Wire Wound Chip Inductors

SWI1008CT Series

ABC 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.

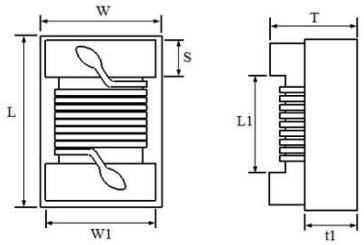
PART NUMBER

SWI 1008 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	t_1 (Ref.) mm
SWI 1008 2520	(0.102 ± 0.008) 2.60 ± 0.20	(0.083 ± 0.008) 2.10 ± 0.20	(0.067 ± 0.008) 1.70 ± 0.20	(0.020 ± 0.004) 0.50 ± 0.10	1.40	1.90	0.70

3 Material Type C : Ceramic

4 Inductance Value 3N3 = 3.3nH 10N = 10nH R10 = 100nH 1R0 = 1000nH

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.

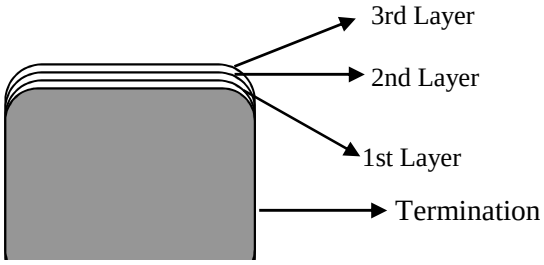
*Terminals : Consist of Ag alloy followed by Nickel, then Au platting for easier soldering.

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

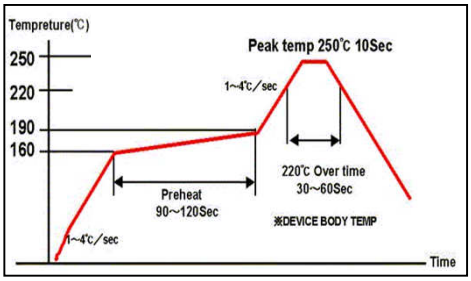
Relative Humidity : 60% to 70%

Air Pressure : 86Kpa to 106Kpa

Temperature Profile

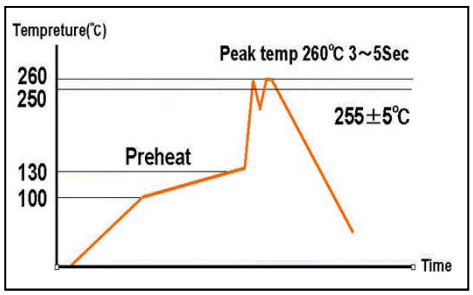
1 Reflow Temperature Profile

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



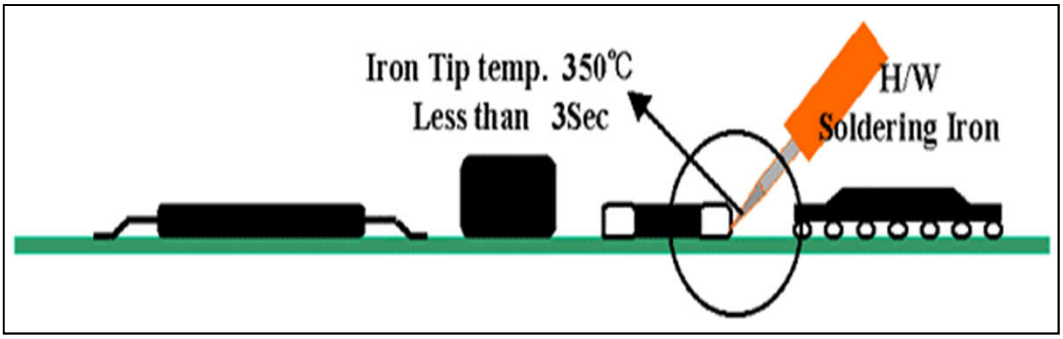
Recommended Peak Temperature : 250℃ Max
250℃ up /within 10secs
Max. Reflow temperature : 260°C
Gradient of temperature rise : av 1-4℃/sec
Preheat : 160-190℃/within 90-120secs
220℃ up /within 30-60secs
Composition of solder Sn-3Ag-0.5Cu

2 Dip Temperature



Solder bathtub temperature : 260℃ max
within 5secs.
Preheating temperature : 100～130℃
deposit solder temperature.
Composition of solder Sn-3Ag-0.5Cu

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

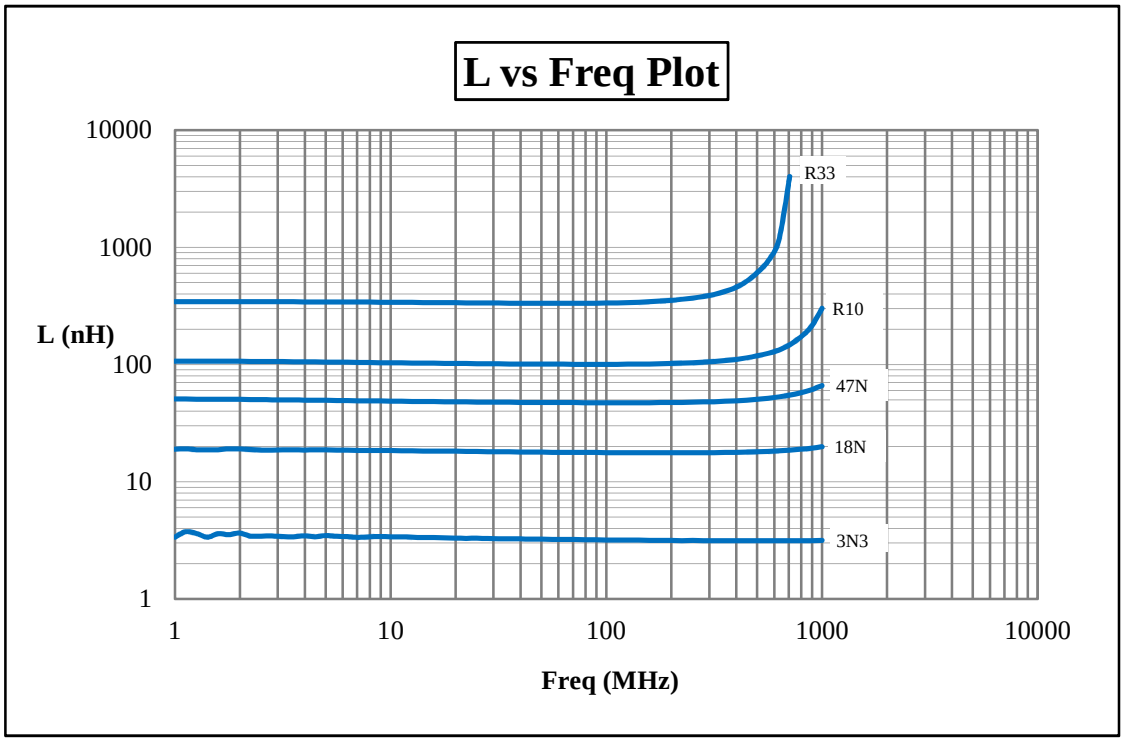


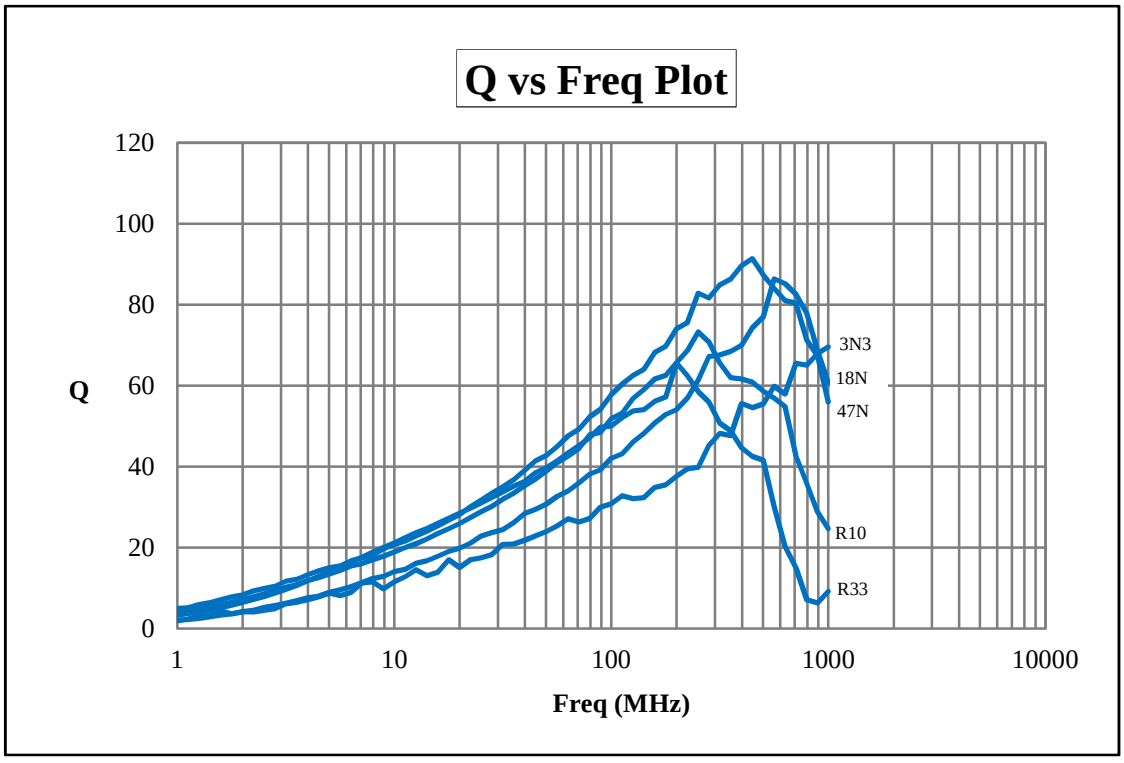
Part No.	Inductance [1] (nH)	Tolerance	Q [2] Min	S.R.F.[3] Min (MHz)	RDC [4] Max (Ω)	IDC [5] Max (mA)	Marking
SWI1008CT 3N3 □-□□	3.3 @ 100MHz	B, S	50 @ 1000MHz	6000	0.06	1000	3N3
SWI1008CT 3N9 □-□□	3.9 @ 100MHz	B, S	38 @ 1000MHz	5500	0.10	1000	3N9
SWI1008CT 5N6 □-□□	5.6 @ 100MHz	K, J, B	50 @ 1000MHz	5500	0.06	1000	5N6
SWI1008CT 6N8 □-□□	6.8 @ 100MHz	K, J, B	50 @ 1000MHz	5500	0.06	1000	6N8
SWI1008CT 8N2 □-□□	8.2 @ 100MHz	K, J, B	50 @ 1000MHz	5500	0.06	1000	8N2
SWI1008CT 10N □-□□	10 @ 100MHz	K, J, G	50 @ 1000MHz	4300	0.08	1000	10N
SWI1008CT 12N □-□□	12 @ 100MHz	K, J, G	60 @ 500MHz	3600	0.08	1000	12N
SWI1008CT 15N □-□□	15 @ 100MHz	K, J, G	60 @ 500MHz	2700	0.08	1000	15N
SWI1008CT 18N □-□□	18 @ 100MHz	K, J, G	60 @ 350MHz	2700	0.10	1000	18N
SWI1008CT 22N □-□□	22 @ 100MHz	K, J, G	60 @ 350MHz	2500	0.10	1000	22N
SWI1008CT 27N □-□□	27 @ 100MHz	K, J, G	60 @ 350MHz	1800	0.10	1000	27N
SWI1008CT 33N □-□□	33 @ 100MHz	K, J, G	60 @ 350MHz	1700	0.10	1000	33N
SWI1008CT 39N □-□□	39 @ 100MHz	K, J, G	60 @ 350MHz	1500	0.10	1000	39N
SWI1008CT 47N □-□□	47 @ 100MHz	K, J, G	60 @ 350MHz	1500	0.10	1000	47N
SWI1008CT 56N □-□□	56 @ 100MHz	K, J, G	60 @ 350MHz	1350	0.12	1000	56N
SWI1008CT 68N □-□□	68 @ 100MHz	K, J, G	60 @ 350MHz	1300	0.15	1000	68N
SWI1008CT 82N □-□□	82 @ 100MHz	K, J, G	60 @ 350MHz	1100	0.18	1000	82N
SWI1008CT R10 □-□□	100 @ 100MHz	K, J, G	60 @ 350MHz	1100	0.18	1000	R10
SWI1008CT R12 □-□□	120 @ 25.2MHz	K, J, G	45 @ 100MHz	950	0.20	800	R12
SWI1008CT R15 □-□□	150 @ 25.2MHz	K, J, G	45 @ 100MHz	880	0.22	800	R15
SWI1008CT R18 □-□□	180 @ 25.2MHz	K, J, G	45 @ 100MHz	800	0.33	800	R18
SWI1008CT R22 □-□□	220 @ 25.2MHz	K, J, G	45 @ 100MHz	730	0.45	800	R22
SWI1008CT R27 □-□□	270 @ 25.2MHz	K, J, G	45 @ 100MHz	650	0.75	600	R27
SWI1008CT R33 □-□□	330 @ 25.2MHz	K, J, G	45 @ 100MHz	570	0.90	500	R33
SWI1008CT R39 □-□□	390 @ 25.2MHz	K, J, G	45 @ 100MHz	530	1.06	470	R39
SWI1008CT R47 □-□□	470 @ 25.2MHz	K, J, G	45 @ 100MHz	480	1.17	420	R47
SWI1008CT R56 □-□□	560 @ 25.2MHz	K, J, G	45 @ 100MHz	430	1.50	310	R56
SWI1008CT R68 □-□□	680 @ 25.2MHz	K, J, G	45 @ 100MHz	380	2.06	230	R68
SWI1008CT R75 □-□□	750 @ 25.2MHz	K, J, G	45 @ 100MHz	360	2.20	200	R75
SWI1008CT R82 □-□□	820 @ 25.2MHz	K, J, G	45 @ 100MHz	350	2.30	180	R82
SWI1008CT R91 □-□□	910 @ 25.2MHz	K, J, G	45 @ 100MHz	330	3.18	150	R91
SWI1008CT 1R0 □-□□	1000 @ 25.2MHz	K, J, G	35 @ 50MHz	310	3.30	120	1R0

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 :

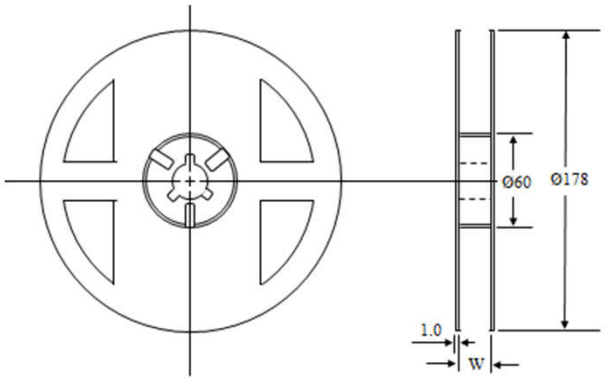
Unit weight = 0.025g (for ref.)


L vs Freq Plot
10000
1000
100
10
1
L (nH)
1
10
100
1000
10000
Freq (MHz)
R33
R10
47N
18N
3N3

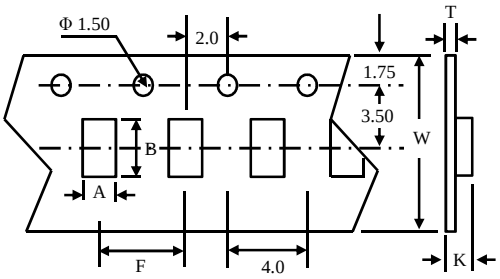

Q vs Freq Plot
120
100
80
60
40
20
0
Q
1
10
100
1000
10000
Freq (MHz)
3N3
18N
47N
R10
R33

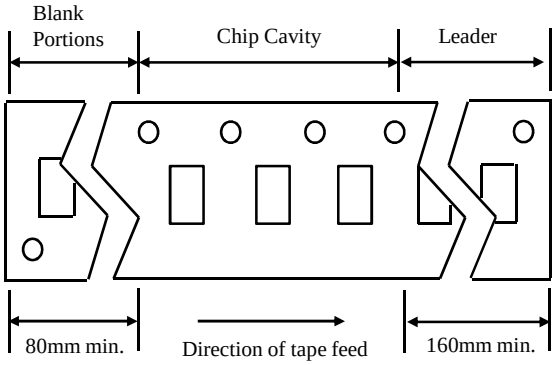
ITEM		CONDITION	SPECIFICATION
Electrical Characteristics	Inductance and Tolerance	Measuring Frequency : As shown in Product Table Measuring Temperature : +25°C	Within Specified Tolerance
	Quality Factor		
	Insulation Resistance	Measured at 100V DC between inductor terminals and center of case.	1000 mega 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 dynometer 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% Change In Q: No more than 10% Change In Appearance: Without distinct damage
	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.	
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.	

Type	Pcs/Reel
SWI1008	2,000



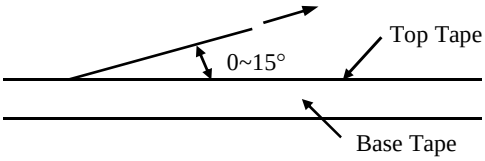
Type	Chip Cavity		Insert Pitch	Tape Thickness		
	A	B	F	K	T	W
SWI1008	2.20	2.83	4.00	1.75	0.22	8.00





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
SWI1008	3.00	1.20	2.20

Recommended Pattern