



Wire Wound Chip Inductors

SWI1210CT 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.

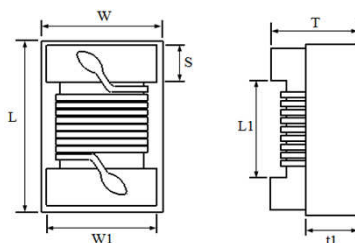
PART NUMBER

SWI 1210 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
SWI 1210 3225	(0.126 ± 0.008) 3.20 ± 0.20	(0.102 ± 0.008) 2.60 ± 0.20	(0.083 ± 0.008) 2.10 ± 0.20	(0.020 ± 0.004) 0.50 ± 0.10	2.05	2.10	1.10

3 Material Type C : Ceramic

4 Inductance Value 4N7 = 4.7nH 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.

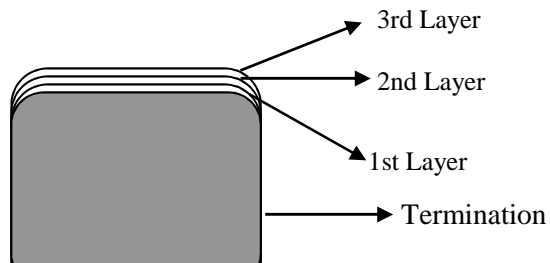
*Terminals : Consist of Ag alloy followed by Nickel, then Au plating for easier soldering.

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

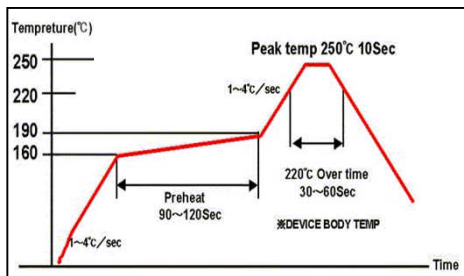
Relative Humidity : 60% to 70%

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

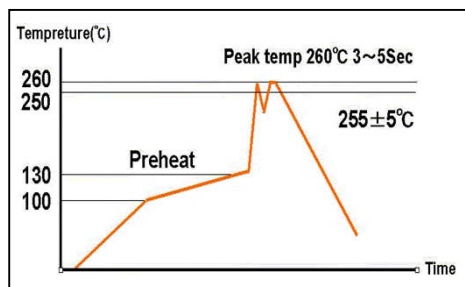
Gradient of temperature rise : av 1-4°C/sec

Preheat : 160-190°C/within 90-120secs

220°C up /within 30-60secs

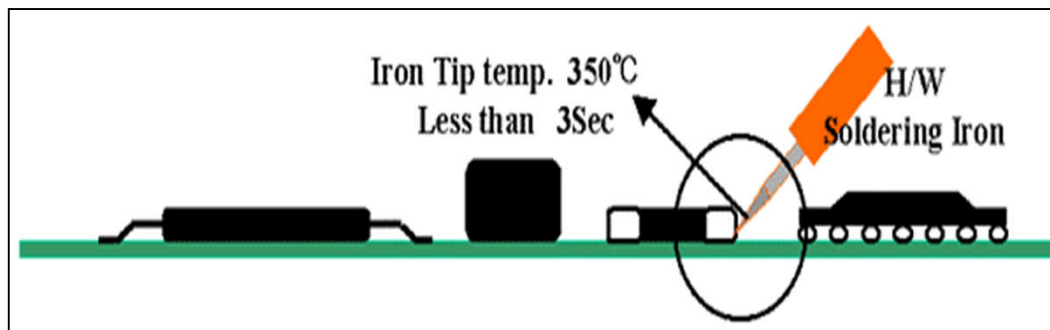
Composition of solder Sn-3Ag-0.5Cu

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.

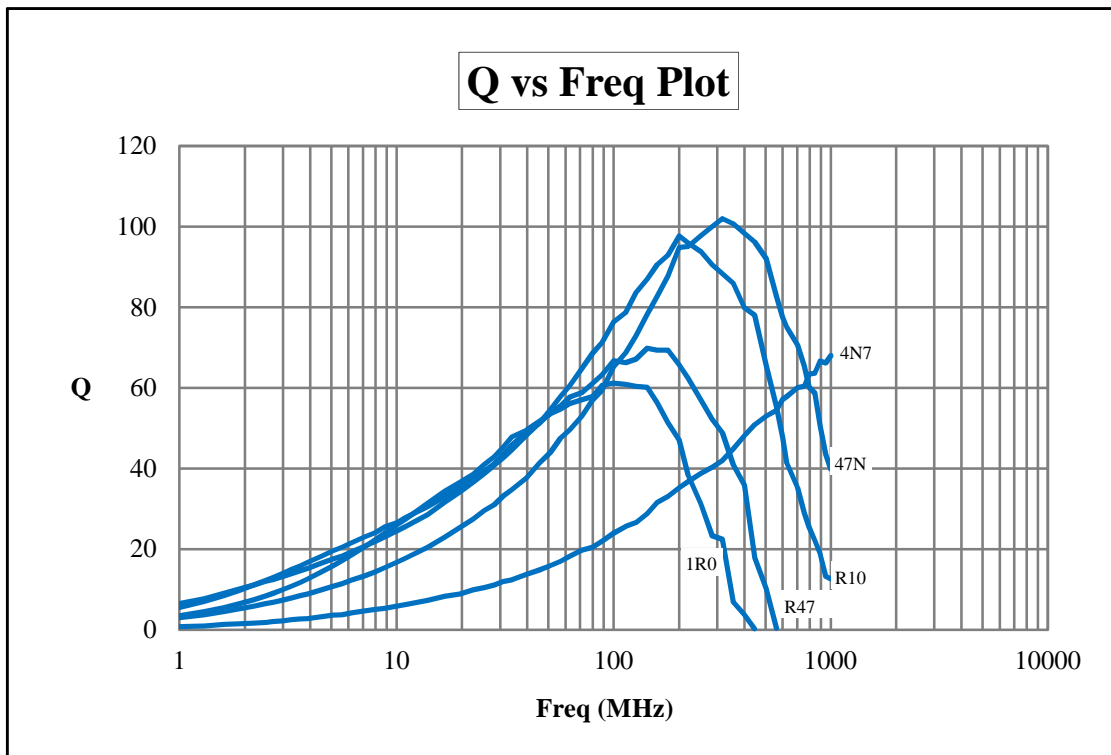
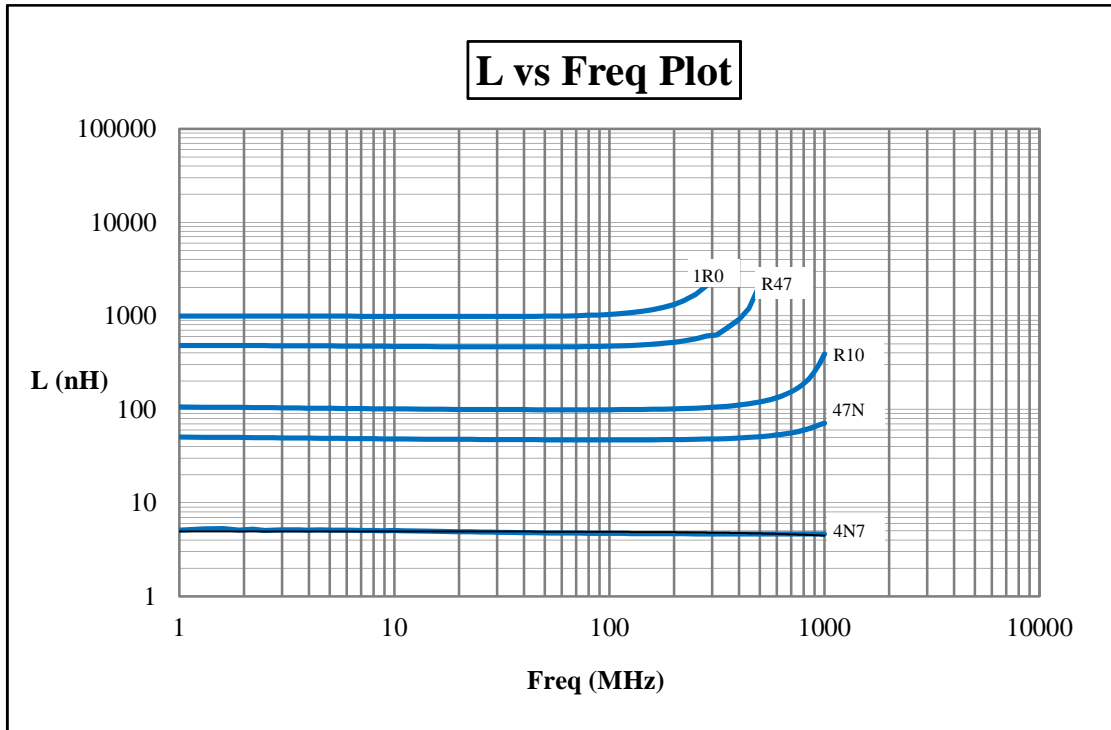


SWI1210CT Series

Part No.	Inductance ¹ (nH)	Tolerance	Q ² Min	S.R.F. ³ Min (MHz)	RDC ⁴ Max (Ω)	IDC ⁵ Max (mA)	Marking
SWI1210CT 4N7 □-□□	4.7 @ 100MHz	B, S	50 @ 1000MHz	6000	0.06	1000	4N7
SWI1210CT 5N6 □-□□	5.6 @ 100MHz	K, J, B	50 @ 1000MHz	5500	0.08	1000	5N6
SWI1210CT 10N □-□□	10 @ 100MHz	K, J, G	60 @ 500MHz	4000	0.06	1000	10N
SWI1210CT 12N □-□□	12 @ 100MHz	K, J, G	60 @ 500MHz	3400	0.06	1000	12N
SWI1210CT 15N □-□□	15 @ 100MHz	K, J, G	60 @ 500MHz	3200	0.06	1000	15N
SWI1210CT 18N □-□□	18 @ 100MHz	K, J, G	60 @ 300MHz	2800	0.06	1000	18N
SWI1210CT 22N □-□□	22 @ 100MHz	K, J, G	60 @ 300MHz	2100	0.08	1000	22N
SWI1210CT 27N □-□□	27 @ 100MHz	K, J, G	60 @ 300MHz	1900	0.08	1000	27N
SWI1210CT 33N □-□□	33 @ 100MHz	K, J, G	60 @ 300MHz	1700	0.08	1000	33N
SWI1210CT 39N □-□□	39 @ 100MHz	K, J, G	60 @ 300MHz	1700	0.08	1000	39N
SWI1210CT 47N □-□□	47 @ 100MHz	K, J, G	60 @ 300MHz	1400	0.08	1000	47N
SWI1210CT 56N □-□□	56 @ 100MHz	K, J, G	60 @ 300MHz	1100	0.10	1000	56N
SWI1210CT 68N □-□□	68 @ 100MHz	K, J, G	60 @ 300MHz	1000	0.10	1000	68N
SWI1210CT 82N □-□□	82 @ 100MHz	K, J, G	60 @ 300MHz	1000	0.10	1000	82N
SWI1210CT R10 □-□□	100 @ 100MHz	K, J, G	60 @ 300MHz	900	0.10	1000	R10
SWI1210CT R12 □-□□	120 @ 50MHz	K, J, G	60 @ 300MHz	900	0.12	800	R12
SWI1210CT R15 □-□□	150 @ 50MHz	K, J, G	60 @ 300MHz	800	0.18	800	R15
SWI1210CT R18 □-□□	180 @ 50MHz	K, J, G	60 @ 300MHz	760	0.21	800	R18
SWI1210CT R22 □-□□	220 @ 50MHz	K, J, G	60 @ 300MHz	660	0.27	800	R22
SWI1210CT R27 □-□□	270 @ 50MHz	K, J, G	50 @ 300MHz	600	0.33	700	R27
SWI1210CT R33 □-□□	330 @ 50MHz	K, J, G	50 @ 100MHz	550	0.37	650	R33
SWI1210CT R39 □-□□	390 @ 50MHz	K, J, G	50 @ 100MHz	500	0.63	600	R39
SWI1210CT R47 □-□□	470 @ 50MHz	K, J, G	50 @ 100MHz	450	0.69	550	R47
SWI1210CT R56 □-□□	560 @ 50MHz	K, J, G	50 @ 100MHz	400	0.90	450	R56
SWI1210CT R68 □-□□	680 @ 25MHz	K, J, G	50 @ 100MHz	380	1.05	400	R68
SWI1210CT R82 □-□□	820 @ 25MHz	K, J, G	50 @ 100MHz	350	1.45	350	R82
SWI1210CT 1R0 □-□□	1000 @ 25MHz	K, J, G	45 @ 100MHz	300	1.90	280	1R0
SWI1210CT 1R2 □-□□	1200 @ 7.96MHz	K, J	45 @ 50MHz	300	2.20	250	1R2
SWI1210CT 1R5 □-□□	1500 @ 7.96MHz	K, J	45 @ 50MHz	250	2.43	220	1R5
SWI1210CT 1R8 □-□□	1800 @ 7.96MHz	K, J	45 @ 50MHz	200	3.36	180	1R8
SWI1210CT 2R2 □-□□	2200 @ 7.96MHz	K, J	40 @ 50MHz	200	3.50	150	2R2

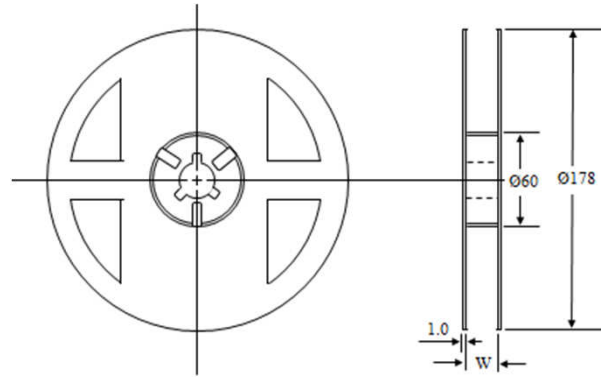
- Inductance is measured in HP-4287A RF LCR meter with HP-16193 fixture.
- Q is measured in HP-4287A RF LCR meter with HP-16193 fixture.

- SRF is measured in ENA E5071B network analyzer or equivalent.
 - RDC is measured in HP-4338B milliohmeter or equivalent.
 - For 15 °C Rise.
- Remarks :**
Unit weight = 0.045g (for ref.)

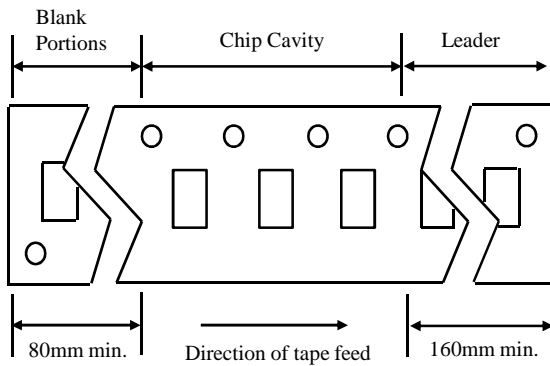
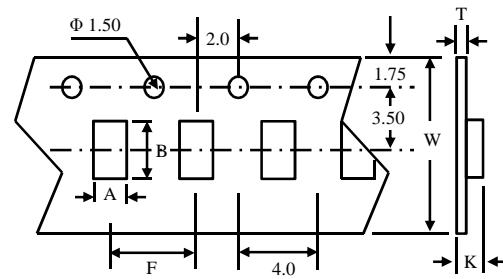


ITEM		CONDITION	SPECIFICATION
Electrical Characteristics	Inductance and Tolerance	Measuring Frequency : As shown in Product Table	Within Specified Tolerance
	Quality Factor	Measuring Temperature : +25°C	
	Insulation Resistance	Measured at 100V DC between inductor terminals and center of case.	1000 mega 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.	

Type	Pcs/Reel
SWI1210	2,000

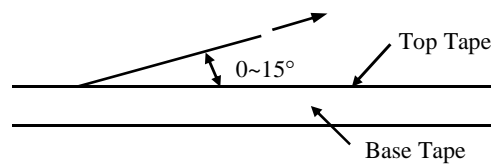


Type	Chip Cavity		Insert Pitch	Tape Thickness		
	A	B	F	K	T	W
SWI1210	2.69	3.56	4.00	2.05	0.23	8.00



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
SWI1210	4.00	1.70	2.82

Recommended Pattern

