SMD Power Inductor – *SPS252012E Series*

1. Part No. Expression:

S P S 2 5 2 0 1 2 E R 4 7 M F

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

(a) Series Code

(b) Dimension Code

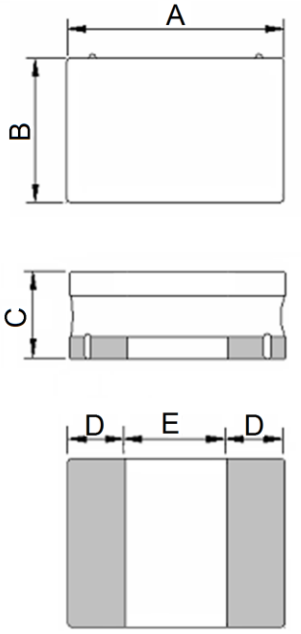
(c) Material Code

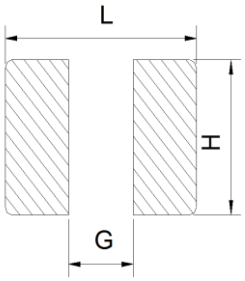
(d) Inductance Code

(e) Tolerance Code

(f) RoHS Compliant

2. Configuration & Dimensions :





Recommended PCB Pattern

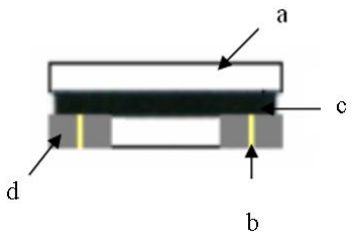
Unit : mm

A	B	C	D	E	L	G	H
2.5 +0.2/-0.1	2.0 +0.35/-0.05	1.20 Max.	0.85 Ref.	0.80 Ref.	2.90 Ref.	0.80 Ref.	2.40 Ref.

3. Schematic:

NOTE: Specifications subject to change without notice. Please check our website for latest information.

4. Material List:

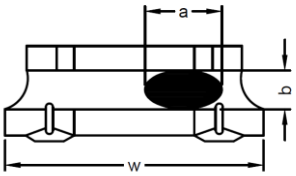


(a) Core

(b) Wire

(c) Glue

(d) Terminal



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

5. General Specification:

(a) Operating Temp. : -40°C to +125°C (Inclusive of coil temp rise).

(b) Storage Temp. : -40°C to +125°C (on board).

(c) Heat Rated Current (Irms) will cause the coil temperature rise approximately Δt of 40°C.

(d) Saturation Current (Isat) will cause L0 to drop approximately 30%.

(e) Storage condition (component in its packaging)

i) Temperature: Less than 40°C

ii) Humidity : 60% RH

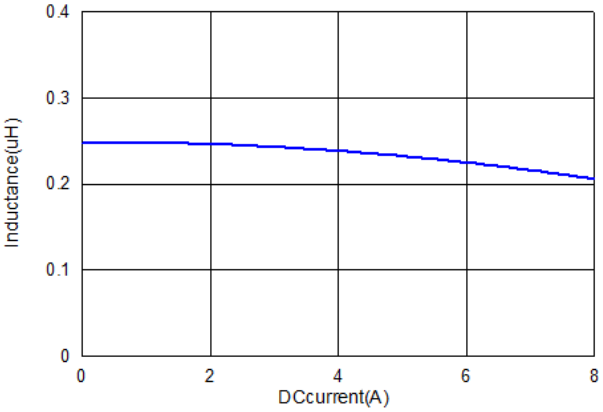
6. Electrical Characteristics:

Part No.	Inductance (μH) ± 20%	Test Frequency (Hz)	DCR (Ω) Typ.	DCR (Ω) Max.	Isat (A) Typ.	Isat (A) Max.	Irms (A) Typ.	Irms (A) Max.
SPS252012ER24MF	0.24	0.1V/1M	0.024	0.028	8.00	6.50	4.70	4.20
SPS252012ER33MF	0.33	0.1V/1M	0.027	0.032	5.70	4.60	4.50	4.00
SPS252012ER47MF	0.47	0.1V/1M	0.027	0.032	5.50	4.50	4.40	3.90
SPS252012ER68MF	0.68	0.1V/1M	0.036	0.043	4.50	3.80	3.60	3.20
SPS252012E1R0MF	1.00	0.1V/1M	0.045	0.057	3.90	3.40	3.50	3.15
SPS252012E1R5MF	1.50	0.1V/1M	0.080	0.096	3.00	2.60	2.50	2.25
SPS252012E2R2MF	2.20	0.1V/1M	0.085	0.102	2.70	2.30	2.30	2.00
SPS252012E3R3MF	3.30	0.1V/1M	0.120	0.144	2.00	1.80	1.70	1.50
SPS252012E4R7MF	4.70	0.1V/1M	0.230	0.276	1.90	1.60	1.50	1.30

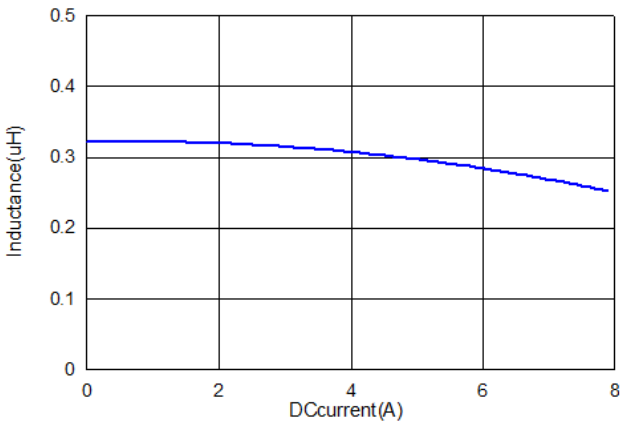
Note: At all times, the current supplied to the product should not exceed Isat Max. value.

7. Characteristics Curves:

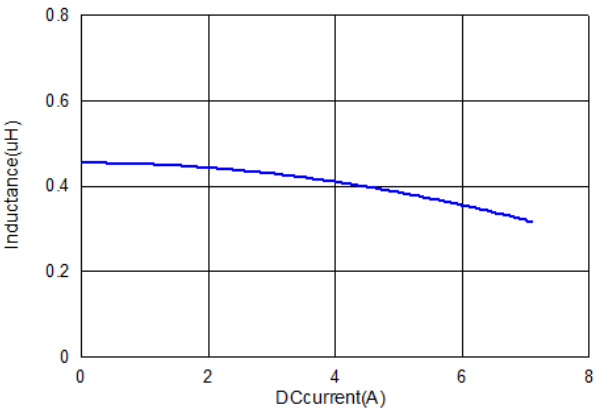
SPS252012ER24MF



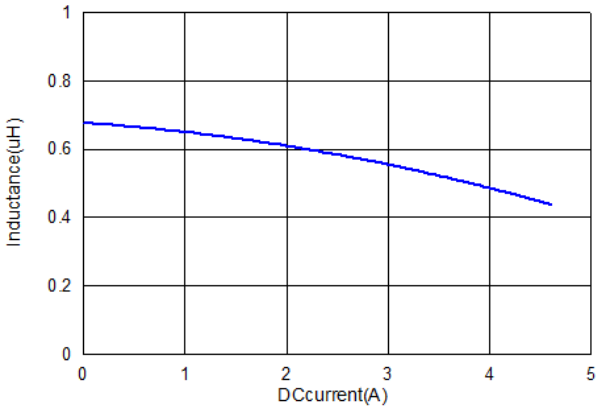
SPS252012ER33MF



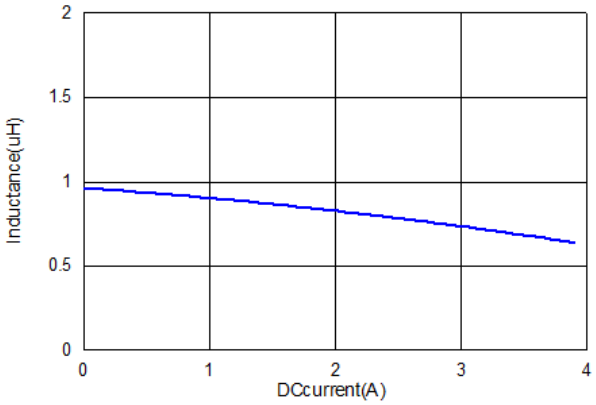
SPS252012ER47MF



SPS252012ER68MF



SPS252012E1R0MF



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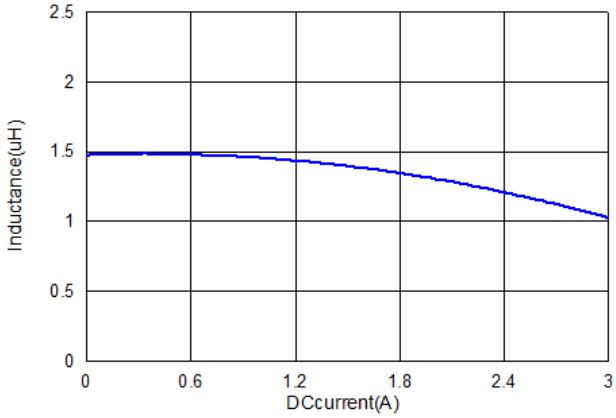
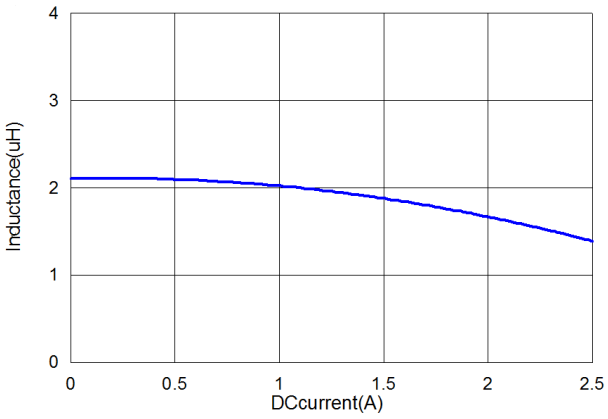
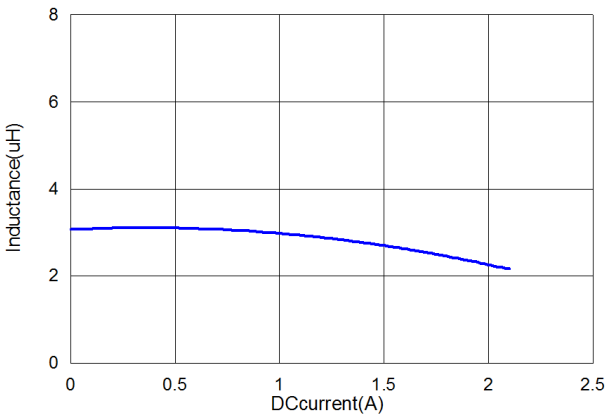


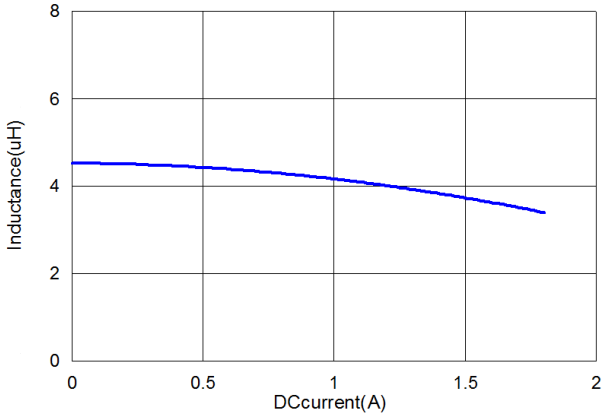
SPS252012E2R2MF



SPS252012E3R3MF



SPS252012E4R7MF



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8. Soldering:

Mildly activated rosin fluxes are preferred. The 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.

8-1 Solder Re-flow:

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

8-2 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.

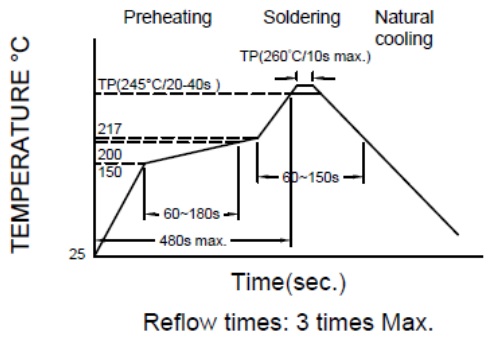
b) 355°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip

d) 1.0mm tip diameter (Max.)

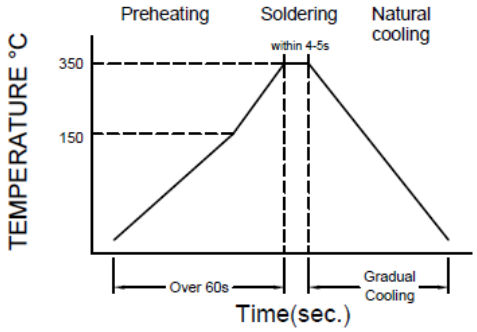
e) Use a 20 watt soldering iron with tip diameter of 1.0mm

f) Limit soldering time to 4~5 secs.



Reflow times: 3 times Max.

Fig.1

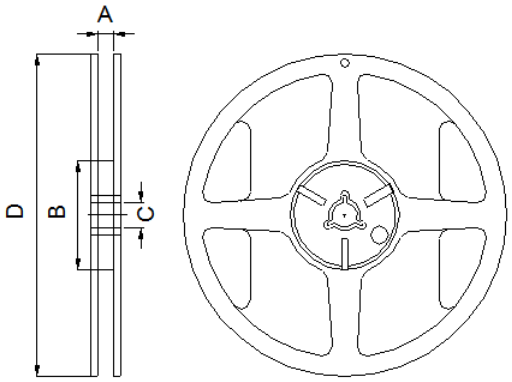


Iron Soldering times: 1 times Max.

Fig.2

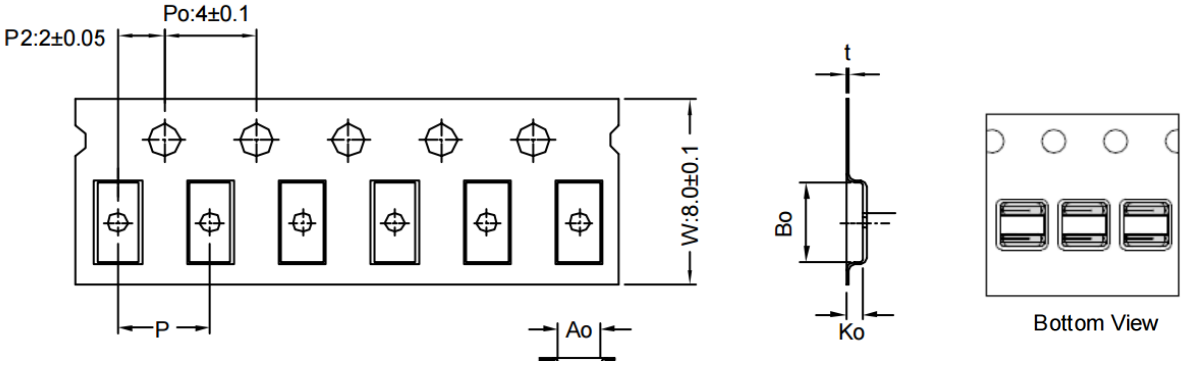
9. Packaging Information:

9-1. Reel Dimension



Type	A (mm)	B (mm)	C (mm)	D (mm)
7” x 8mm	8.4 ± 1.0	50 Min.	13.0 ± 0.8	178.0± 2.0

9-2. Tape Dimension



Series	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
SPS252012	3.10±0.10	2.45±0.10	1.40±0.10	4.00±0.10	0.23±0.05

9-3. Packaging Quantity

Size	SPS252012
Chip/ Reel	2000

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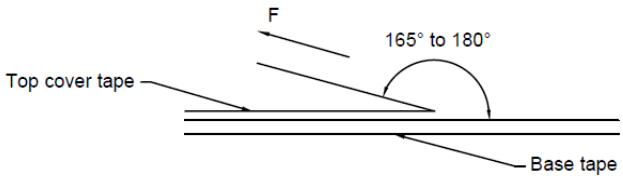
9-4. Tearing Off Force



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) Recommended products should be used within 12 months from the time of delivery.

   b) 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) Vacuum pick up is strongly recommended for individual components.

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