WIREWOUND CHIP INDUCTORS

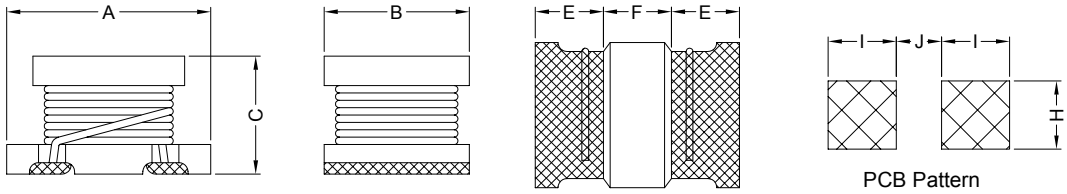
SDI565047 SERIES

1. PART NO. EXPRESSION :

S D I 5 6 5 0 4 7 - R 1 2 M F
(a) (b) (c) (d)(e)

(a) Series code
(b) Dimension code
(c) Inductance code : R12 = 0.12uH
(d) Tolerance code : K = ±10%, M = ±20%
(e) F : Lead Free

2. CONFIGURATION & DIMENSIONS :

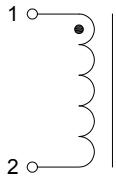


PCB Pattern

Unit:m/m

A	B	C	E	F	H	I	J
5.7±0.3	5.0±0.3	4.7±0.3	1.3 Min.	1.7 Min.	5.0 Ref.	2.0 Ref.	2.0 Ref.

3. SCHEMATIC :



4. GENERAL SPECIFICATION :

a) Ambient temp. : 20°C

b) Operating temp. : -25°C to 85°C

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

RoHS Compliant

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5. ELECTRICAL CHARACTERISTICS :

Part No.	Tolerance	Inductance (uH)	Test Frequency (Hz)	SRF (MHz) Min.	DCR (Ω) Max.	IDC (mA) Max.
SDI565047-R12□F	M	0.12	1M	450	0.0098	6000
SDI565047-R27□F	M	0.27	1M	300	0.0140	5300
SDI565047-R47□F	M	0.47	1M	200	0.0182	4800
SDI565047-1R0□F	M	1.0	1M	150	0.0270	4000
SDI565047-1R5□F	M	1.5	1M	110	0.0310	3700
SDI565047-2R2□F	M	2.2	1M	80	0.0410	3200
SDI565047-3R3□F	M	3.3	1M	40	0.0500	2900
SDI565047-4R7□F	M	4.7	1M	30	0.0574	2700
SDI565047-6R8□F	M	6.8	1M	25	0.1040	2000
SDI565047-100□F	M, K	10	1M	20	0.1300	1700
SDI565047-150□F	M, K	15	1M	17	0.210	1400
SDI565047-220□F	M, K	22	1M	15	0.266	1200
SDI565047-330□F	M, K	33	1M	12	0.448	900
SDI565047-470□F	M, K	47	1M	10	0.560	800
SDI565047-680□F	M, K	68	1M	7.6	0.938	640
SDI565047-101□F	M, K	100	100K	6.5	1.204	560
SDI565047-151□F	M, K	150	100K	5.0	2.660	420
SDI565047-221□F	M, K	220	100K	4.0	3.360	320
SDI565047-331□F	M, K	330	100K	3.1	6.160	270
SDI565047-471□F	M, K	470	100K	2.4	7.560	240
SDI565047-681□F	M, K	680	100K	1.9	11.34	190
SDI565047-102□F	M, K	1000	10K	1.7	14.42	150
SDI565047-222□F	M, K	2200	10K	1.2	30.10	100
SDI565047-472□F	M, K	4700	10K	0.8	61.04	70
SDI565047-103□F	M, K	10000	10K	0.5	140.0	50

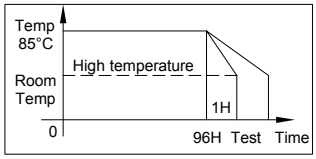
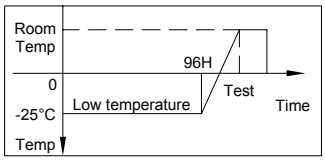
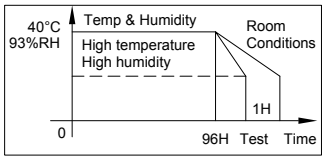
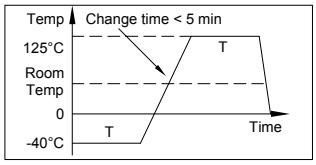
Inductance tolerance :

□ : J : ±5%
K : ±10%
M : ±20%

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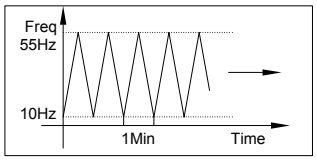
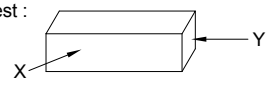
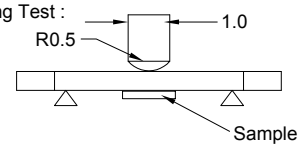
6. RELIABILITY AND TEST CONDITION :

ITEM	PERFORMANCE	TEST CONDITION
Environmental Tests		
High Temperature Storage Test Reference documents: MIL-STD-202G Method 108A	1. No case deformation or change in appearance. 2. ΔL/L≦30% (Closed Magnetic Circuit) ΔL/L≦10% 3. ΔQ/Q ≦ 30% 4. ΔDCR/DCR≦10%	Temperature : 85±2°C Time : 96±2 hours Tested after 1 hour (less than 2 hours) at room temperature 
Low Temperature Storage Test Reference documents: IEC 68-2-1A 6.1 6.2	1. No case deformation or change in appearance. 2. ΔL/L≦30% (Closed Magnetic Circuit) ΔL/L≦10% 3. ΔQ/Q ≦ 30% 4. ΔDCR/DCR≦10%	Temperature : -25±2°C Time : 96±2 hours Tested after 1 hour (less than 2 hours) at room temperature 
Humidity Test Reference documents: MIL-STD-202G Method 103B	1. No case deformation or change in appearance. 2. ΔL/L≦30% (Closed Magnetic Circuit) ΔL/L≦10% 3. ΔQ/Q ≦ 30% 4. ΔDCR/DCR≦10%	Dry oven at temperature of 40±5°C for 24 hours Measured after 24 hours Exposure : Temperature : 40±2°C, Humidity : 93±3% RH, Time : 96±2 hours Tested while the specimens are still in the chamber Tested after 1 hour (less than 2 hours) at room temperature 
Thermal shock test Reference documents: MIL-STD-202G Method 107G	1. No case deformation or change in appearance. 2. ΔL/L≦30% (Closed Magnetic Circuit) ΔL/L≦10% 3. ΔQ/Q ≦ 30% 4. ΔDCR/DCR≦10% T : weight≦ 28g : 15 Min. 28g≦weight≦136g : 30 Min.	Conditions of 1 cycle : Step 1 : -40°C for T time Step 2 : 125°C for T time Total : 20 cycles 
Physical Characteristics Tests		
Solderability Test Reference documents: MIL-STD-202G Method 208H IPC J-STD-002B	More than 95% of terminal electrode should be covered with solder.	Solder temperature : 245±5°C Dip time : 5 secs. Solder : Sn(63)/Pb(37) Flux : rosin flux

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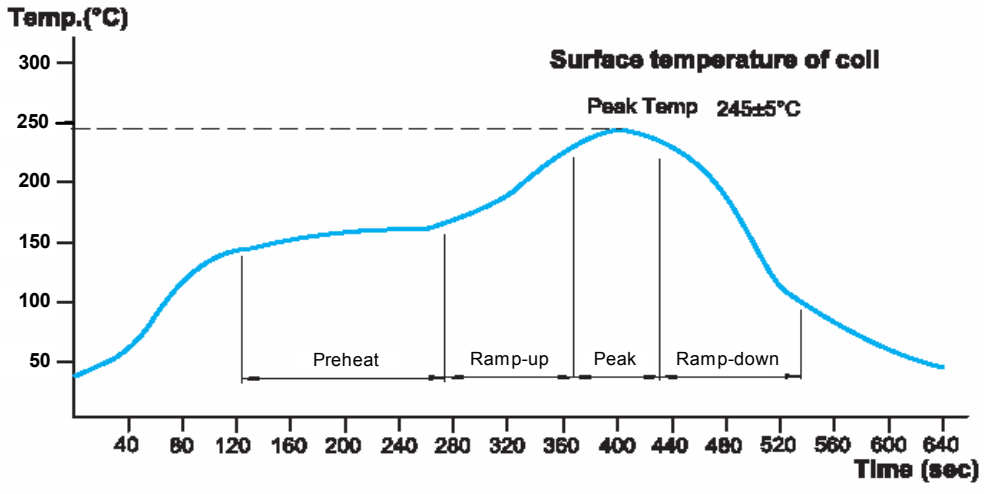
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6. RELIABILITY AND TEST CONDITION :

ITEM	PERFORMANCE	TEST CONDITION
Heat Endurance of Reflow Soldering Reference documents: IPC J-STD-020B	1. No case deformation or change in appearance. 2. ΔL/L≦30% (Closed Magnetic Circuit) ΔL/L≦10% 3. ΔQ/Q ≦ 30% 4. ΔDCR/DCR≦10%	Refer to reflow curve. No. of cycle : 3 Peak temp. : 245±5°C
Vibration Test Reference documents: MIL-STD-202G Method 201A	1. No case deformation or change in appearance. 2. ΔL/L≦30% (Closed Magnetic Circuit) ΔL/L≦10% 3. ΔQ/Q ≦ 30% 4. ΔDCR/DCR≦10%	Frequency : 10~55Hz Amplitude : 0.75mm Directions & times : X, Y, Z directions for 2 hours. A period of 2 hours in each of 3 mutually perpendicular directions (Total 6 hours). 
Drop Test Reference documents: MIL-STD-202G Method 203C	1. No case deformation or change in appearance. 2. ΔL/L≦30% (Closed Magnetic Circuit) ΔL/L≦10% 3. ΔQ/Q ≦ 30% 4. ΔDCR/DCR≦10%	Drop from a height of 1m with 981m/s² (100G) altitude (1 angle, 1 ridge and 2 surface orientations)
Terminal Strength Push Test Reference documents: JIS C 5321:1997	Pulling Test : A : Sectional area of terminal Bending Test : The terminal electrode & the dielectric must not be damaged by the forces applied on the right conditions.	Bend PCB at middle point, the deflection shall be 2mm. Pulling Test :  Bending Test : 

	Force	Time (sec)
A≦8mm²	≧5N	30
8mm²<A≦20mm²	≧10N	10
20mm²<A	≧20N	10

Reflow Curve

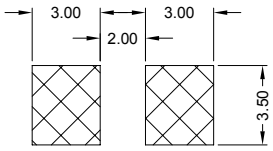


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7. SOLDERING AND MOUNTING :

7-1. Recommended PC Board Pattern



7-2. Soldering

Mildly activated rosin fluxes are preferred. The minimum amount of solder can lead to damage from the stresses caused by the difference in coefficients of expansion between solder, chip and substrate. Our terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

7-2.1 Solder Re-flow :

Recommended temperature profiles for re-flow soldering in Figure 1.

7-2.2 Solder Wave :

Wave soldering is perhaps the most rigorous of surface mount soldering processes due to the steep rise in temperature seen by the circuit when immersed in the molten solder wave, typical at 240°C. Due to the risk of thermal damage to products, wave soldering of large size products is discouraged. Recommended temperature profile for wave soldering is shown in Figure 2.

7-2.3 Soldering Iron (Figure 2) :

Products attachment with soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

Note :

a) Preheat circuit and products to 150°C.
b) 280°C tip temperature (max)
c) Never contact the ceramic with the iron tip
d) 1.0mm tip diameter (max)
e) Use a 20 watt soldering iron with tip diameter of 1.0mm
f) Limit soldering time to 3 secs.

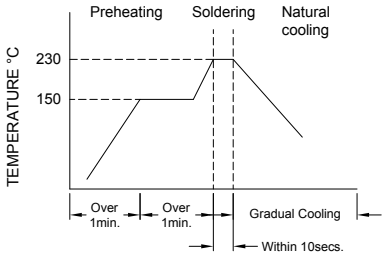


Figure 1. Re-flow Soldering

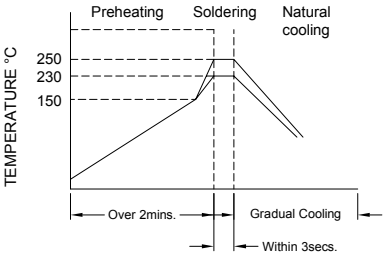


Figure 2. Wave Soldering

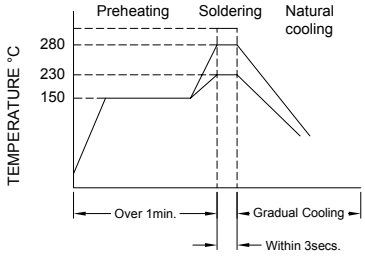


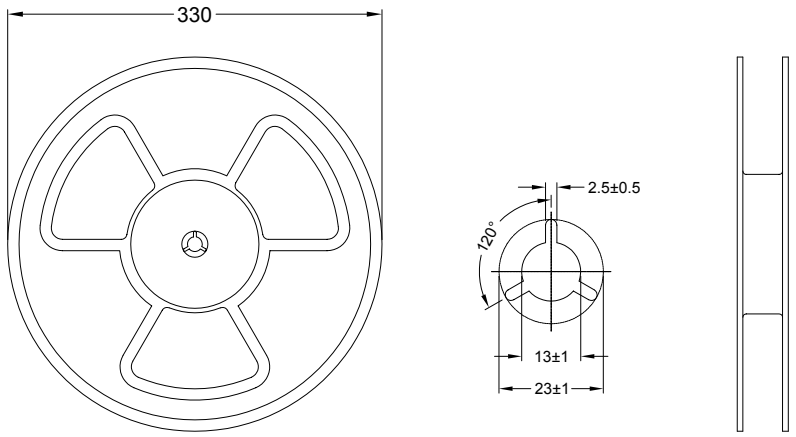
Figure 3. Hand Soldering

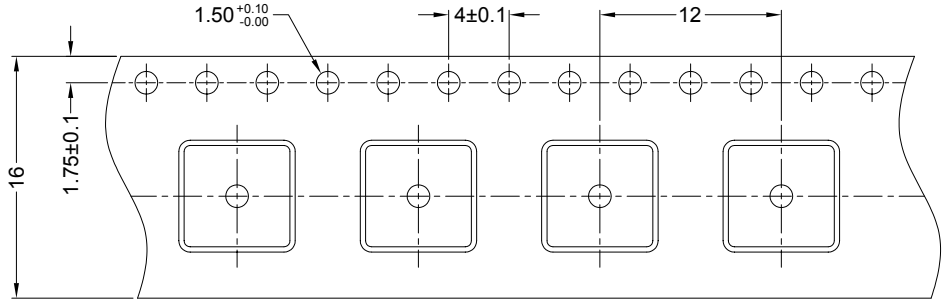
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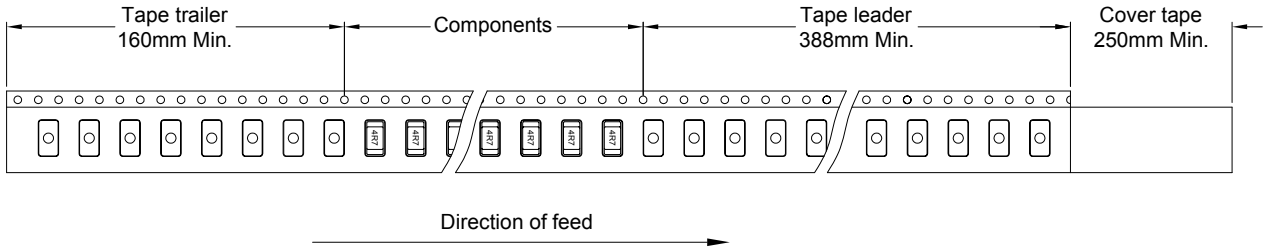
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8. PACKAGING INFORMATION : (Unit : mm)

8-1. Reel & Tape Dimension







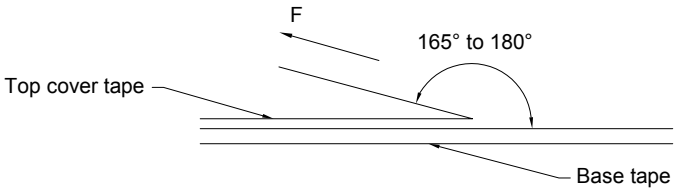
8-2. Quantity & G.W. per package

SERIES	INNER : REEL		OUTER : CARTON		
	Q'TY (PCS)	G.W. (Kg)	Q'TY (PCS)	G.W. (Kg)	SIZE (cm)
SDI565047	1000	0.78	16000	16	36 x 36 x 40

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8-3. Tearing Off Force



The force for tearing off cover tape is 10 to 60 grams in the arrow direction.

Application Notice

1. Storage Conditions :

To maintain the solderabililty of terminal electrodes :

a) Temperature and humidity conditions : Less than 40°C and 70% RH.

b) Recommended products should be used within 6 months from the time of delivery.

c) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation :

a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.

b) The use of tweezers or vacuum pick up is strongly recommended for individual components.

c) Bulk handling should ensure that abrasion and mechanical shock are minimized.

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