

1. PART NO. EXPRESSION :

S P S 5 0 4 0 N - 1 0 0 M F - □□

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

(a) Series code

(b) Dimension code

(c) Type code

(d) Inductance code : 100= 10.0uH

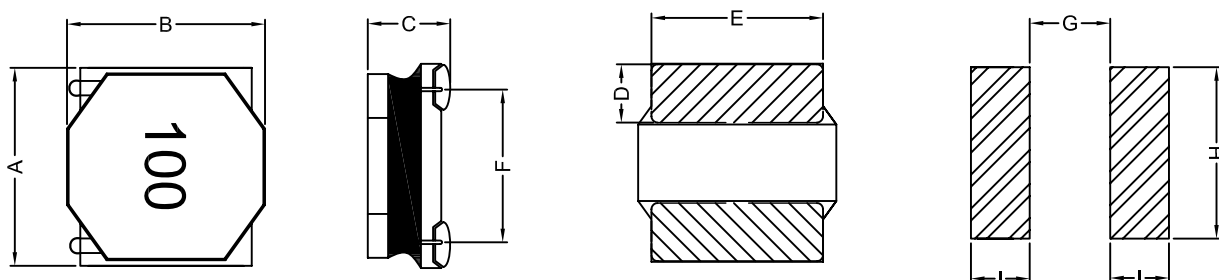
(e) Tolerance code : M=±20%, Y=±30%

(f) F : RoHS Compliant

(g) 10 : Standard

11 ~ 99 : Internal control number

2. CONFIGURATION & DIMENSIONS :



Recommend Land pattern

Unit:m/m

Inductance	A	B	C	D	E	F	G	H	I
≤10 uH	4.95±0.2	4.95±0.2	3.9±0.2	1.3±0.3	4.2±0.2	3.7 Ref.	2.1	4.2	1.5
>10 uH			3.8±0.2						

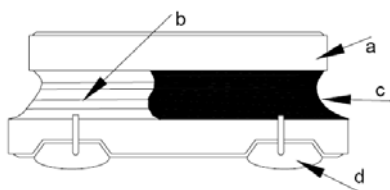
3. MATERIALS :

(a) Core

(b) Wire

(c) Coating

(d) Solder



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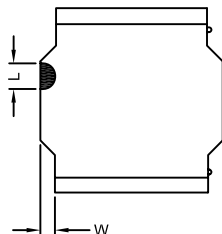


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PG. 1

Core chipping

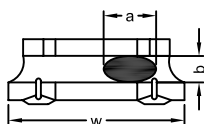
The appearance standard of the chipping size on top side, and bottom side ferrite core is listed below.



L	W
0.8mm Max.	0.8mm Max.

Void appearance tolerance Limit

Size of voids occurring to coating resin is specified below.



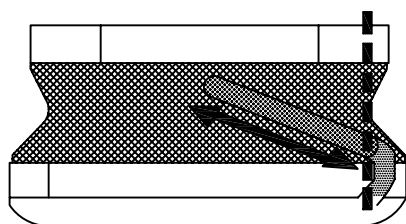
Exposed wire tolerance limit of coating resin part on product side.

Size of exposed wire occurring to coating resin is specified below.

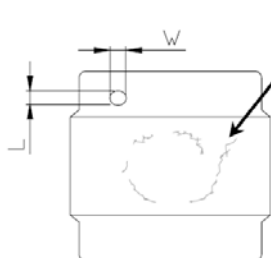
1. Width direction (dimension a) : Acceptable when $a \leq w/2$
2. Length direction (dimension b) : Dimension b is not specified.
3. The total area of exposed wire occurring to each sides is not greater than 50% of coating resin area, and is acceptable.

External appearance criterion for exposed wire

Exposed end of the winding wire at the secondary side should be 3mm and below.



Electrode appearance criterion for exposed wire



Visual check on core surface with no crack means pass.

Only top side of wire is exposed.
(regardless of whole top side of wire exposed)

Conforming

Wire is soldered insufficiently and less than half of outer diameter is covered with solder.

Less than 1/2 of joint side length.
(More than 1/2 is selected as defect)

L	W
0.8mm Max.	0.8mm Max.

Electrodes with foreign body (dirt) appearance standards

Foreign materials (dirt) will not affect the coplanarity of PAD.

below the example of foreign materials (dirt) quantity ≤ 2 PCS on single PAD.
dimension range as below.



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4. GENERAL SPECIFICATION :

- (a) Test Freq. : 100KHz/1V
- (b) Ambient Temp. : 25°C
- (c) Operating temp. : -40° C to +125° C
- (d) Storage condition (component in its packaging)
 - i) Temperature : -10 to 40° C
 - ii) Humidity : 60%
- (e) Heat Rated Current (Irms) will cause the coil temperature rise approximately Δt of 40°C (keep 1min.).
- (f) Saturation Current (Isat) will cause L0 to drop 30% typical. (keep quickly).
- (g) The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions

5. ELECTRICAL CHARACTERISTICS :

Part No.	Inductance L(uH)	Tolerance				DCR (mΩ) ±20%	Rated Current	
		K	L	M	Y		Irms(A)	Isat(A)
SPS5040N1R0□F	1.00	/	/	±20%	±30%	12	5.00	7.50
SPS5040N1R5□F	1.50	/	/	±20%	±30%	15	4.50	6.50
SPS5040N2R2□F	2.20	/	/	±20%	±30%	21	3.80	5.70
SPS5040N3R3□F	3.30	/	/	±20%	±30%	24	3.50	4.40
SPS5040N4R7□F	4.70	/	/	±20%	±30%	32	3.20	3.90
SPS5040N6R8□F	6.80	/	/	±20%	±30%	43	2.50	3.30
SPS5040N100□F	10.0	/	/	±20%	±30%	56	2.20	2.52
SPS5040N150□F	15.0	/	±15%	±20%	±30%	80	1.80	2.00
SPS5040N220□F	22.0	/	±15%	±20%	±30%	123	1.50	1.62
SPS5040N330□F	33.0	/	±15%	±20%	±30%	180	1.20	1.30
SPS5040N470□F	47.0	±10%	±15%	±20%	±30%	270	1.00	1.10
SPS5040N680□F	68.0	±10%	±15%	±20%	±30%	400	0.80	0.90
SPS5040N101□F	100	±10%	±15%	±20%	±30%	560	0.72	0.75



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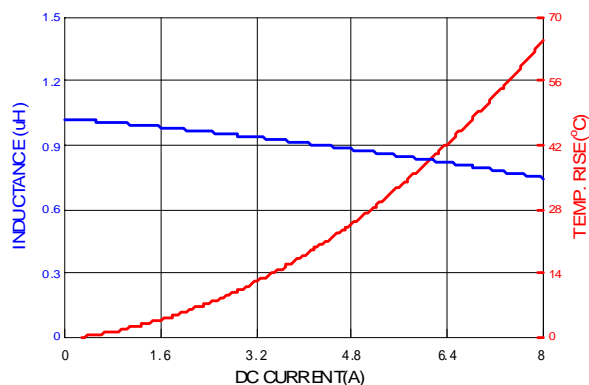
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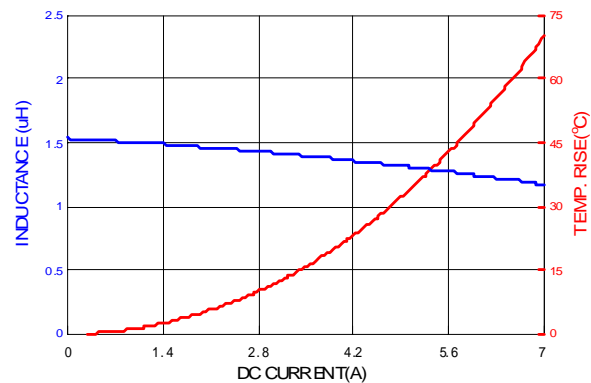
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6. CHARACTERISTICS CURVES :

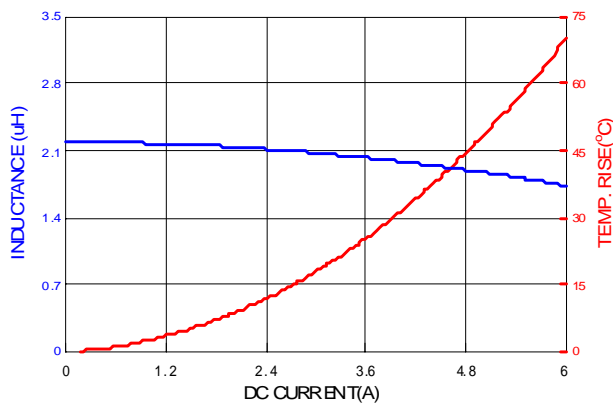
SPS5040N1R0



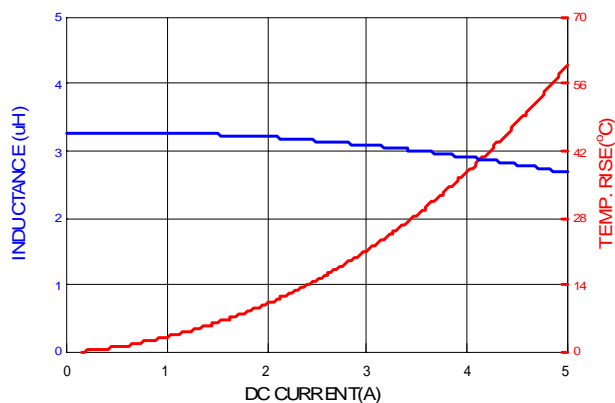
SPS5040N1R5



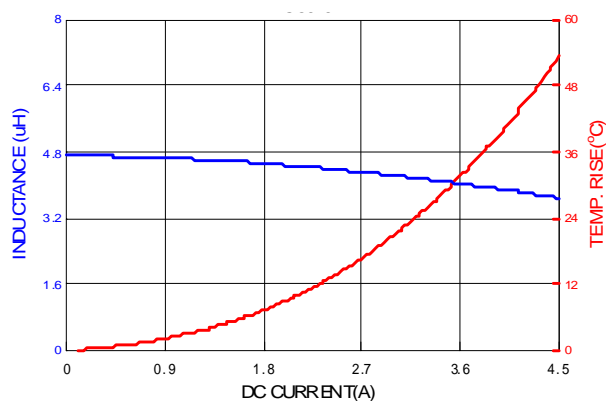
SPS5040N2R2



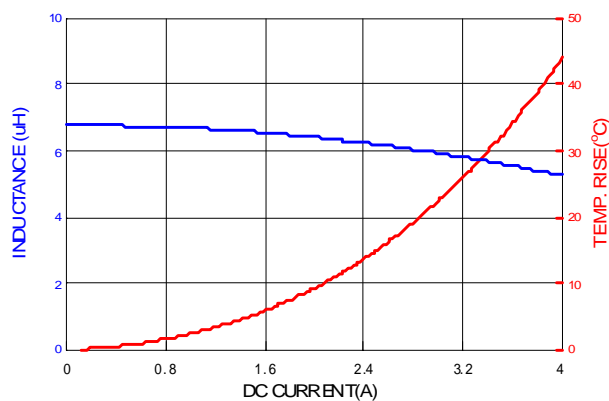
SPS5040N3R3



SPS5040N4R7



SPS5040N6R8



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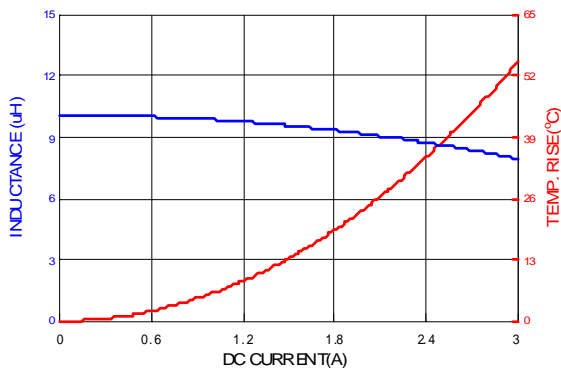
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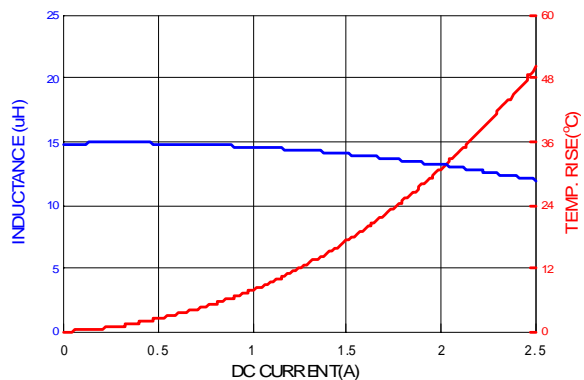


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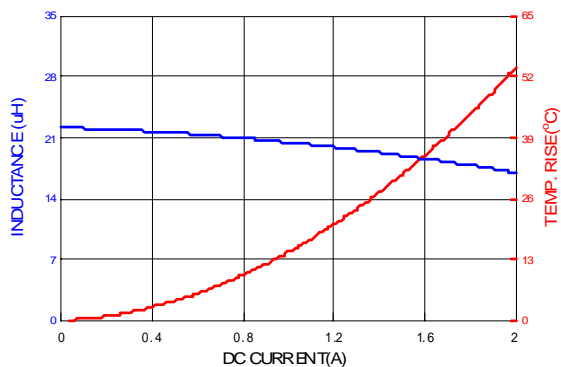
SPS5040N100



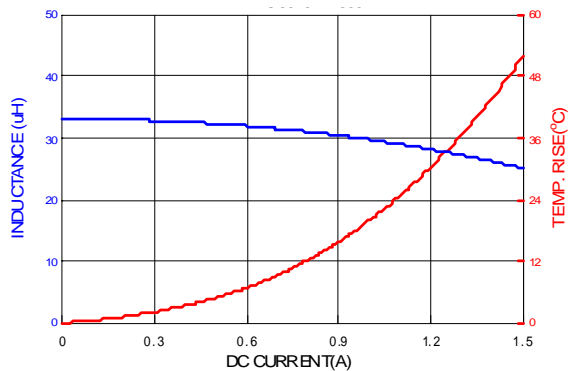
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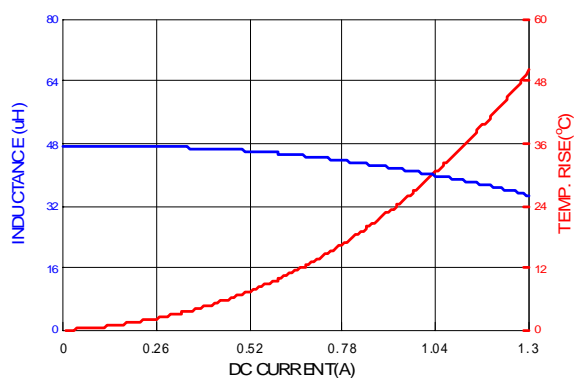
SPS5040N220



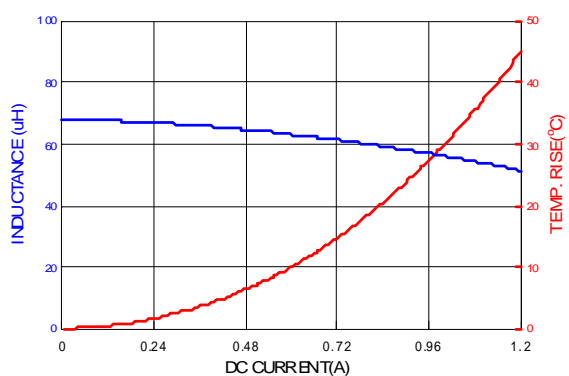
SPS5040N330



SPS5040N470



SPS5040N680



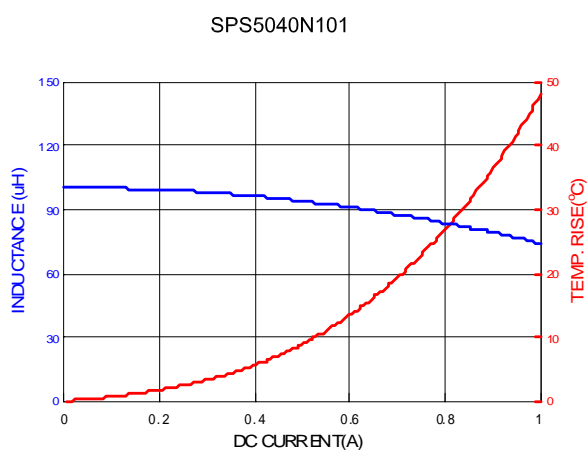
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7. SOLDERING AND MOUNTING :

7-1. 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.

7-1.1 Solder Re-flow :

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

7-1.2 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 :

- Preheat circuit and products to 150°C.
- 355°C tip temperature (max)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (max)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4~5 secs.

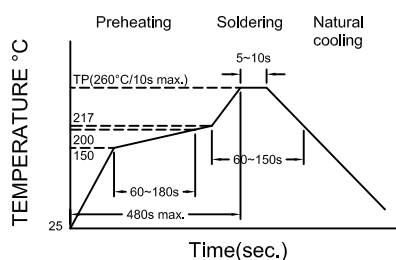


Figure 1. Re-flow Soldering: 1 times max.

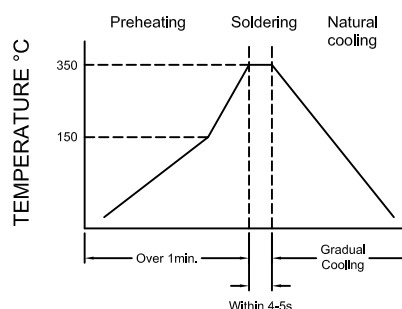


Figure 2. Iron Soldering times : 1 times max.



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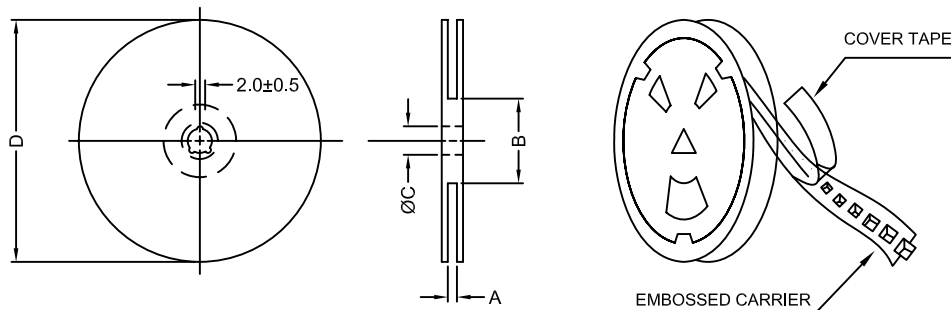


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PG. 7

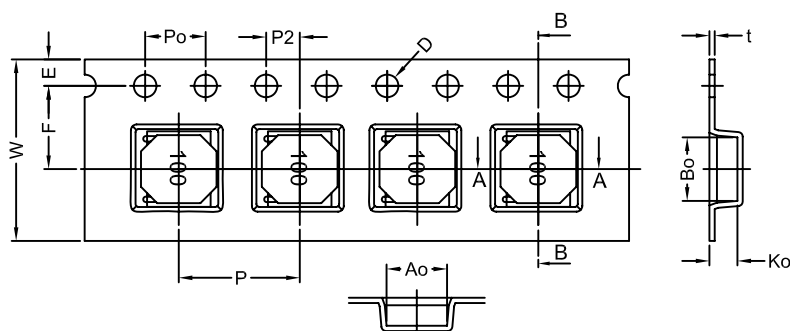
8. PACKAGING INFORMATION :

8-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
13" x 12mm	12.4+2/-0	80±2.0	13.5±0.5	330±3.0

8-2 Tape Dimension



Series	Ao(mm)	Bo(mm)	Ko(mm)	P(mm)	W(mm)	t(mm)	E(mm)	F(mm)	D(mm)	Po(mm)	P2(mm)
SPS5040N	5.4±0.1	5.4±0.1	4.3±0.1	8.0±0.1	12.0±0.3	0.4±0.1	1.75±0.1	7.5±0.1	1.5±0.1	4.0±0.1	2.0±0.1

8-3. Packaging Quantity

Size	SPS5040N
Reel	1500
Inner Box	3000
Carton	12000



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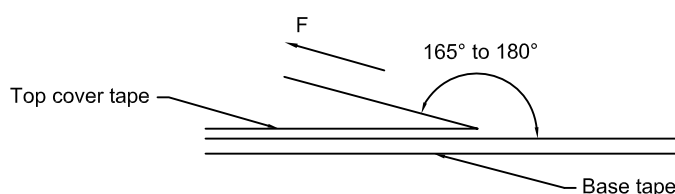
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8-4. Tearing Off Force



The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions. (referenced ANSI/EIA-481-C-2003 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300

Application Notice

1. Storage Conditions :

To maintain the solderability of terminal electrodes :

- Recommended products should be used within 12 months from the time of delivery.
- The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation :

- Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
- The use of tweezers or vacuum pick up is strongly recommended for individual components.
- Bulk handling should ensure that abrasion and mechanical shock are minimized.



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