Hz for a minimum of 15 minutes per axis for each of the three axes.	
	Cold Temperature Storage	Inductors shall be stored at temperature of -40°C ± 2°C for 1000hrs (+48 -0 hrs.) Then inductors shall be subjected to standard atmospheric conditions for 1 hour. After that, measurement shall be made.	
	High Temperature Storage	Inductors shall be stored at temperature of 85°C ± 2°C for 1000hrs (+48 -0 hrs.) Then inductors shall be subjected to standard atmospheric conditions for 1 hour. After that, measurement shall be made.	
	Moisture Resistance	Inductors shall be stored in the chamber at 45°C at 90-95 R.H. for 1000 hours. Then inductors are to be tested after 2 hours at room temperature.	Inductors shall not have a shorted or open winding.
	High Temperature with Loaded	Inductors shall be stored in the chamber at +85°C for 1000 hours with rated current applied. Inductors shall be tested at the beginning of test at 500 hours and 1000 hours. Then inductors are to be tested after 1 hour at room temperature.	

SWI0603CT Series

Type	Pcs/Reel
SWI0603	3,000

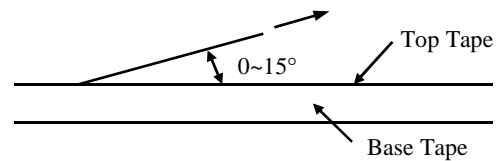


Type	Chip Cavity		Insert Pitch	Tape Thickness		
	A	B	F	K	T	W
SWI0603	1.35	1.90	4.00	1.15	0.28	8.00



Top Tape Strength

The top tape requires a peel-off force of 0.2 to 0.7N in the direction of the arrow as illustrated below.



Dimensions (unit : m/m)

Type	A	B	C
SWI0603	1.90	0.65	1.00

Recommended Pattern

