Wire Wound Chip Inductors

SWI1008HQ Series

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. The HQ type offer higher Q factor and the current handling has also been improved with significantly lower DCR value. 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.

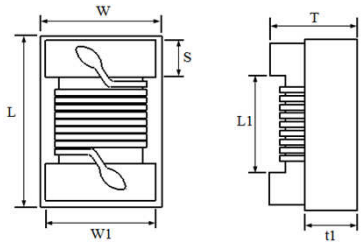
PART NUMBER

SWI 1008 HQ 12N G - □□

1 2 3 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	(t_1) (Ref.) mm
SWI 1008 2520	(0.098 ± 0.008) 2.60 ± 0.20	(0.080 ± 0.008) 2.10 ± 0.20	(0.063 ± 0.008) 1.70 ± 0.20	(0.020 ± 0.004) 0.50 ± 0.10	0.70

3 Material Type HQ : High Q type

4 Inductance Value 10N = 10nH R10 = 100nH

5 Tolerance 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 :

*HQ 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.

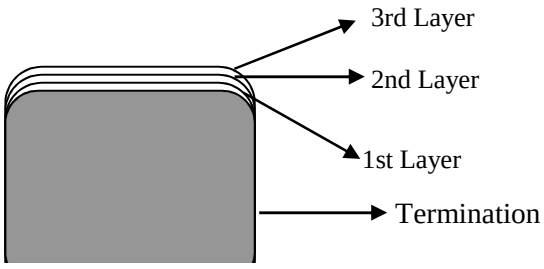
*Terminals : Consist of Ag alloy followed by Nickel, then Au platting for easier soldering.

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

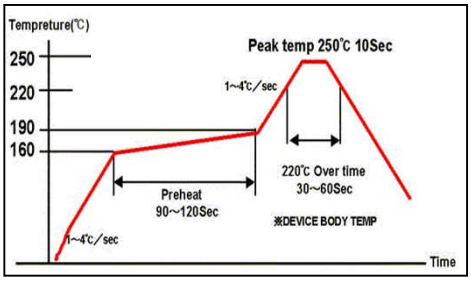
Relative Humidity : 60% to 70%

Air Pressure : 86Kpa to 106Kpa

Temperature Profile

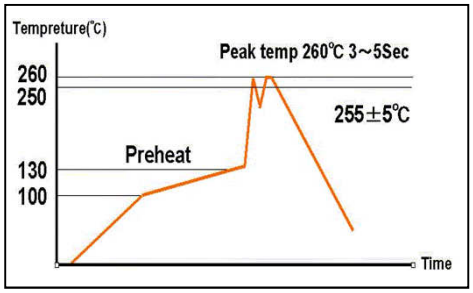
1 Reflow Temperature Profile

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



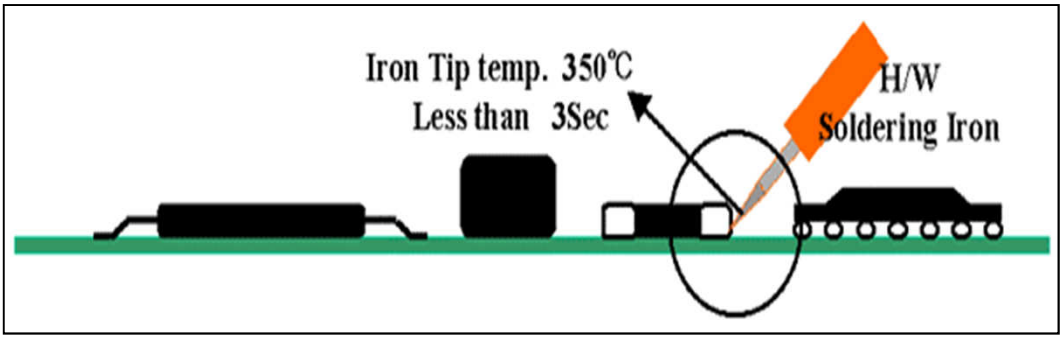
Recommended Peak Temperature : 250℃ Max
250℃ up /within 10secs
Max. Reflow temperature : 260°C
Gradient of temperature rise : av 1-4℃/sec
Preheat : 160-190℃/within 90-120secs
220℃ up /within 30-60secs
Composition of solder Sn-3Ag-0.5Cu

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.



SWI1008HQ Series

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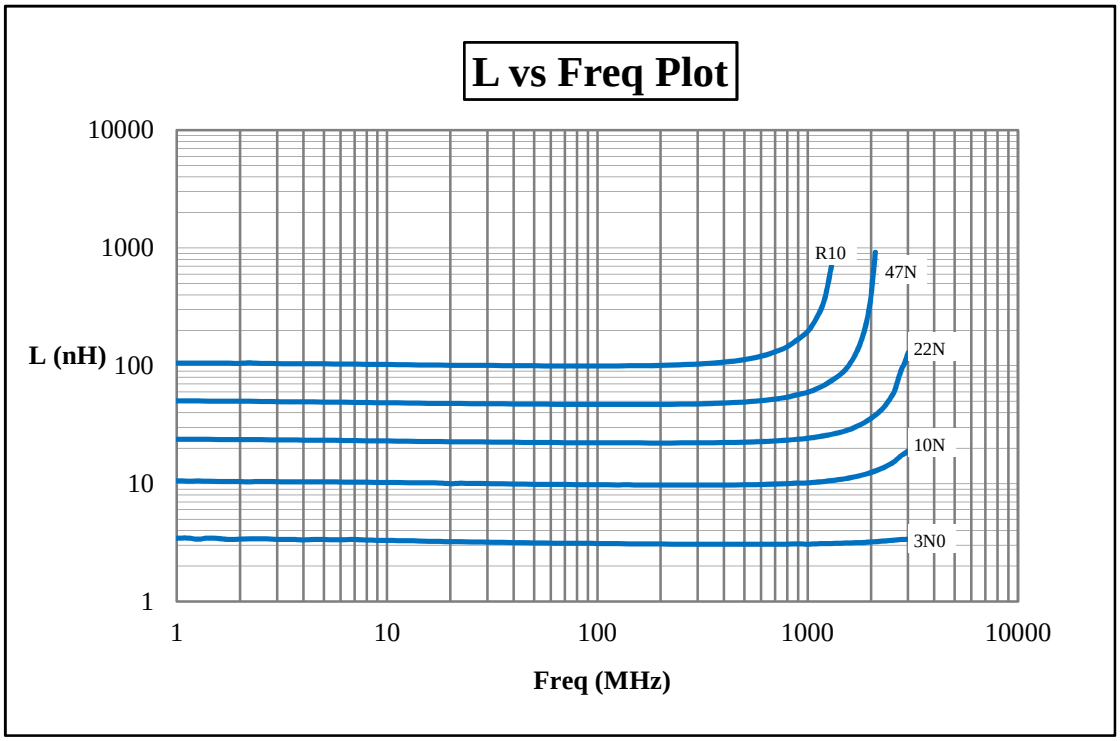
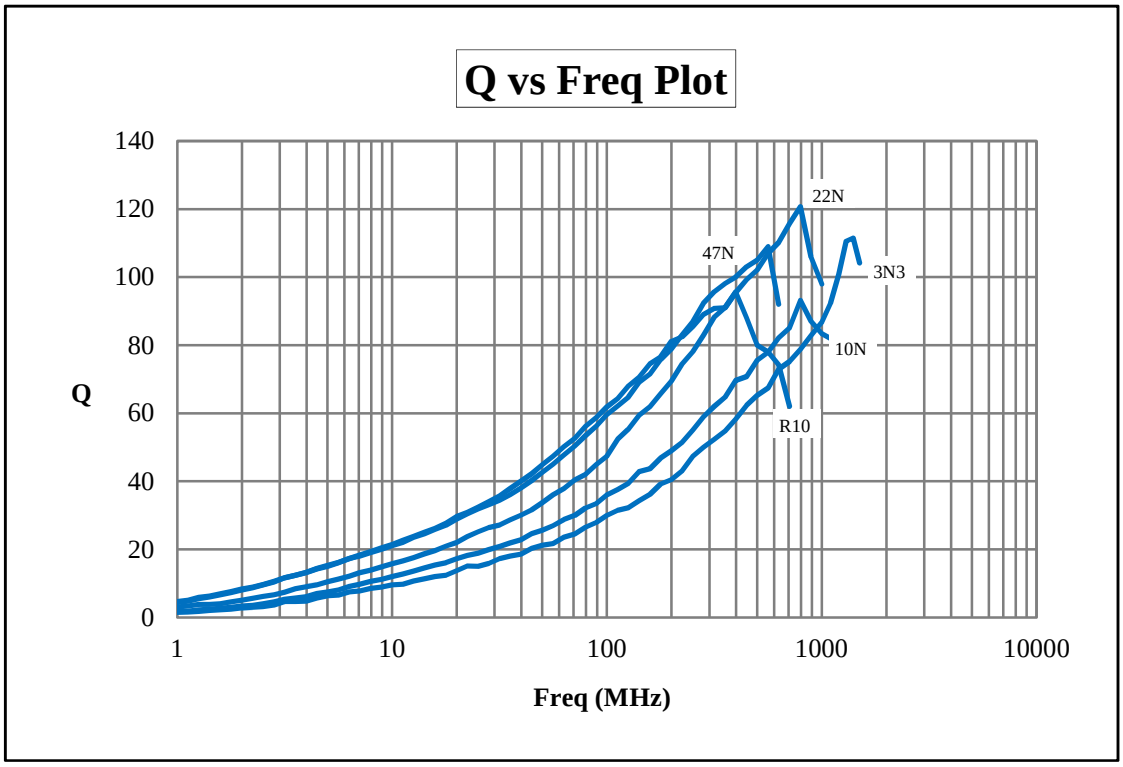
Part No.	Inductance [1] (nH)	Tolerance	Q [2] Min	S.R.F.[3] Min (MHz)	RDC [4] Max (Ω)	IDC [5] Max (mA)	Marking
SWI1008HQ 3N0 □-□□	3.0 @ 50MHz	K, J	70 @ 1500MHz	8100	0.04	1600	3N0
SWI1008HQ 7N8 □-□□	7.8 @ 50MHz	K, J	75 @ 1500MHz	3800	0.05	1600	7N8
SWI1008HQ 10N □-□□	10 @ 50MHz	K, J	60 @ 500MHz	3600	0.08	1300	10N
SWI1008HQ 12N □-□□	12 @ 50MHz	K, J, G	70 @ 500MHz	2800	0.06	1500	12N
SWI1008HQ 18N □-□□	18 @ 50MHz	K, J, G	62 @ 350MHz	2700	0.08	1400	18N
SWI1008HQ 22N □-□□	22 @ 50MHz	K, J, G	62 @ 350MHz	2050	0.07	1400	22N
SWI1008HQ 33N □-□□	33 @ 50MHz	K, J, G	75 @ 350MHz	1700	0.09	1300	33N
SWI1008HQ 39N □-□□	39 @ 50MHz	K, J, G	75 @ 350MHz	1300	0.09	1300	39N
SWI1008HQ 47N □-□□	47 @ 50MHz	K, J, G	75 @ 350MHz	1450	0.12	1200	47N
SWI1008HQ 56N □-□□	56 @ 50MHz	K, J, G	75 @ 350MHz	1230	0.12	1200	56N
SWI1008HQ 68N □-□□	68 @ 50MHz	K, J, G	80 @ 350MHz	1150	0.13	1000	68N
SWI1008HQ 82N □-□□	82 @ 50MHz	K, J, G	80 @ 350MHz	1060	0.16	1000	82N
SWI1008HQ R10 □-□□	100 @ 50MHz	K, J, G	62 @ 350MHz	820	0.16	1000	R10

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.

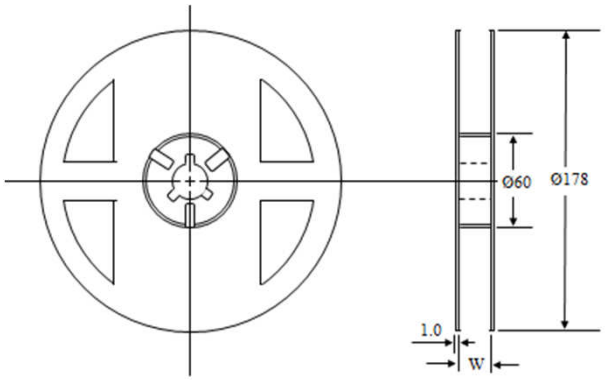
Remarks :
Unit weight = 0.025g (for ref.)


L vs Freq Plot
10000
1000
100
10
1
L (nH)
R10
47N
22N
10N
3N0
1
10
100
1000
10000
Freq (MHz)

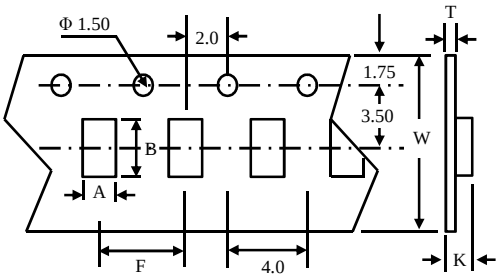

Q vs Freq Plot
140
120
100
80
60
40
20
0
Q
22N
47N
3N3
10N
R10
1
10
100
1000
10000
Freq (MHz)

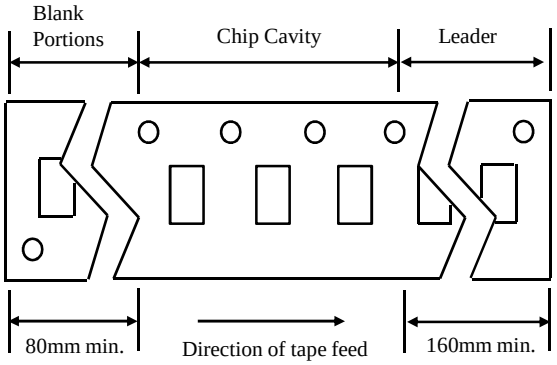
ITEM		CONDITION	SPECIFICATION
Electrical Characteristics	Inductance and Tolerance	Measuring Frequency : As shown in Product Table Measuring Temperature : +25°C	Within Specified Tolerance
	Quality Factor		
	Insulation Resistance	Measured at 100V DC between inductor terminals and center of case.	1000 mega 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.	Minimum 1Kg
	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
SWI1008HQ	2,000



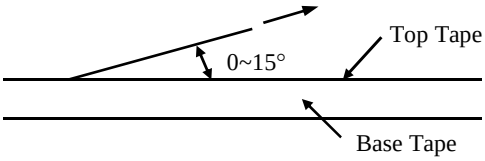
Type	Chip Cavity		Insert Pitch	Tape Thickness		
	A	B	F	K	T	W
SWI1008HQ	2.20	2.83	4.00	1.75	0.22	8.00





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
SWI1008HQ	3.00	1.20	2.20

Recommended Pattern