CUSTOMER :

SPEC NO.:	**D-0601-081-J**
DATE :	**Aug.12, 2025**

RoHS Compliant

SPECIFICATIONS

Product Description : Wire Wound Chip Inductor

Part Number : SWI0603CSxxxx-A1 SERIES

Customer Part Number :

[For Customer Approval Only]

Date :

Approved By	Verified By	Rechecked By	Checked By

Approved By	Verified By	Prepared By
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WIRE WOUND CHIP INDUCTORS SWI0603CS-A1 SERIES

Introductions

The SWI series are wire wound chip inductors widely used in the communication applications.
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.
* 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.
* AEC-Q200 Grade 1.

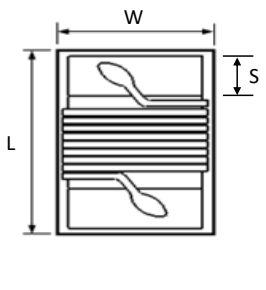
Part Number Code

SWI 0603 C S 10N J - A1

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	(t1) (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

3 Material Type C : Ceramic material

4 Inductance Value 3N3 = 3.3nH 33N = 33nH R33 = 330nH

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

6 Internal Code A1 = Automotive standard

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.

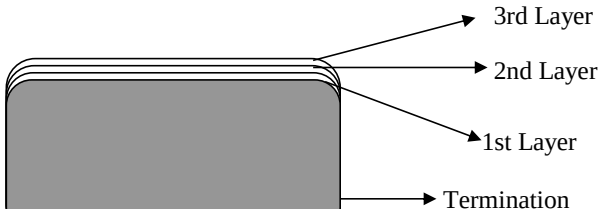
Terminals : The terminals shall consist of Ag alloy followed by Nickel, then Au plating for easier soldering.

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 : -40°C to +125°C

4. Ingredient of terminals electrode



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

5. Characteristics

Standard Atmospheric Conditions

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

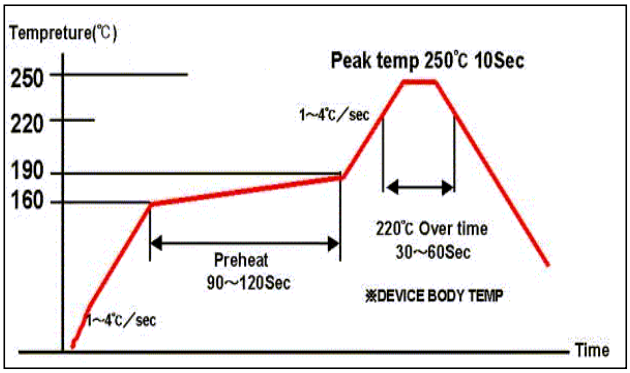
Ambient Temperature : 25°C ± 2°C

Relative Humidity : 60% to 70%

Air Pressure : 86 kPa to 106 kPa

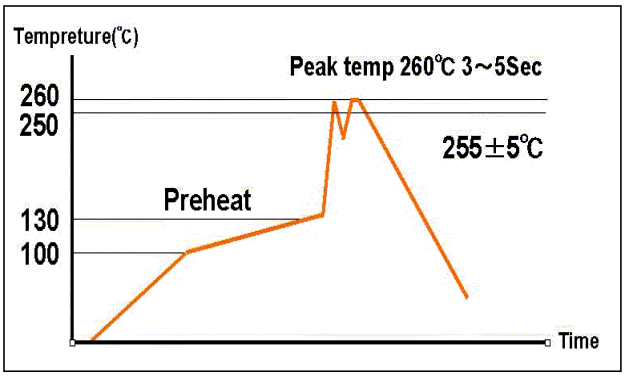
Temperature profile

a. Reflow temperature profile
(Temperature of the mounted parts surface on the printed circuit board)



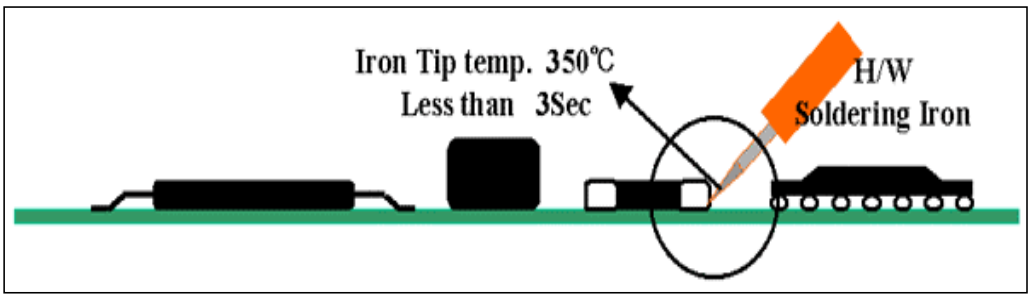
Recommended Peak Temperature：250°C Max
250°C up /within 10secs
Max. Reflow temperature : 260°C.
Gradient of temperature rise：av 1-4°C/sec
Preheat：160-190°C/within 90-120secs
220°C up /within 30-60secs
Composition of solder Sn-3Ag-0.5Cu

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



CHIP INDUCTOR
WIRE WOUND TYPE

SWI 0603CS-A1 SERIES

Specification

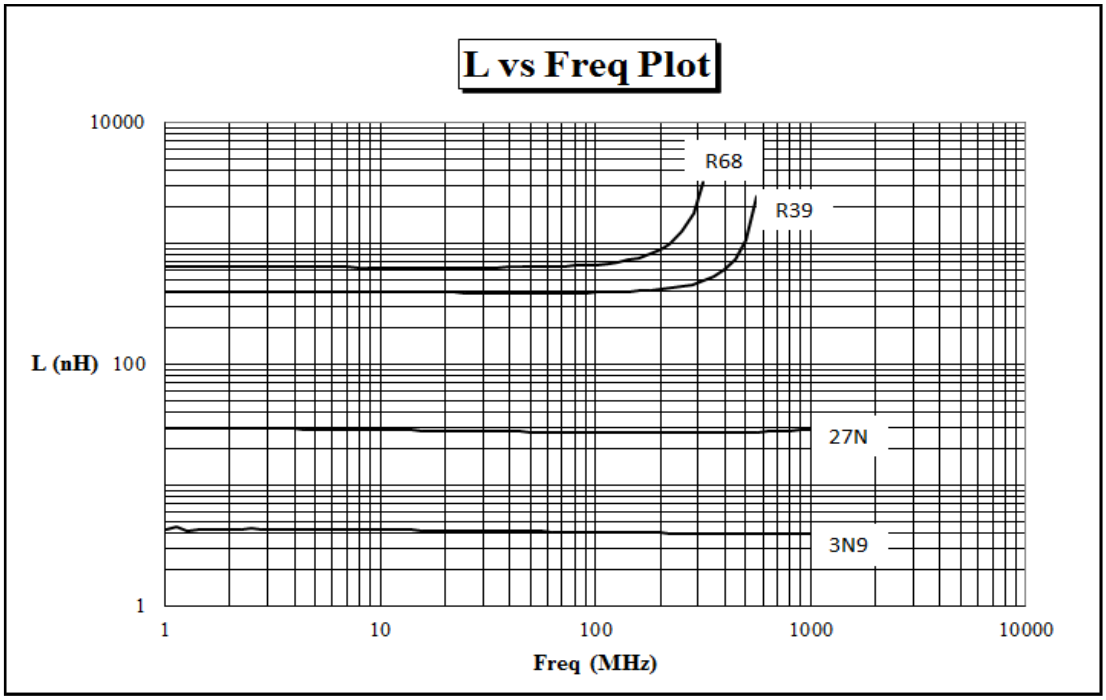
Part No.	Inductance [1] (nH) KEY	Percent Tolerance	Q [2] Min	S.R.F. [3] Min (MHz)	RDC [4] Max (Ω)	IDC [5] Max (mA)
SWI0603CS 1N6 □-A1	1.6 @ 250MHz	B,S,K	18 @ 250MHz	12500	0.030	700
SWI0603CS 1N8 □-A1	1.8 @ 250MHz	B,S,K	16 @ 250MHz	>8500	0.045	700
SWI0603CS 2N2 □-A1	2.2 @ 250MHz	B,S,K	13 @ 250MHz	>8500	0.110	700
SWI0603CS 3N3 □-A1	3.3 @ 250MHz	J,K	35 @ 250MHz	6000	0.045	700
SWI0603CS 3N6 □-A1	3.6 @ 250MHz	J,K	22 @ 250MHz	6000	0.070	700
SWI0603CS 3N9 □-A1	3.9 @ 250MHz	J,K	22 @ 250MHz	6900	0.070	700
SWI0603CS 4N3 □-A1	4.3 @ 250MHz	J,K	22 @ 250MHz	5900	0.070	700
SWI0603CS 4N7 □-A1	4.7 @ 250MHz	J,K	20 @ 250MHz	5800	0.080	700
SWI0603CS 5N1 □-A1	5.1 @ 250MHz	J,K	18 @ 250MHz	5700	0.150	700
SWI0603CS 5N6 □-A1	5.6 @ 250MHz	J,K	16 @ 250MHz	5500	0.190	700
SWI0603CS 6N2 □-A1	6.2 @ 250MHz	J,K	25 @ 250MHz	5800	0.100	700
SWI0603CS 6N8 □-A1	6.8 @ 250MHz	G,J,K	27 @ 250MHz	5800	0.100	700
SWI0603CS 7N5 □-A1	7.5 @ 250MHz	G,J,K	28 @ 250MHz	4800	0.100	700
SWI0603CS 8N2 □-A1	8.2 @ 250MHz	G,J,K	28 @ 250MHz	4700	0.100	700
SWI0603CS 8N7 □-A1	8.7 @ 250MHz	G,J,K	28 @ 250MHz	4600	0.100	700
SWI0603CS 9N5 □-A1	9.5 @ 250MHz	G,J,K	28 @ 250MHz	5400	0.100	700
SWI0603CS 10N □-A1	10 @ 250MHz	G,J,K	31 @ 250MHz	4800	0.100	700
SWI0603CS 11N □-A1	11 @ 250MHz	G,J,K	30 @ 250MHz	4000	0.100	700
SWI0603CS 12N □-A1	12 @ 250MHz	G,J,K	32 @ 250MHz	4000	0.100	700
SWI0603CS 13N □-A1	13 @ 250MHz	G,J,K	38 @ 250MHz	3600	0.100	700
SWI0603CS 15N □-A1	15 @ 250MHz	G,J,K	35 @ 250MHz	4000	0.120	700
SWI0603CS 16N □-A1	16 @ 250MHz	G,J,K	35 @ 250MHz	3300	0.120	700
SWI0603CS 18N □-A1	18 @ 250MHz	G,J,K	35 @ 250MHz	3100	0.120	700
SWI0603CS 20N □-A1	20 @ 250MHz	G,J,K	35 @ 250MHz	3100	0.120	700
SWI0603CS 22N □-A1	22 @ 250MHz	G,J,K	35 @ 250MHz	3000	0.150	700
SWI0603CS 23N □-A1	23 @ 250MHz	G,J,K	38 @ 250MHz	2850	0.140	700
SWI0603CS 24N □-A1	24 @ 250MHz	G,J,K	35 @ 250MHz	2650	0.140	700
SWI0603CS 27N □-A1	27 @ 250MHz	G,J,K	35 @ 250MHz	2800	0.200	600
SWI0603CS 30N □-A1	30 @ 250MHz	G,J,K	37 @ 250MHz	2250	0.144	600
SWI0603CS 33N □-A1	33 @ 250MHz	G,J,K	36 @ 250MHz	2300	0.200	600
SWI0603CS 36N □-A1	36 @ 250MHz	G,J,K	36 @ 250MHz	2080	0.200	600
SWI0603CS 39N □-A1	39 @ 250MHz	G,J,K	36 @ 250MHz	2200	0.210	600
SWI0603CS 43N □-A1	43 @ 250MHz	G,J,K	38 @ 250MHz	2000	0.220	600
SWI0603CS 47N □-A1	47 @ 200MHz	G,J,K	35 @ 200MHz	2000	0.230	600
SWI0603CS 51N □-A1	51 @ 200MHz	G,J,K	32 @ 200MHz	1950	0.240	600
SWI0603CS 56N □-A1	56 @ 200MHz	G,J,K	32 @ 200MHz	1900	0.250	600
SWI0603CS 68N □-A1	68 @ 200MHz	G,J,K	32 @ 200MHz	1700	0.350	600
SWI0603CS 72N □-A1	72 @ 150MHz	G,J,K	34 @ 150MHz	1700	0.490	400
SWI0603CS 82N □-A1	82 @ 150MHz	G,J,K	30 @ 150MHz	1700	0.580	400
SWI0603CS 91N □-A1	91 @ 150MHz	G,J,K	34 @ 150MHz	1500	0.580	400
SWI0603CS R10 □-A1	100 @ 150MHz	G,J,K	34 @ 150MHz	1400	0.580	400
SWI0603CS R11 □-A1	110 @ 150MHz	G,J,K	33 @ 150MHz	1350	0.610	300
SWI0603CS R12 □-A1	120 @ 150MHz	G,J,K	30 @ 150MHz	1300	0.650	300
SWI0603CS R15 □-A1	150 @ 100MHz	G,J,K	30 @ 100MHz	990	0.850	280
SWI0603CS R18 □-A1	180 @ 100MHz	G,J,K	25 @ 100MHz	990	1.000	250
SWI0603CS R22 □-A1	220 @ 100MHz	G,J,K	25 @ 100MHz	900	1.800	250
SWI0603CS R27 □-A1	270 @ 100MHz	G,J,K	25 @ 100MHz	822	2.100	200
SWI0603CS R33 □-A1	330 @ 100MHz	J,K	25 @ 100MHz	500	2.300	150
SWI0603CS R39 □-A1	390 @ 100MHz	J,K	25 @ 100MHz	350	2.900	130
SWI0603CS R47 □-A1	470 @ 100MHz	J,K	22 @ 100MHz	350	3.780	120
SWI0603CS R56 □-A1	560 @ 100MHz	J,K	20 @ 100MHz	300	4.200	110
SWI0603CS R68 □-A1	680 @ 100MHz	J,K	18 @ 100MHz	230	4.650	100

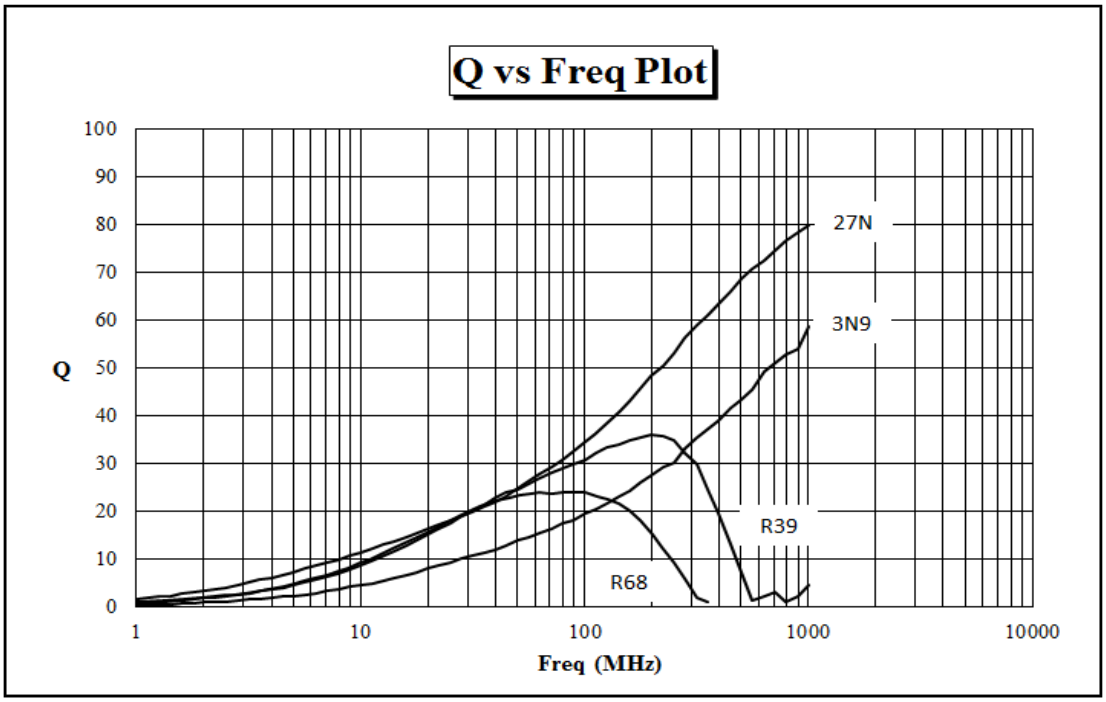
1. Inductance is measured in HP-4287A RF LCR meter with HP-16193 fixture.
2. Q is measured in HP-4287A RF LCR meter with HP-16193 fixture.
3. SRF is measured in ENA E5071B network analyzer or equivalent.
4. RDC is measured in HP-4338B milliohm meter or equivalent.
5. For 15 °C Rise.

Unit weight = 0.0037g ref.

SWI0603CS-A1 SERIES

Specification





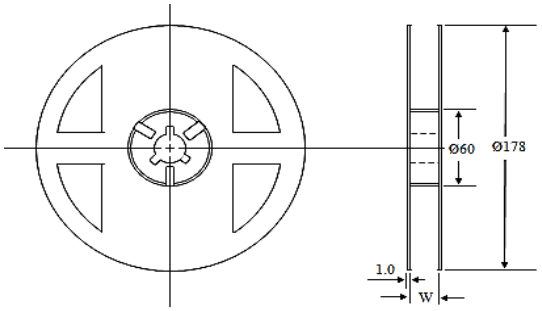
RELIABILITY TEST

Item	Reference documents	Test Condition	Test Specification
1. High Temperature Exposure	MIL-STD-202 Method 108	1. Temperature : 125°C 2. Time : 1000 hours	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
2. Temperature Cycling	JESD22 Method JA-104	1. Temperature : -40°C~125°C 2. Number of cycle : 1000 cycle 3. Dwell time : 30 minutes	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
3. Biased Humidity Test	MIL-STD-202 Method 103	1. Temperature : 85±5°C 2. Time : 1000 hours 3. Humidity : 85±5% RH	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
4. Operational Life	MIL-PRF-27-3.26/4.7.23 & User spec.	1. Temperature : 125°C (Temp. rise included) 2. Time : 1000 hours 3. Rated current.	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
5. External Visual	MIL-STD-883 Method 2009	Inspect product constructions and workmanship.	1. No pollution on the surface of products. 2. No crack
6. Physical Dimensions	JESD22 Method JB-100	Verify physical dimensions to the applicable product detail specification.	Per product specification standard.
7. Resistance to solvents	MIL-STD-202 Method 215	Immerse into solvent for 3±0.5 minutes & brush 10 times for 3 cycles.	1. No body deformation change in appearance or obliteration of marking. 2. Inductance shall not change more than ±10%.
8. Mechanical Shock	MIL-STD-202 Method 213	1. Peak acceleration 100g's 2. Duration of pulse : 6ms 3. Waveform : Half-sine 4. Velocity change : 12.3ft/sec 5. Direction : ±X. ±Y, ±Z (3 times/axis)	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
9. Vibration Test	MIL-STD-202 Method 204	1. Frequency and Amplitude: 10-2000-10 Hz 2. Sweep time : 20 min 3. Acceleration : 5g 4. Direction : X, Y, Z 5. Number of sweep : 12 time/axis	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
10. Resistance To Soldering Heat Test	MIL-STD-202 Method 210 & J-STD020	1. Highest temperature : 260±5°C 2. Time (temp.≥217°C) : 60~150 second 3. IR reflow times : 3 times	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
11. ESD	AEC-Q200-002 or ISO/DIS 10605	1. ESD voltage : 15kV 2. Mode 1 : 150pF / 330Ω 3. Mode 2 : 150pF / 2000Ω 4. Discharge times and polarity : 3 times pos. / 3 times eng. for each condition	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
12. Solderability Test	J-STD-002	1. Baking in pre-testing: 150±5°C/16hours± 30min. 2. Peak temperature : 240±5°C 3. Time (temp. ≥217°C) : 60~150 second 4. IR reflow times : 1 time	More than 95% soldering coverage min. on terminations.
13. Electrical Characterization	MIL-STD-202 Method 304 & User Spec.	1. Operating temperature : -40°C~125°C 2. Room temperature : 25°C	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
14. Flammability			
15. Board Flex	AEC-Q200-005	1. Deflection speed : 1mm/sec 2. Amount of deflection : 2 mm 3. Span : 90 mm 4. Direction for test : Bottom of PCB 5. Holding time : 60 sec	1. No mechanical or electrical damage. 2. Inductance shall not change more than ±10%.
16. Terminal Strength Test	AEC-Q200-006	1. Apply push force to samples mounted on PCB. 2. Force of 0.90kg for 60±1 seconds.	After test, inductors shall be no mechanical damage.

PACKING INFORMATION

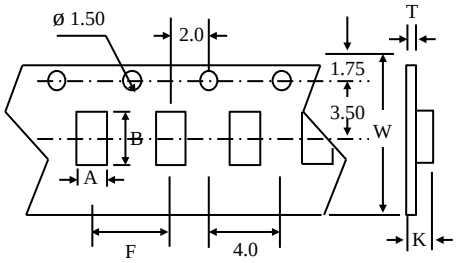
Packing Quantity

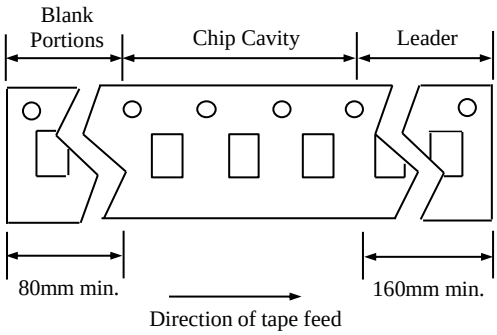
Type	Pcs / Reel
SWI 0603	3,000



Dimensions (unit : mm)

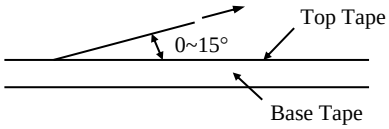
Type	Chip Cavity		Insert Pitch	Tape Thickness		
	A	B	F	K	T	W
SWI0603	1.16	1.90	4.00	0.95	0.22	8.00



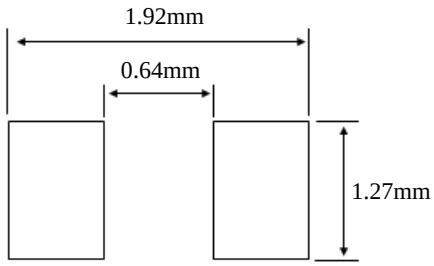


Top Tape Strength

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



Recommended Pattern



SAFETY NOTES & PRECAUTION

1. The risks of using the product are highly relevant to the field of application and need to be evaluated by both user and manufacturer. If the product is used for a purpose that directly affects personal safety or will cause significant impact or loss to the society, please be sure to contact us first for confirmation.

2. The storage period is less than 12 months. Ensure to follow the storage conditions (Temperature: 5 to 30°C, Humidity: 10 to 60% RH or less). If the storage period is exceeded the limit, the electrodes might be deteriorate/oxidized and affect soldering. Solderability should be checked if this period is exceeded.
Other storage precaution:
a) Products should be stored on the pallet for the prevention of the influence from humidity, dust and so on.
b) Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.
c) Do not unpack the minimum package until immediately before use. After unpacking, re-seal promptly or store in deciccator with a desiccant.
d) Do not store product in bulk to prevent coils and parts being damaged.

3. Do not use or store in locations where there are corrosive gases (salt, acid, alkali, etc.).

4. Soldering condition for mounting should be within the specification range.
If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.

5. When using, try to avoid excessive mechanical impact on the product such as collision / drop…etc.

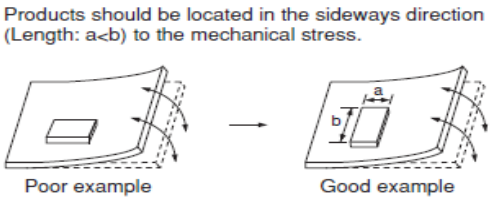
6. When assembling a printed circuit board with a new mounted chip, be careful to avoid assembly deformation of the circuit board that may cause the overall or partial distortion of the circuit board such as at screw tightening position.

7. Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the thermal design.

8. Do not expose the products to magnets or magnetic fields.

9. If you would like to use this products for more stringent safety or reliability of performance and/or quality requirements, or its failure, malfunction or trouble may cause serious damage to society, individuals or property, or you have special requirement beyond the specification or condition in the catalogue, please contact us.

10. PCB should be designed so that products are not subjected to the mechanical stress caused by warping of the board as shown below. Bending and twisting of PCB will cause excessive mechanical stress and lead to crack in the product as well.



11. Cleaning brush shall not touch the winding portion of the product to prevent the breaking of wire. Cleaning could cause failure and degradation of a product.

12. Care should be taken when transporting or handling product to avoid excessive vibration or mechanical shock. Product could be damaged by external mechanical pressure, stacked under heavy object, as well as strong shaking and drop.