SMD Power Inductor – *SPA201610FA Series*

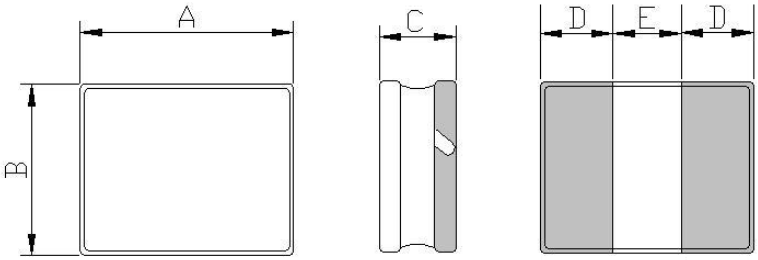
1. Part No. Expression:

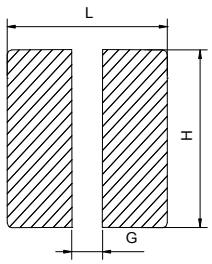
S P A 2 0 1 6 1 0 F A □ □ □ M

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

a) Series Code
b) Dimension Code
c) Type Code
d) Inductance Code
e) Tolerance Code

2. Configuration & Dimensions:



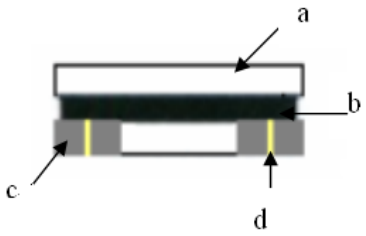


Recommended PC Board Pattern

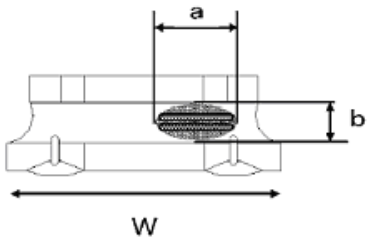
Unit: mm

A	B	C	D	E	L	G	H
2.0 +0.2/-0.1	1.6 +0.2/-0.1	1.0 Max.	0.5 Ref.	1.0 Ref.	2.3 Ref.	0.8 Ref.	1.9 Ref.

3. Material List:



(a) Core
(b) Glue
(c) Termination
(d) Wire



Appearance of exposed wire tolerance limit:

1. Width direction（dimension a）: Acceptable when a≦w/2
   Non-acceptable when a＞w/2
2. Length direction（dimension b）: Dimension b is not specified.
3. The total acceptable area of exposed wire occurring to each sides is no greater than 50% of coating resin area.

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

4. General Specification:

(a) Operating Temp. : -40°C to +125°C (including self-temperature rise)

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

(c) Irms. : Based on temperature rise （△T：40℃.）Max.

(d) Isat. : Based on inductance change （△L/L0：≦30%.

(e) Storage condition (component in its packaging)

i) Temperature: Less than 40°C

ii)Humidity : 60% RH

5. Electrical Characteristics:

Part Number	Inductance (uH) ±20%	Test Frequency (Hz)	DCR (Ω) Typ.	DCR (Ω) Max.	I sat (A) Typ.	I sat (A) Max.	I rms (A) Typ.	I rms (A) Max.
SPA201610FAR24M	0.24	1V/1M	0.015	0.020	7.50	6.50	5.70 (1) 6.50 (2)	5.10 (1) 5.50 (2)
SPA201610FAR33M	0.33	1V/1M	0.018	0.023	5.50	5.00	5.50 (1) 5.60 (2)	5.00 (1) 5.20 (2)
SPA201610FAR47M	0.47	1V/1M	0.024	0.029	5.20	4.50	4.70 (1) 5.30 (2)	4.30 (1) 4.70 (2)
SPA201610FAR68M	0.68	1V/1M	0.036	0.044	5.10	4.40	3.90 (1) 4.20 (2)	3.50 (1) 3.80 (2)
SPA201610FA1R0M	1.0	1V/1M	0.050	0.060	4.50	4.00	3.20 (1) 3.40 (2)	2.90 (1) 3.10 (2)
SPA201610FA1R5M	1.5	1V/1M	0.068	0.082	3.20	2.80	2.90 (1) 3.10 (2)	2.50 (1) 2.70 (2)
SPA201610FA2R2M	2.2	1V/1M	0.100	0.120	2.70	2.40	2.20 (1) 2.30 (2)	2.00 (1) 2.10 (2)
SPA201610FA4R7M	4.7	1V/1M	0.180	0.216	1.60	1.40	1.60 (1) 1.80 (2)	1.40 (1) 1.60 (2)

Tolerance code : M = 20%

For Irms (A) Max. values with '(1)' or '(2)', refer to notes below for board test conditions.

Notes:

1) At all times, the current supplied to the product should not exceed Irms Max. value

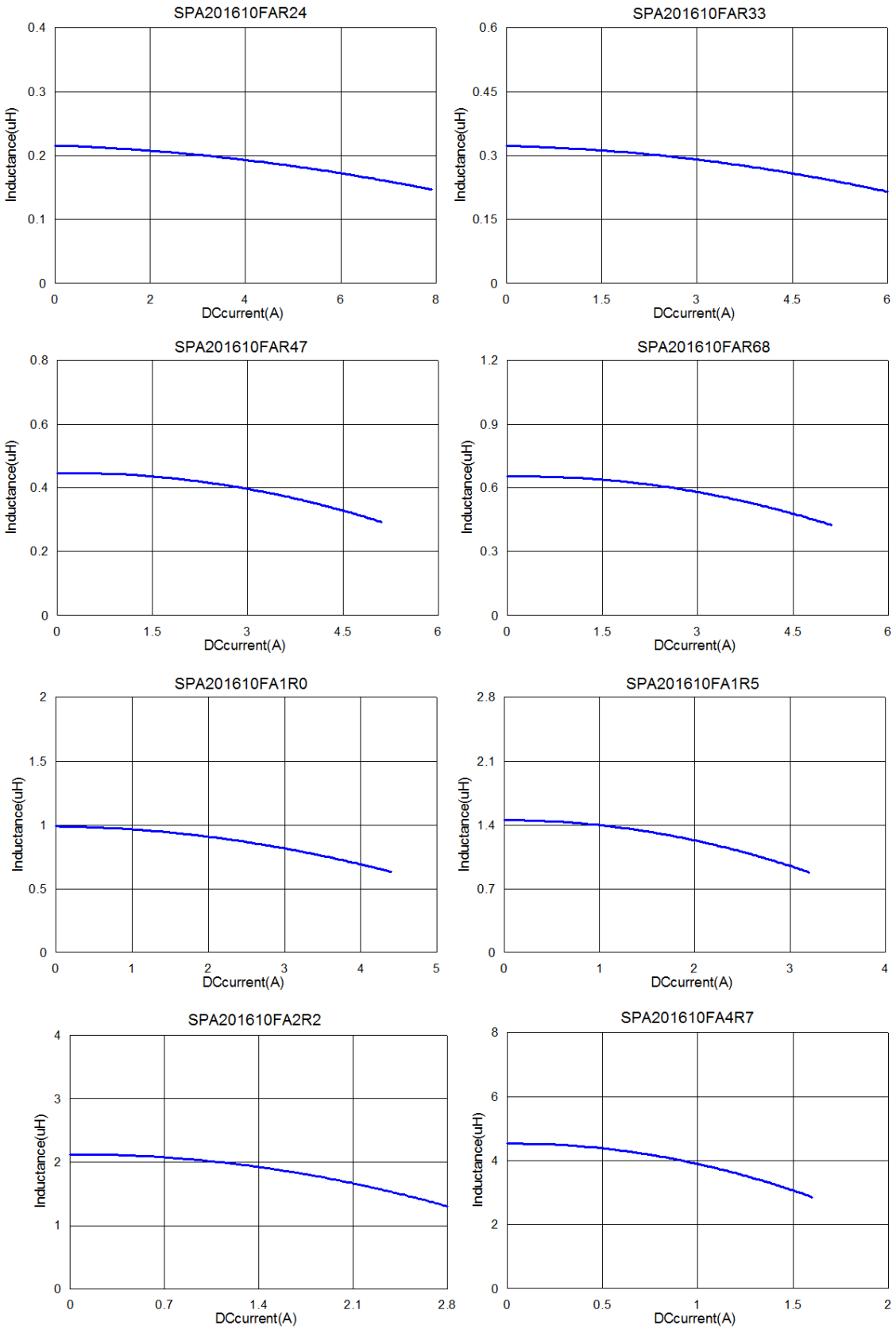
2) Irms Max. board test conditions:

Irms (1)
Material: FR4
Board dimensions: 100 X 50 X 1.6t mm
Pattern dimensions: 45 X 30 mm (Double side board)
Pattern thickness: 50 µm

Irms (2)
Material: FR4
Board dimensions: 100 X 50 X 1.6t mm
Pattern dimensions: 45 X 45 mm (Double side board)
Pattern thickness: 70 µm

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

6. Characteristics Curves:



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7. Soldering:

Mildly activated rosin fluxes are preferred. Our terminations are suitable for all re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

7-1 Solder Re-flow:

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

7-2 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.

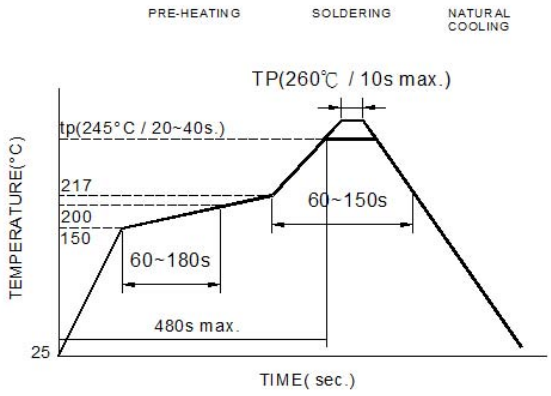
b) 355°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip

d) 1.0mm tip diameter (Max.)

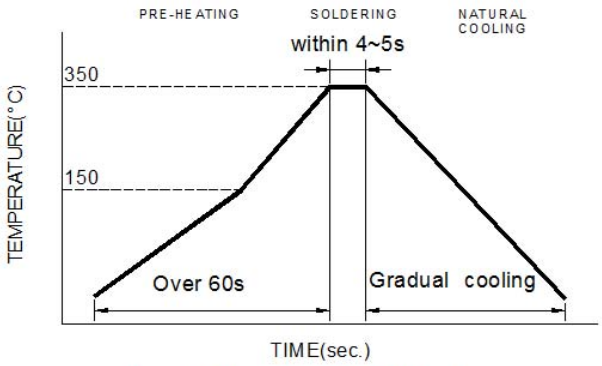
e) Use a 20 watt soldering iron with tip diameter of 1.0mm

f) Limit soldering time to 4~5 secs.



Reflow times: 3 times max.

Fig.1

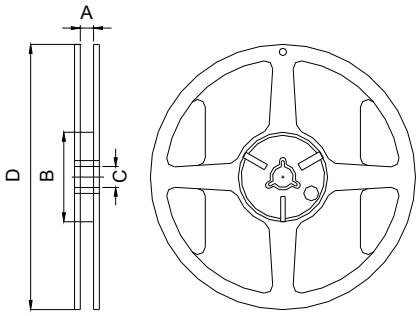


Iron Soldering times: 1 times max.

Fig.2

8. Packaging Information:

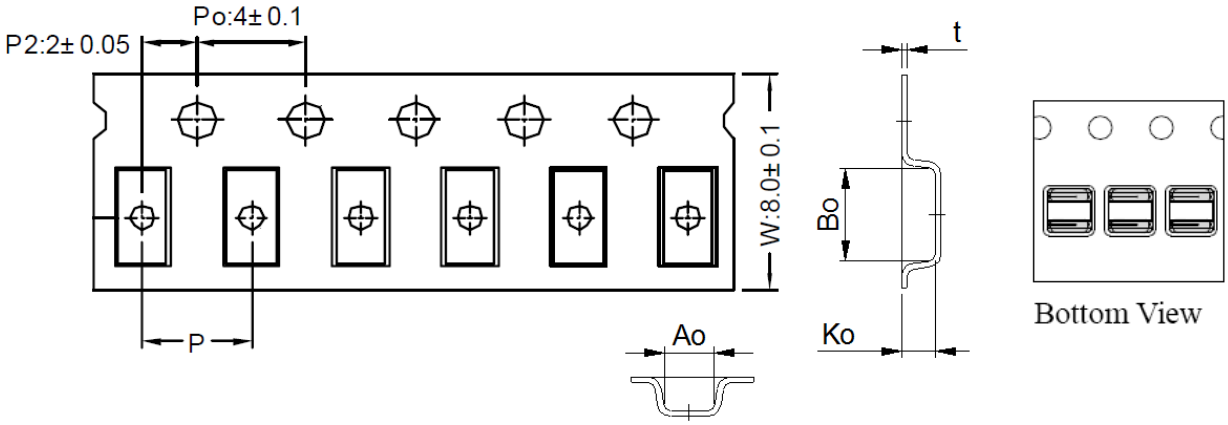
8-1 Reel Dimension



7"x8mm

Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	8.4±1.0	50 Min.	13±0.8	178±2

8-2 Tape Dimension

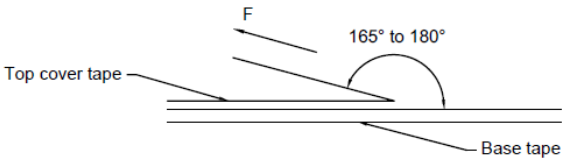


Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
SPA	201610	2.50±0.1	2.00±0.1	1.40±0.1	4.00±0.1	0.23±0.05

8-3 Packaging Quantity

Chip size	201610
Chip / Reel	2000

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. (℃)	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.