

WIRE WOUND CHIP INDUCTORS SWI CS SERIES

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 and -40 to +85°C for ferrite 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.

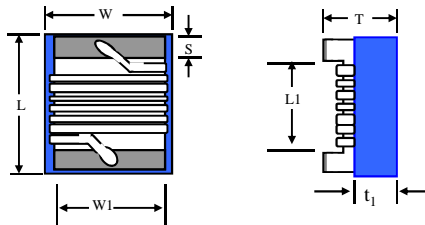
PART NUMBER

SWI 0603 C S 33N J - □□

1 2 3 Taping 4 5 Internal Code

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 0603 1608	(0.065 ± 0.008) 1.65 ± 0.20	(0.045 ± 0.008) 1.15 ± 0.20	(0.035 ± 0.008) 0.90 ± 0.20	(0.012 ± 0.004) 0.30 ± 0.10	0.50
SWI 0805 2010	(0.090 ± 0.008) 2.28 ± 0.20	(0.067 ± 0.008) 1.70 ± 0.20	(0.050 ± 0.008) 1.28 ± 0.20	0.51	0.60

3 Material Type

C : Ceramic Material

4 Inductance Value

3N3 = 3.3 nH
33N = 33 nH
R33 = 330 nH

5 Tolerance

B = ± 0.20nH G = ± 2 % K = ± 10 %
S = ± 0.30nH J = ± 5 %

CHIP INDUCTOR SPECIFICATIONS

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.

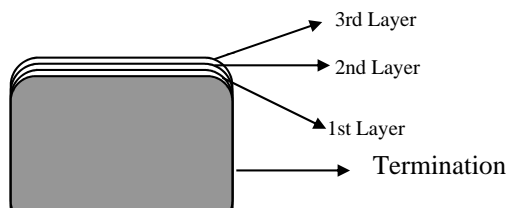
*Terminals : Terminals shall consist of Ag-Pd or Mo-Mn alloy followed by Nickel then Sn or Au plating for easier soldering.

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 to + 125°C

4 Ingredient of terminals electrode.



Ceramic Type

- a) 1st layer : Ag
- b) 2nd layer : Nickel
- c) 3rd layer : Au

5 Characteristics

Standard Atmospheric Conditions

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

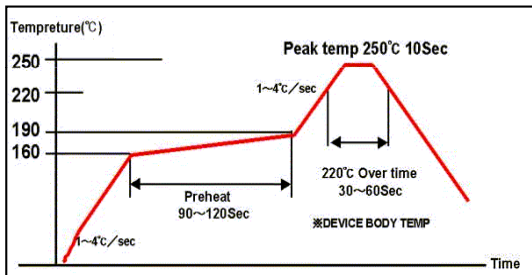
- *Ambient Temperature : 25 °C ± 2 °C
- *Relative Humidity : 60% to 70%
- *Air Pressure : 86 Kpa to 106 Kpa

CHIP INDUCTOR SPECIFICATIONS

TEMPERATURE PROFILE

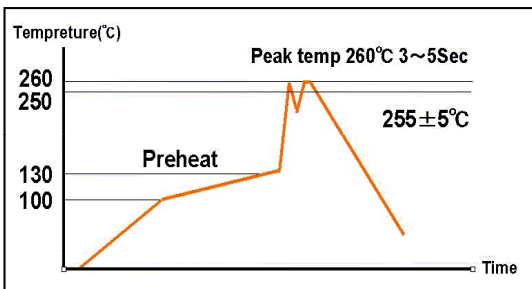
a Reflow temperature profile

(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

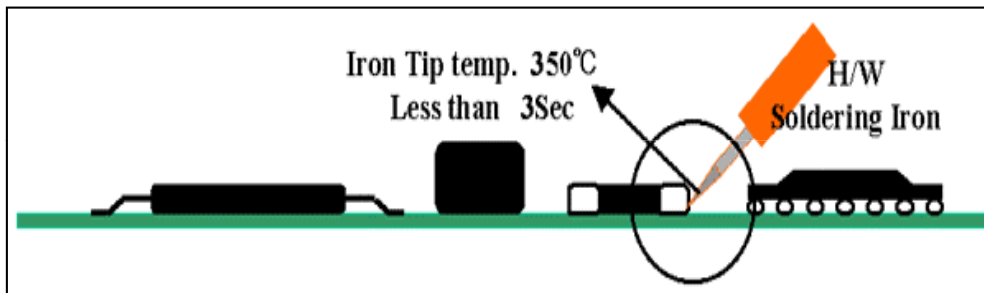
b Dip temperature



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

c Soldering iron tip temperature :

Recommended Temperature : 350°C max / within 3 seconds.
 Maximum Temperature : 380°C max / within 3 seconds.



SWI 0805CS (2012) CERAMIC SERIES

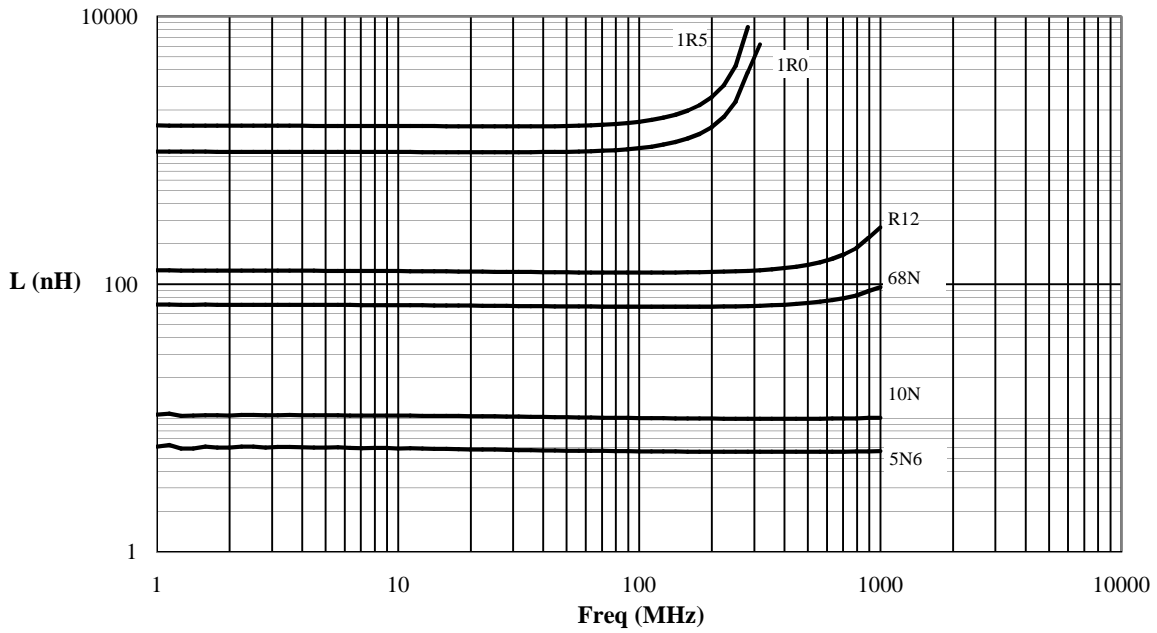
Part No.	Inductance ¹ (nH)	Percent Tolerance	Q ² Min	S.R.F. ³ Min (MHz)	RDC ⁴ Max (Ω)	IDC ⁵ Max (mA)
SWI 0805 CS 2N7 □-□□	2.70 @ 250MHz	B, K, S	30 @ 1000MHz	7900	0.10	800
SWI 0805 CS 5N6 □-□□	5.60 @ 250MHz	J, K	40 @ 1000MHz	5500	0.10	600
SWI 0805 CS 6N8 □-□□	6.80 @ 250MHz	G, J, K	50 @ 1000MHz	5500	0.11	600
SWI 0805 CS 7N5 □-□□	7.50 @ 250MHz	G, J, K	50 @ 1000MHz	4800	0.14	600
SWI 0805 CS 8N2 □-□□	8.20 @ 250MHz	G, J, K	50 @ 1000MHz	4400	0.12	600
SWI 0805 CS 10N □-□□	10 @ 250MHz	G, J, K	50 @ 1000MHz	4200	0.12	600
SWI 0805 CS 12N □-□□	12 @ 250MHz	G, J, K	45 @ 500MHz	4000	0.15	600
SWI 0805 CS 15N □-□□	15 @ 250MHz	G, J, K	50 @ 500MHz	3400	0.17	600
SWI 0805 CS 18N □-□□	18 @ 250MHz	G, J, K	50 @ 500MHz	3300	0.20	500
SWI 0805 CS 22N □-□□	22 @ 250MHz	G, J, K	55 @ 500MHz	2600	0.22	500
SWI 0805 CS 27N □-□□	27 @ 250MHz	G, J, K	55 @ 500MHz	2500	0.25	500
SWI 0805 CS 33N □-□□	33 @ 250MHz	G, J, K	60 @ 500MHz	2050	0.27	500
SWI 0805 CS 39N □-□□	39 @ 250MHz	G, J, K	50 @ 500MHz	2000	0.29	500
SWI 0805 CS 47N □-□□	47 @ 200MHz	G, J, K	50 @ 500MHz	1650	0.31	500
SWI 0805 CS 56N □-□□	56 @ 200MHz	G, J, K	50 @ 500MHz	1550	0.34	500
SWI 0805 CS 68N □-□□	68 @ 200MHz	G, J, K	50 @ 500MHz	1450	0.38	500
SWI 0805 CS 82N □-□□	82 @ 150MHz	G, J, K	50 @ 500MHz	1300	0.42	400
SWI 0805 CS R10 □-□□	100 @ 150MHz	G, J, K	50 @ 500MHz	1200	0.46	400
SWI 0805 CS R12 □-□□	120 @ 150MHz	G, J, K	35 @ 250MHz	1100	0.51	400
SWI 0805 CS R15 □-□□	150 @ 100MHz	G, J, K	40 @ 250MHz	920	0.56	400
SWI 0805 CS R18 □-□□	180 @ 100MHz	G, J, K	35 @ 250MHz	870	0.96	400
SWI 0805 CS R22 □-□□	220 @ 100MHz	G, J, K	35 @ 250MHz	850	1.00	400
SWI 0805 CS R27 □-□□	270 @ 100MHz	G, J, K	35 @ 250MHz	650	1.29	350
SWI 0805 CS R33 □-□□	330 @ 100MHz	G, J, K	35 @ 250MHz	600	1.56	310
SWI 0805 CS R39 □-□□	390 @ 100MHz	G, J, K	35 @ 250MHz	560	2.10	290
SWI 0805 CS R47 □-□□	470 @ 50MHz	J, K	30 @ 100MHz	375	2.30	250
SWI 0805 CS R56 □-□□	560 @ 25MHz	J, K	23 @ 50MHz	340	2.50	230
SWI 0805 CS R62 □-□□	620 @ 25MHz	J, K	23 @ 50MHz	188	2.70	400
SWI 0805 CS R68 □-□□	680 @ 25MHz	J, K	23 @ 50MHz	188	2.80	190
SWI 0805 CS R75 □-□□	750 @ 25MHz	J, K	23 @ 50MHz	230	3.00	185
SWI 0805 CS R82 □-□□	820 @ 25MHz	J, K	23 @ 50MHz	215	3.90	180
SWI 0805 CS 1R0 □-□□	1000 @ 25MHz	J, K	23 @ 50MHz	285	4.20	150
SWI 0805 CS 1R2 □-□□	1200 @ 7.9MHz	J, K	20 @ 25MHz	200	4.60	150
SWI 0805 CS 1R5 □-□□	1500 @ 7.9MHz	J, K	20 @ 25MHz	200	5.30	130
SWI 0805 CS 1R8 □-□□	1800 @ 7.9MHz	J, K	20 @ 25MHz	120	6.10	120

* □: Please specify the inductance tolerance for the first □. B (±0.20nH), S (±0.30nH), G (±2%), J (±5%), or K (±10%)

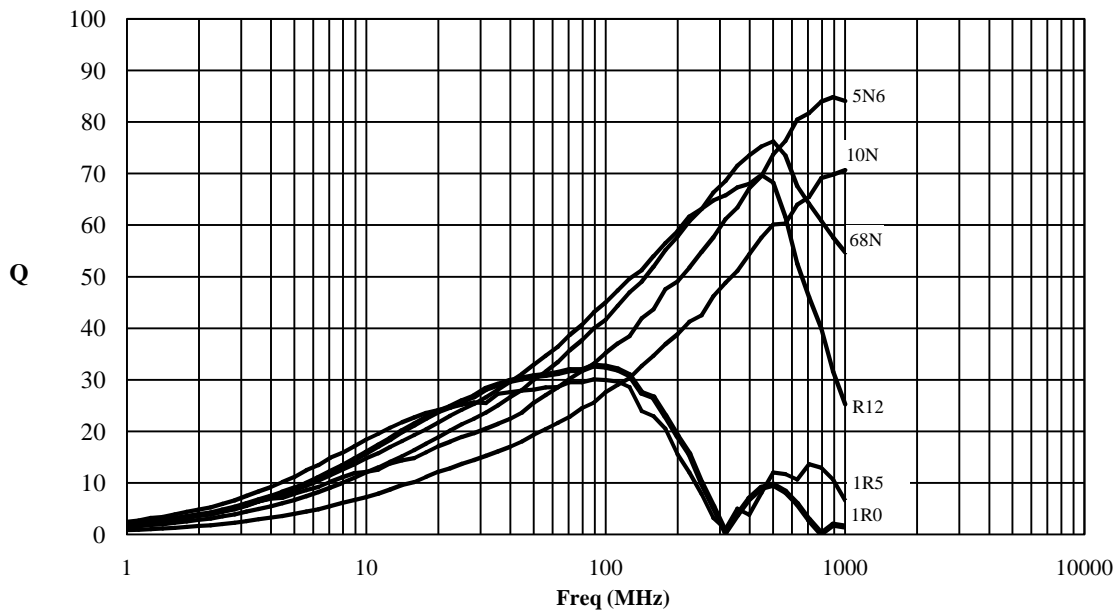
- Inductance is measured in HP-4287A RF LCR meter with HP-16193 fixture.
- Q is measured in HP-4287A RF LCR meter with HP-16193 fixture.
- SRF is measured in ENA E5071B network analyzer
- RDC is measured in HP-4338B milliohmmeter.
- For 15 °C Rise.

SWI 0805CS (2012) CERAMIC SERIES

L vs Freq Plot



Q vs Freq Plot



SPECIFICATION

	ITEM	CONDITION	SPECIFICATION
Mechanical 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 + 125°C at frequency specified in Product Table.	+ 25 to 500 ppm / °C $TCL = \frac{L1 - L2}{L1(T1-T2)} \times 10^6$ (ppm / °C)
Electrical 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 dynameter force gauge shall be applied to any side of the component.	0603 series - 900g minimum 0805 series - ≥1.0Kg
	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 20-second maximum transition time between temperature extremes. Test duration is 10 cycles.	Change In Q: No more than 10% Change In Appearance: Without distinct damage

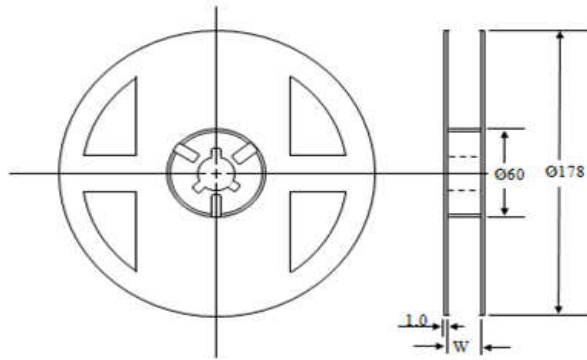
SPECIFICATION

	ITEM	CONDITION	SPECIFICATION
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%
	Vibration (Random)	Inductors shall be randomly vibrated at amplitude of 1.5mm and frequency of 10 - 55 Hz: 0.04 G / Hz for a minimum of 15 minutes per axis for each of the three axes.	Change In Q: No more than 10%
	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.	Change In Appearance : Without distinct damage
	High Temperature Storage	Inductors shall be stored at temperature of 85 °C ± 2 °C for 1000hrs (+48 - 0hrs.) 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.	

PACKAGING INFORMATION

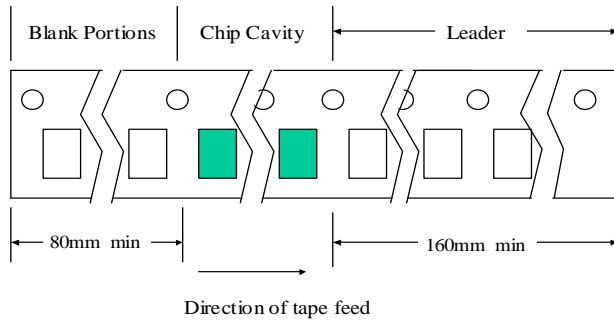
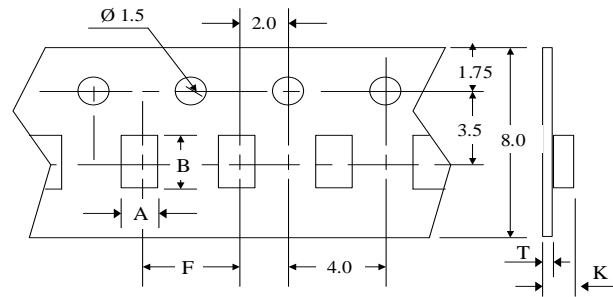
Packing Quantity

Type	Pcs / Reel
SWI0603CS	3,000
SWI0805CS	2,000



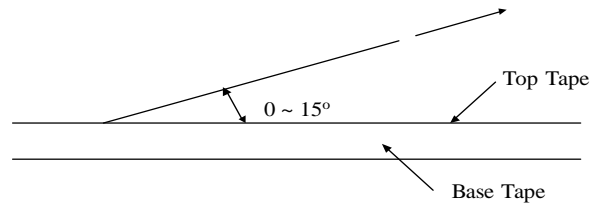
Dimensions (unit: m/m)

Type	Chip Cavity		Insert Pitch	Tape Thickness		
	A	B		K	T	W
SWI0603CS	1.25	1.80	4.00	1.05	0.20	8.00
SWI0805CS	1.42	2.26	4.00	1.30	0.20	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
SWI0603CS	1.92	0.64	1.27
SWI0805CS	2.60	0.75	1.30

Recommended Pattern

