WIREWOUND CHIP INDUCTORS

SCI0603S SERIES

1. PART NO. EXPRESSION :

S C I 0 6 0 3 S - 1 N 6 K F

(a) (b) (c) (d) (e)(f)

(a) Series code

(b) Dimension code

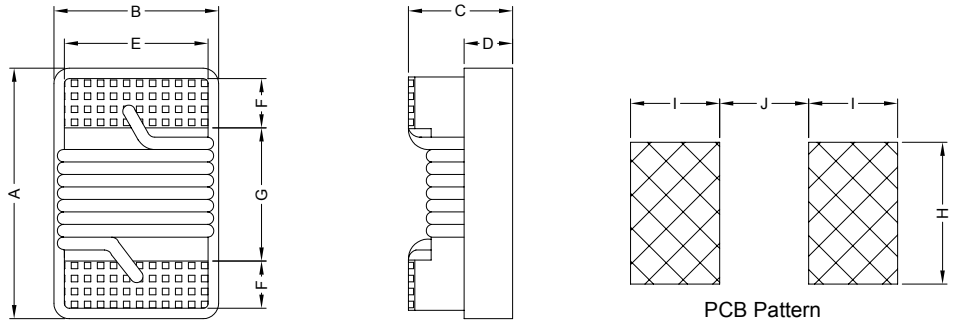
(c) Type code : S (Standard)

(d) Inductance code : 1N6 = 1.6nH

(e) Tolerance code : G = ±2%, J = ±5%, K = ±10%

(f) F : Lead Free

2. CONFIGURATION & DIMENSIONS :

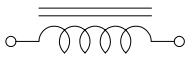


PCB Pattern

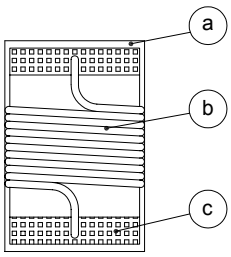
Unit:m/m

A	B	C	D	E	F	G	H	I	J
1.80 Max.	1.12 Max.	1.02 Max.	0.38 Ref.	0.76 Ref.	0.33 Ref.	0.86 Ref.	1.02 Ref.	0.64 Ref.	0.64 Ref.

3. SCHEMATIC :



4. MATERIALS :



(a) Core : Ceramic U core

(b) Wire : Enamelled Copper Wire

(c) Terminal Metallization : Ag + Ni + Au

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15.01.2008

5. GENERAL SPECIFICATION :

a) Storage temp. : -25°C to +80°C

b) Operating temp. : -40°C to +125°C

c) Temperature rise : 40°C Max.

d) Rated current : Base on temp. rise & ΔL/L0A=10% Max.

e) Resistance to solder heat : 260°C.10sec

6. ELECTRICAL CHARACTERISTICS :

Part No.	Tolerance Available	L (nH)	Test Freq (MHz)	Q Min.	SRF (MHz) Min.	DCR (Ω) Max.	IDC (mA) Max.	900MHz L Typ.	900MHz Q Typ.	1.7GHz L Typ.	1.7GHz Q Typ.
SCI0603S-1N6□F	K, J	1.6	250	16	12500	0.040	700	1.53	35	1.58	55
SCI0603S-1N8□F	K, J	1.8	250	16	12500	0.045	700	1.63	35	1.66	50
SCI0603S-2N2□F	K, J	2.2	250	20	6000	0.100	700	2.18	41	2.20	64
SCI0603S-3N3□F	K, J, G	3.3	250	22	>6000	0.080	700	3.35	47	3.40	65
SCI0603S-3N6□F	K, J, G	3.6	250	22	5800	0.063	700	3.53	49	3.58	65
SCI0603S-3N9□F	K, J, G	3.9	250	22	>6000	0.080	700	3.95	49	3.96	67
SCI0603S-4N3□F	K, J, G	4.3	250	22	5800	0.063	700	4.32	49	4.43	67
SCI0603S-4N7□F	K, J, G	4.7	250	20	5800	0.120	700	4.65	53	4.80	67
SCI0603S-5N1□F	K, J, G	5.1	250	20	5800	0.160	700	5.13	47	5.36	56
SCI0603S-5N6□F	K, J, G	5.6	250	20	5800	0.170	700	5.53	56	5.86	77
SCI0603S-6N8□F	K, J, G	6.8	250	27	5800	0.110	700	6.75	60	7.10	81
SCI0603S-7N5□F	K, J, G	7.5	250	27	4800	0.110	700	7.39	62	7.71	81
SCI0603S-8N2□F	K, J, G	8.2	250	27	4800	0.110	700	8.25	64	8.40	81
SCI0603S-8N7□F	K, J, G	8.7	250	27	4800	0.110	700	8.84	62	9.38	58
SCI0603S-9N5□F	K, J, G	9.5	250	27	4800	0.130	700	9.64	59	10.50	61
SCI0603S-10N□F	K, J, G	10	250	31	4800	0.130	700	10.0	66	10.60	83
SCI0603S-11N□F	K, J, G	11	250	31	4000	0.086	700	11.3	53	12.10	56
SCI0603S-12N□F	K, J, G	12	250	35	4000	0.130	700	12.3	72	13.50	83
SCI0603S-15N□F	K, J, G	15	250	35	4000	0.170	700	15.4	64	16.80	89
SCI0603S-16N□F	K, J, G	16	250	35	3300	0.110	700	16.5	55	18.00	52
SCI0603S-18N□F	K, J, G	18	250	35	3100	0.170	700	18.7	70	21.40	69
SCI0603S-22N□F	K, J, G	22	250	38	3000	0.190	700	22.8	73	26.10	71
SCI0603S-23N□F	K, J, G	23	250	38	2850	0.190	700	24.1	71	28.00	71
SCI0603S-24N□F	K, J, G	24	250	36	2800	0.130	700	25.7	45	30.90	40
SCI0603S-27N□F	K, J, G	27	250	40	2800	0.220	600	29.2	74	34.60	65

Pb

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6. ELECTRICAL CHARACTERISTICS :

Part No.	Tolerance Available	L (nH)	Test Freq (MHz)	Q Min.	SRF (MHz) Min.	DCR (Ω) Max.	IDC (mA) Max.	900MHz L Typ.	900MHz Q Typ.	1.7GHz L Typ.	1.7GHz Q Typ.
SCI0603S-30N□F	K, J, G	30	250	37	2800	0.150	600	31.4	47	39.80	28
SCI0603S-33N□F	K, J, G	33	250	40	2300	0.220	600	36.0	67	49.50	42
SCI0603S-36N□F	K, J, G	36	250	37	2300	0.250	600	39.1	47	48.90	24
SCI0603S-39N□F	K, J, G	39	250	40	2200	0.250	600	42.7	60	60.20	40
SCI0603S-43N□F	K, J, G	43	200	38	2000	0.280	600	46.9	44	60.30	21
SCI0603S-47N□F	K, J, G	47	200	38	2000	0.280	600	52.2	62	77.20	35
SCI0603S-51N□F	K, J, G	51	200	35	1900	0.280	600	55.5	69	82.20	34
SCI0603S-56N□F	K, J, G	56	200	38	1900	0.310	600	62.5	56	97.00	26
SCI0603S-68N□F	K, J, G	68	200	37	1700	0.340	600	80.5	54	168.00	21
SCI0603S-72N□F	K, J, G	72	150	34	1700	0.490	400	82.0	53	135.00	20
SCI0603S-82N□F	K, J, G	82	150	34	1700	0.540	400	96.2	54	177.00	21
SCI0603S-R10□F	K, J, G	100	150	34	1400	0.580	400	124	49	-	-
SCI0603S-R11□F	K, J, G	110	150	32	1350	0.610	300	138	43	-	-
SCI0603S-R12□F	K, J, G	120	150	32	1300	0.650	300	166	39	-	-
SCI0603S-R15□F	K, J, G	150	100	32	1300	0.950	280	230	25	-	-
SCI0603S-R18□F	K, J, G	180	100	25	1250	1.400	250	305	22	-	-
SCI0603S-R22□F	K, J, G	220	100	25	1200	1.600	250	-	-	-	-
SCI0603S-R26□F	K, J, G	260	100	25	1200	2.000	200	-	-	-	-
SCI0603S-R27□F	K, J, G	270	100	25	900	2.100	200	-	-	-	-
SCI0603S-R33□F	K, J, G	330	100	25	900	3.800	100	-	-	-	-
SCI0603S-R39□F	K, J, G	390	100	25	900	4.350	100	-	-	-	-

Inductance tolerance :

□ : G : ±2%
J : ±5%
K : ±10%

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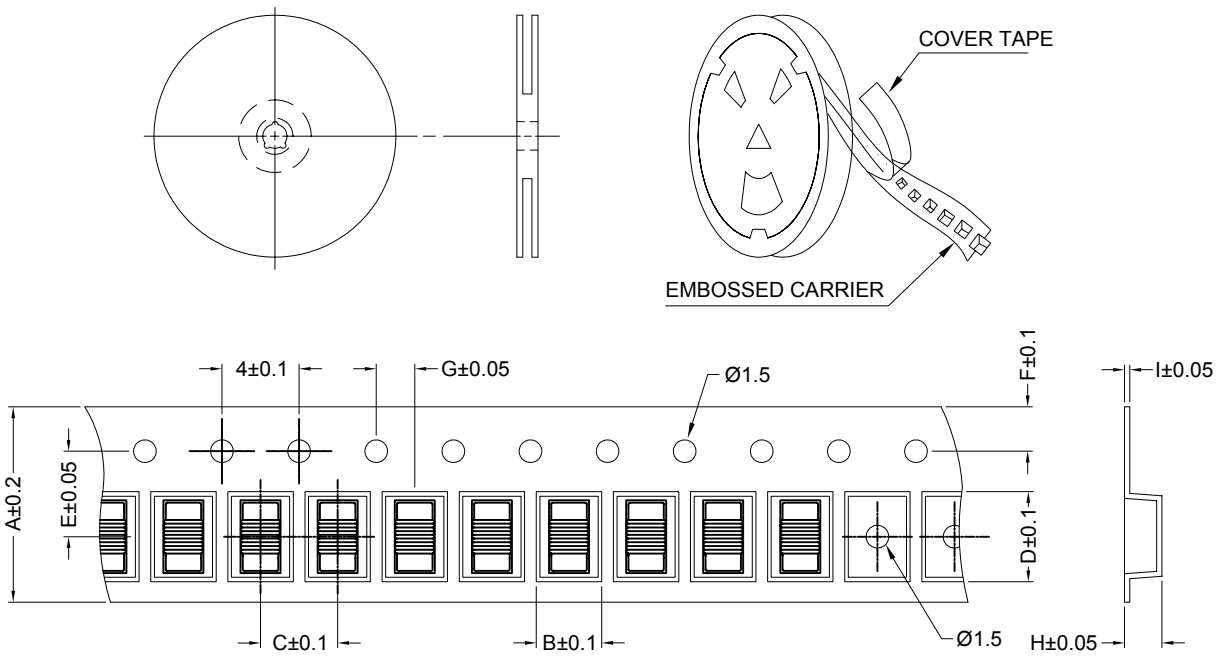
7. ELECTRICAL CHARACTERISTICS :

CONFIGURATTION :



DIMENSION (unit: mm)

SERIES	A	B	C	D	E	F	G	H	I
SCI0402	8.0	0.71	2.0	1.16	3.5	1.75	0	0.65	0.23
SCI0603	8.0	1.10	4.0	1.75	3.5	1.75	2	1.15	0.25
SCI0805	8.0	1.88	4.0	2.38	3.5	1.75	2	1.48	0.20
SCI1008	8.0	2.73	4.0	2.88	3.5	1.75	2	2.33	0.20

PACKING QUANTITY

SERIES	INNER REEL
	Q'TY (PCS)
SCI0402	4000
SCI0603	4000
SCI0805	2000
SCI1008	2000

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8. ENVIRONMENTAL CHARACTERISTICS :

Electrical Performance Test :

ITEM		SPECIFICATION	TEST CONDITIONS / TEST METHODS
1	Inductance	Refer to Electrcal Characteristics List	HP4291B
2	Q		HP4291B
3	SRF		HP8753D
4	DC Resistance Rdc		Mico-Ohmmeter (GOM-801G)
5	Rated Current IDC		The device should be REFLOW soldered (230±5°C for 10 seconds) to a tinned copper subs rate. A dynamiter
6	Over Load Test	After test, inductors shall have no evidence of electrical and mechanical damage	Applied 2 times of rated allowed DC current to inductor for a period of 5 minute.
7	Withstanding Voltage Test	After test, inductors shall have no evidence of electrical and mechanical damage	AC voltage of 500VAC applied between inductors terminal and case for 1 minute.
8	Insulation Resistance Test	1000 MOhm min.	100VDC applied between inductor terminal and case

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Mechanical Performance Test :

ITEM		SPECIFICATION	TEST CONDITIONS / TEST METHODS
1	Vibration	Appearance : No damage L change : within ±5% Q change : within ±10%	Test device shall be soldered on the substrate Oscillation Frequency : 10 to 55 to 10Hz for 1 min. Amplitude : 1.5mm Time : 2hrs for each axis (X, Y, Z), total 6hrs.
2	Resistance to Soldering Heat	Appearance : No damage L change : within ±5% Q change : within ±10%	Pre-heating : 150°C, 1 min Solder Composition : Sn/Pb=63/67 Solder Temperature : 230±5°C Immersion Time : 20±2sec Solder Temperature : 260±5°C Immersion Time : 5±2sec
3	Component Adhesion (Push Test)	1 lbs. For 0402 2 lbs. For 0603 3 lbs. For the rest	The device should be REFLOW soldered (230±5°C for 10 seconds) to a tinned copper subs rate. A dynamiter force gauge should be applied to the side of the conponent. The device must withstand a minimum force of 2 or 4 pounds without a failure of the termination attached to component.
3	Component Adhesion (Push Test)	The electrodes shall be at least 90% covered with new solder coating.	Pre-heating : 150°C, 1min Solder Composition : Sn/Pb=63/67 Solder Temperature : 230±5°C Immersion Time : 4±1sec
4	Drop Test	After test, the chip inductor don't fell of broke on the P.C.Board	Drop 1 time for each face and 1 time for each corner. Total drop 10 times. Drop Height : 100cm Drop Weight : 125g
5	Solderability Test	The terminal should at least be 90% covered with solder	after fluxing (alpha 100 or equiv), inductor shall be dipped in a melted solder bath at 232±5°C for 5 seconds.
6	Resistance to solvent test	There shall be no case of deformation change in appearance of obliteration of marking	MIL-STD202F, METHOD 215D

Pb

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Climatic Test :

<table>
<tr><th colspan="2">ITEM</th><th>SPECIFICATION</th><th>TEST CONDITIONS / TEST METHODS</th></tr>
<tr><td>1</td><td>Temperature Characteristics</td><td rowspan="5">Appearance : No damage
L change : within ±10%
Q change : within ±20%</td><td>-40°C ~ +125°C</td></tr>
<tr><td>2</td><td>Humidity Resistance</td><td>Temperature : 40±2°C
Relative Humidity : 90~95%
Time : 96hrs ±2hrs
Measured after exposure in the room condition for 2hrs</td></tr>
<tr><td>3</td><td>Low Temperature Storage Test</td><td>Temperature : -40±2°C
Time : 48±2hrs
Inductors are to be tested after 1 hour at room temperature.</td></tr>
<tr><td>4</td><td>Thermal Shock Test</td><td>One cycle :
<table>
<tr><th>Step</th><th>Temperature (°C)</th><th>Time (min)</th></tr>
<tr><td>1</td><td>-25±3</td><td>30</td></tr>
<tr><td>2</td><td>25±2</td><td>15</td></tr>
<tr><td>3</td><td>85±3</td><td>30</td></tr>
<tr><td>4</td><td>25±2</td><td>15</td></tr>
</table>
Total : 5 cycles</td></tr>
<tr><td>5</td><td>High Temperature Storage Test</td><td>Temperature : 125±2°C
Time : 48±2hrs
Load : Allowed DC current</td></tr>
<tr><td>6</td><td>High Temperature Load Life Test</td><td rowspan="2">There should be no evidence of short of open circuit.</td><td>Temperature : 85±2°C
Time : 1000±12hrs
Load : Allowed DC current</td></tr>
<tr><td>7</td><td>Humidity Load Life</td><td>Temperature : 40±2°C
Relative Humidity : 90~95%
Time : 1000±12hrs
Load : Allowed DC current</td></tr>
</table>

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