LOW PROFILE POWER INDUCTORS

SPS3012T SERIES

1. PART NO. EXPRESSION :

S P S 3 0 1 2 T 4 R 7 M F
(a) (b) (c) (d) (e) (f)

(a) Series code

(b) Dimension code

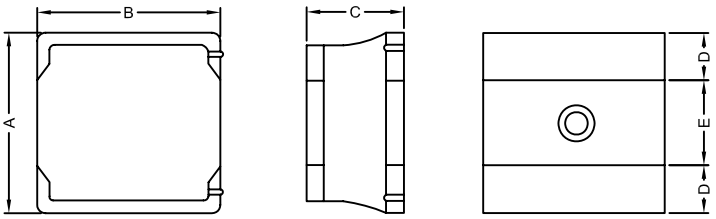
(c) Material Code

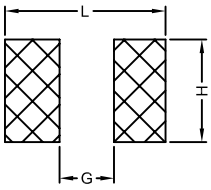
(d) Inductance code : 4R7 = 4.7uH

(e) Tolerance code : M=±20%,Y=±30%

(f) F : RoHS Compliant

2. CONFIGURATION & DIMENSIONS :



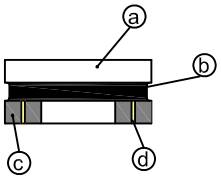


Recommended PCB Pattern

Unit:m/m

A	B	C	D	E	L	G	H
3.0±0.2	3.0±0.2	1.2 Max.	1.0 Ref.	1.0 Ref.	3.2 Ref.	1.0 Ref.	3.2 Ref.

3. MATERIALS :



(a) Core

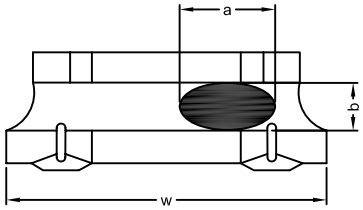
(b) Coating

(c) Termination

(d) Wire

Void appearance tolerance Limit

Size of voids occurring to coating resin is specified below.



Appearance of exposed wire tolerance limit:

1. Width direction（dimension a）: Acceptable when a≦w/2
   Nonconforming when a＞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.

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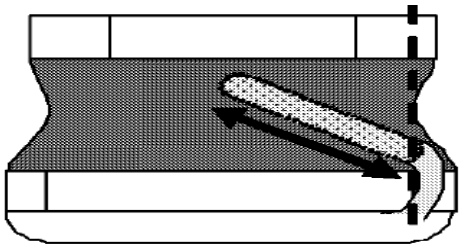
External appearance criterion for exposed wire

Exposed end of the winding wire at the secondary side should be 2mm and below.



4. GENERAL SPECIFICATION :

a) Isat：Based on inductance change （△L/L0:≦-30%） @ ambient temp. 25℃

b) Irms：Based on temperature rise (ΔT:40°C) Max

c) Operating Temperature : -40°C to 125°C

d) Storage Condition (Component in its packaging)

i) Temperature: -10°C to 40°C

ii) Humidity: 60%

5. ELECTRICAL CHARACTERISTICS :

Part No.	Inductance (uH)	Test Frequency (Hz)	RDC (Ω)±20%	Isat (A) Typ.	Irms (A) Typ.
SPS3012T1R0YF	1.0±30%	0.1V/1M	0.042	2.15	2.00
SPS3012T1R5YF	1.5±30%	0.1V/1M	0.056	1.70	1.85
SPS3012T2R2MF	2.2±20%	0.1V/1M	0.080	1.50	1.70
SPS3012T3R3MF	3.3±20%	0.1V/1M	0.100	1.20	1.55
SPS3012T4R7MF	4.7±20%	0.1V/1M	0.130	1.05	1.30
SPS3012T6R8MF	6.8±20%	0.1V/1M	0.180	0.90	1.05
SPS3012T100MF	10±20%	0.1V/1M	0.245	0.76	0.89
SPS3012T150MF	15±20%	0.1V/1M	0.386	0.62	0.74
SPS3012T220MF	22±20%	0.1V/1M	0.580	0.49	0.61

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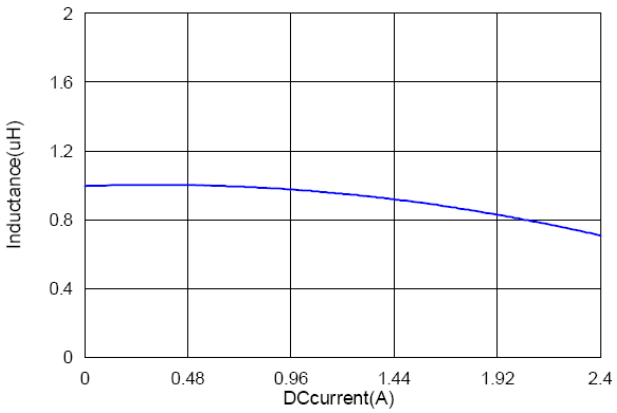
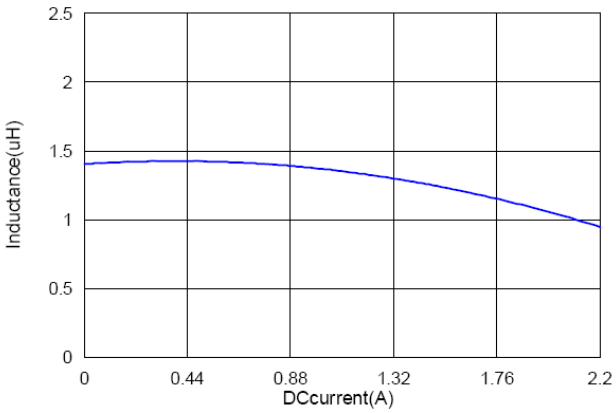
6. CHARACTERISTICS CURVES :

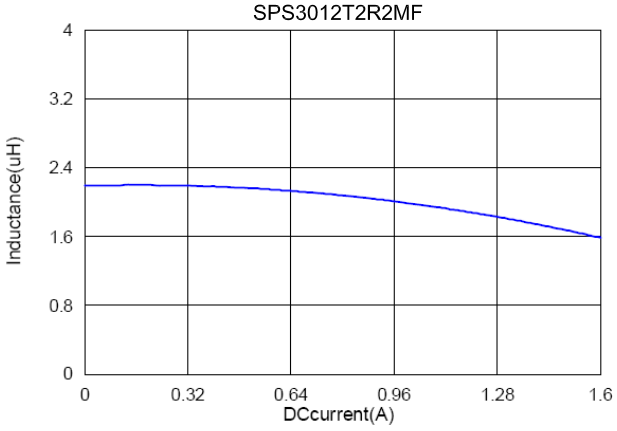
SPS3012T1R0YF



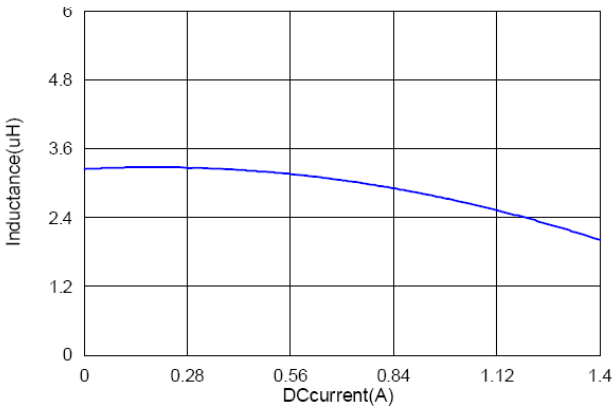
SPS3012T1R5YF



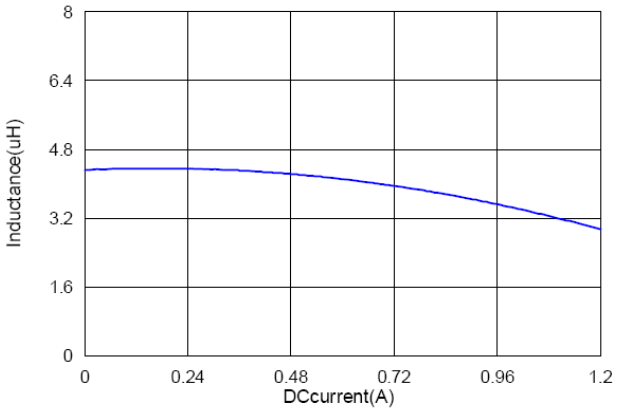
SPS3012T2R2MF



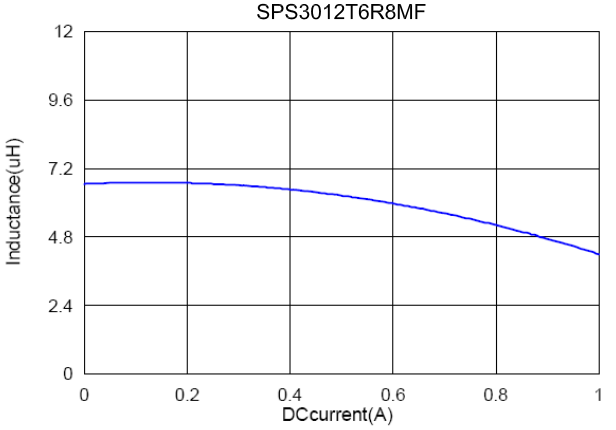
SPS3012T3R3MF



SPS3012T4R7MF



SPS3012T6R8MF



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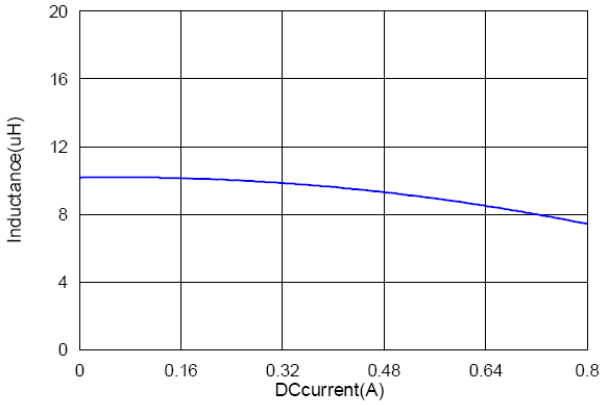
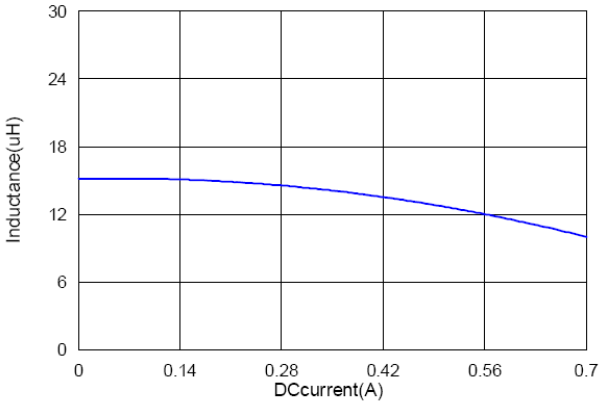
6. CHARACTERISTICS CURVES :

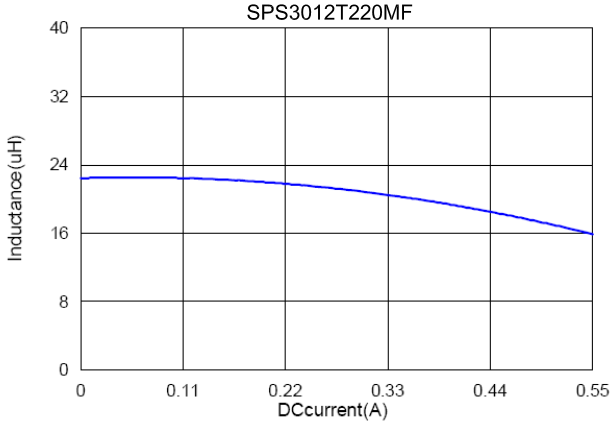
SPS3012T100MF



SPS3012T150MF



SPS3012T220MF



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7. SOLDERING AND MOUNTING :

7-1. Soldering

Mildly activated rosin fluxes are preferred. 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.

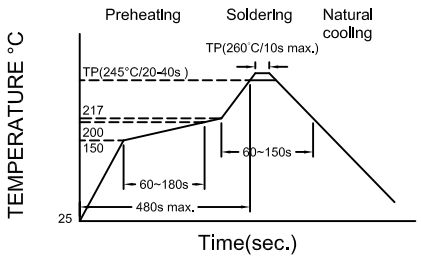
7-1.1 Lead Free Solder Re-flow :

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

7-1.2 Soldering Iron (Figure 2) :

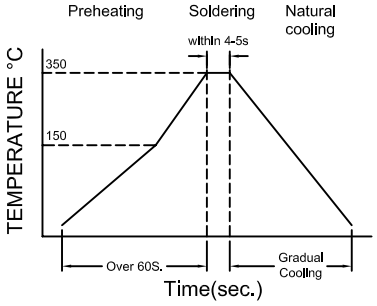
Products attachment with soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.
Note :

a) Preheat circuit and products to 150°C.
b) 355°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 4-5 secs.



Reflow times: 3 times Max.

Fig.1



Iron Soldering times: 1 times Max.

Fig.2

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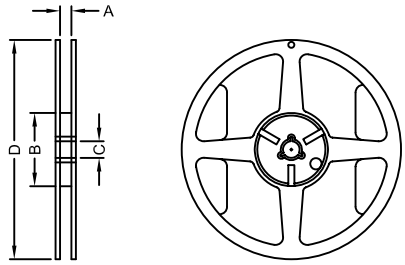
8. PACKAGING INFORMATION :

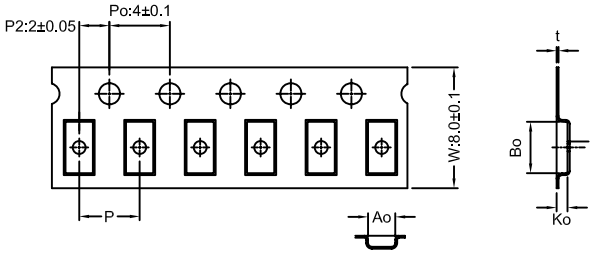
8-1. Reel Dimension

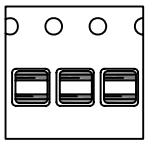


7" x 8mm

Type	A(mm)	B(mm)	C(mm)	D(mm)
7" x 8mm	8.4±1.0	50 Min.	13±0.8	178±2

8-2 Tape Dimension / 8mm





Bottom View

Series	Ao(mm)	Bo(mm)	Ko(mm)	P(mm)	t(mm)
SPS3012T	3.2±0.05	3.2±0.05	1.40±0.2	4.0±0.05	0.23±0.05

8-3. Packaging Quantity

Size	SPS3012T
Chip / Reel	2000

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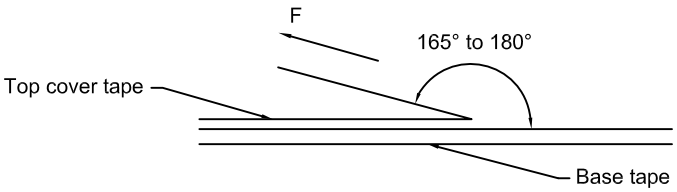
8-4. Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

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 solderabililty of terminal electrodes :
   a) Temperature and humidity conditions : Less than 40°C and 60% RH.
   b) Recommended products should be used within 12 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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