

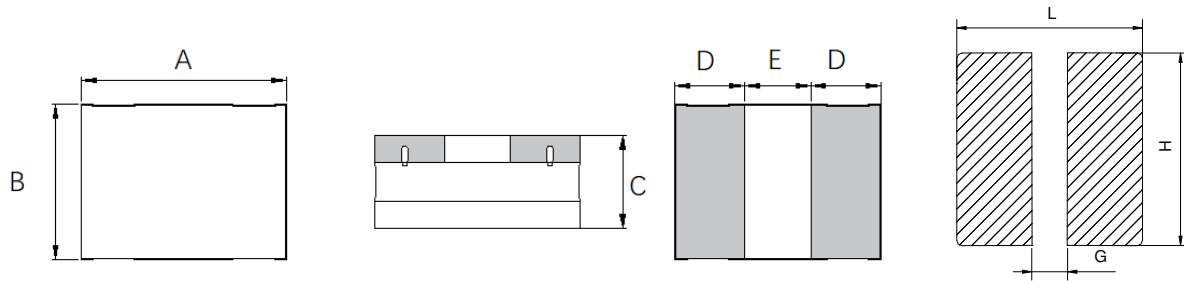
1. Part No. Expression:

SPA252012RAR24M

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

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

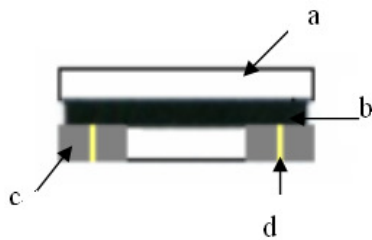
2. Configuration & Dimensions:- (Unit: mm)



Recommended PC Board Pattern

A	B	C	D	E	L	G	H
2.50±0.20	2.00±0.20	1.10±0.10	0.80±0.20	0.95±0.20	2.9 Ref	0.8 Ref	2.4 Ref

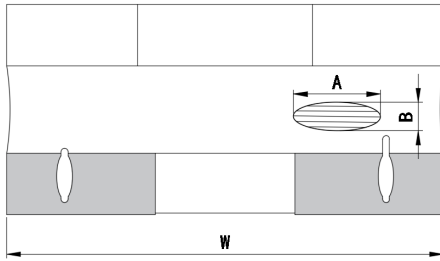
3. Material List:



- (a) Core
- (b) Glue
- (c) Terminal
- (d) Wire

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





Appearance of exposed wire tolerance limit:

1. Width direction (dimension a) : Acceptable when $a \leq w/2$
Non-acceptable 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.

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) Heat rated current (I_{rms}) will cause coil temperature to rise approximately ΔT of 40°C.
- (d) Saturation current (I_{sat}) will cause L₀ to drop approximately 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)	Test Frequency	I rms (A) Typ.	I rms (A) Max.	I sat (A) Typ.	I sat (A) Max.	DCR (Ω) Typ.	DCR (Ω) Max.
SPA252012RAR24M	0.24	1.0V/ 1MHz	5.50 (1) 6.00 (2)	5.00 (1) 5.50 (2)	8.0	7.0	0.018	0.022
SPA252012RAR33M	0.33	1.0V/ 1MHz	5.10 (1) 5.60 (2)	4.60 (1) 5.10 (2)	7.0	6.0	0.023	0.028
SPA252012RAR47M	0.47	1.0V/ 1MHz	4.80 (1) 5.30 (2)	4.30 (1) 4.80 (2)	6.0	5.0	0.027	0.035
SPA252012RAR68M	0.68	1.0V/ 1MHz	4.00 (1) 4.50 (2)	3.60 (1) 4.00 (2)	5.0	4.5	0.036	0.045
SPA252012RA1R0M	1.00	1.0V/ 1MHz	3.50 (1) 3.80 (2)	3.20 (1) 3.50 (2)	4.3	3.8	0.045	0.058
SPA252012RA1R5M	1.50	1.0V/ 1MHz	3.10 (1) 3.50 (2)	2.70 (1) 3.10 (2)	3.5	3.0	0.060	0.072
SPA252012RA2R2M	2.20	1.0V/ 1MHz	2.50 (1) 2.80 (2)	2.20 (1) 2.50 (2)	3.1	2.6	0.090	0.108
SPA252012RA3R3M	3.30	1.0V/ 1MHz	2.10 (1) 2.50 (2)	1.80 (1) 2.20 (2)	2.2	1.9	0.125	0.150
SPA252012RA4R7M	4.70	1.0V/ 1MHz	1.70 (1) 1.90 (2)	1.40 (1) 1.60 (2)	2.0	1.7	0.190	0.220
SPA252012RA6R8M	6.80	1.0V/ 1MHz	1.20 (1) 1.30 (2)	1.00 (1) 1.10 (2)	1.8	1.5	0.300	0.360
SPA252012RA100M	10.0	1.0V/ 1MHz	1.00 (1) 1.10 (2)	0.90 (1) 1.00 (2)	1.4	1.1	0.420	0.475

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Note:

Measurement board data

Irms1

Material: FR4

Board dimension: 100 X 50 X 1.6t mm

Pattern dimension: 45 X 30 mm (Double side board)

Pattern thickness: 50µm

Irms2

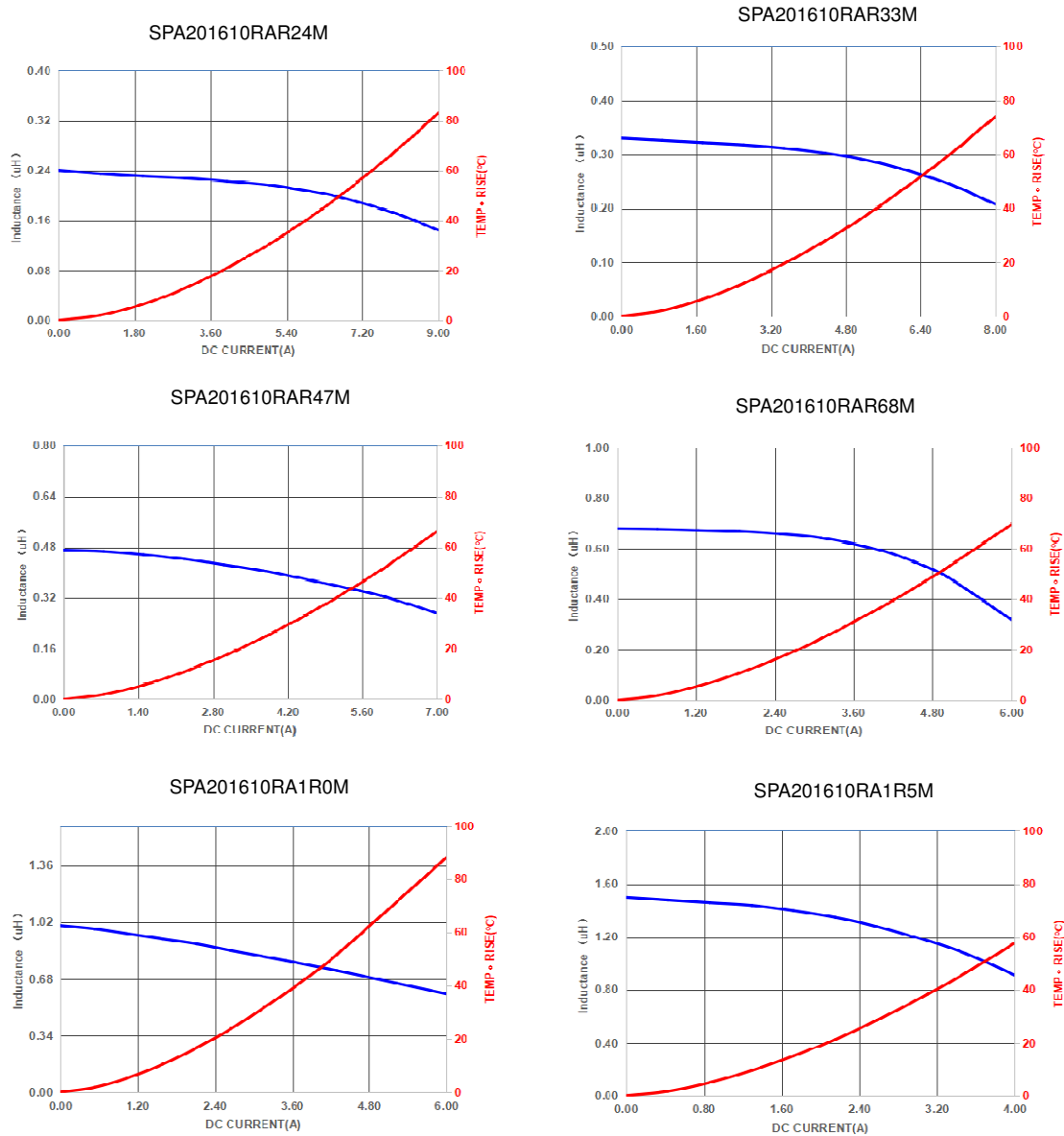
Material: FR4

Board dimension: 100 X 50 X 1.6t mm

Pattern dimension: 45 X 45 mm (Double side board)

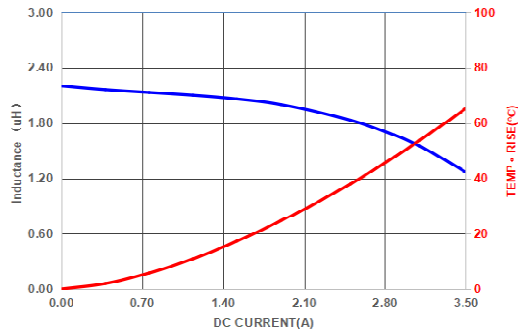
Pattern thickness: 70µm

6. Characteristics Curves:

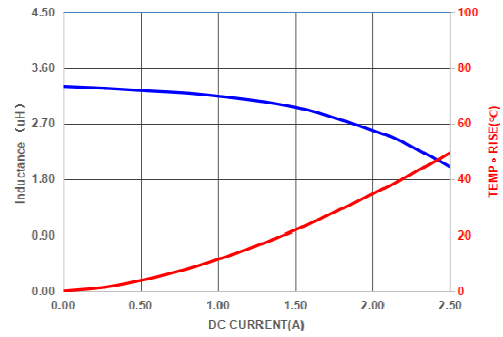


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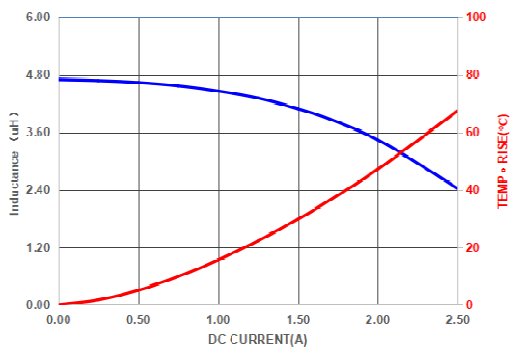
SPA201610RA2R2M



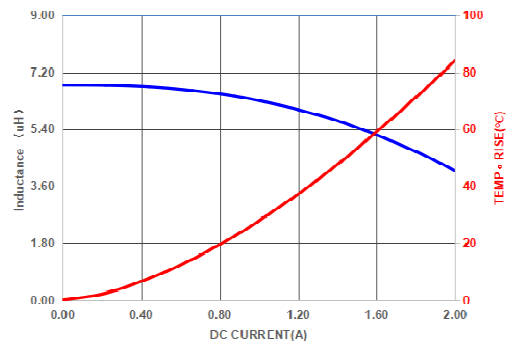
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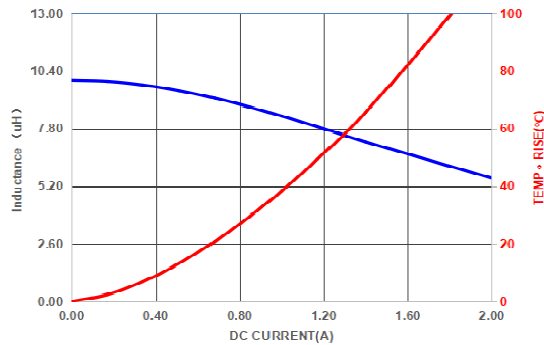
SPA201610RA4R7M



SPA201610RA6R8M



SPA201610RA100M



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7. Soldering and Mounting:

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 re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air.

7-1 Solder Re-flow:

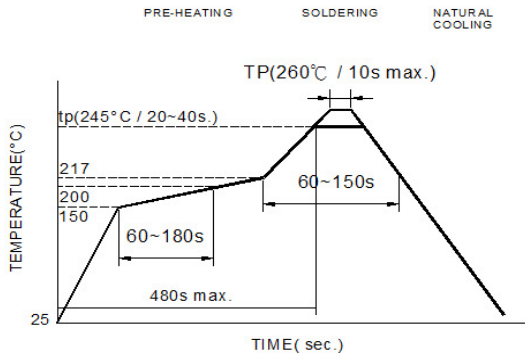
Recommended temperature profiles for re-flow soldering in Figure 1.

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.

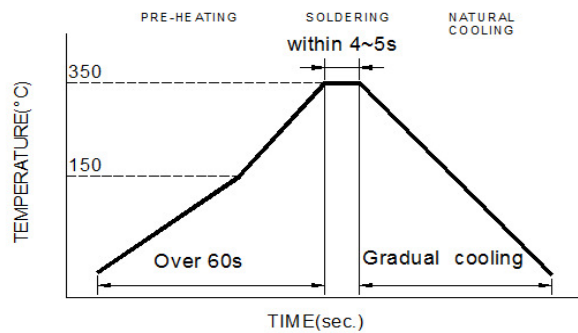
Note:

- 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.

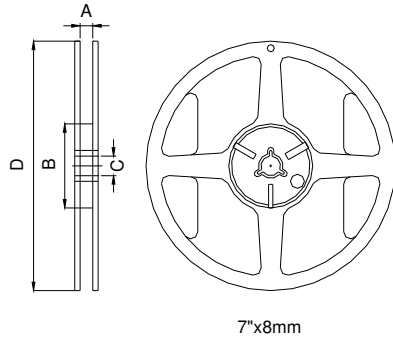
Fig.2

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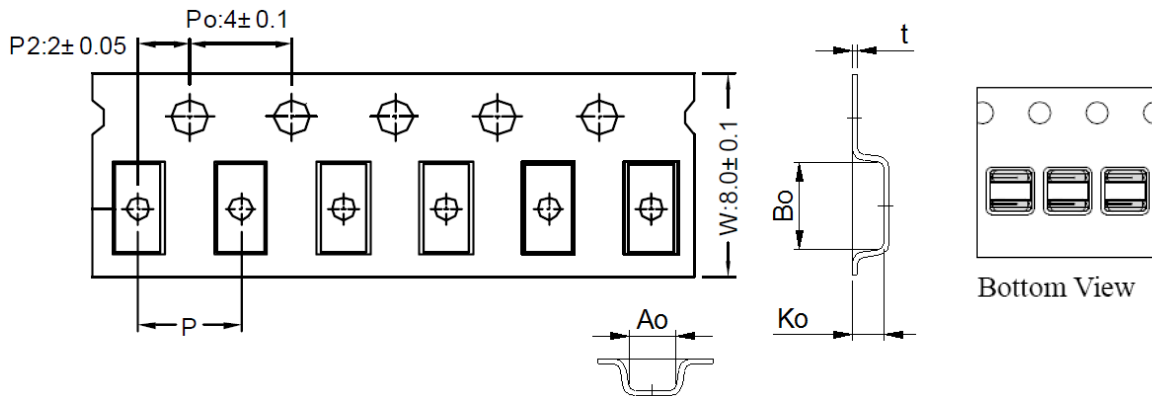
8. Packaging Information:

8-1 Reel Dimension



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



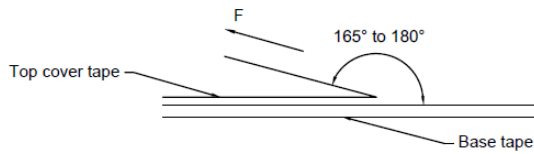
Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
SPA	252012	3.10±0.1	2.45±0.1	1.40±0.1	4.0±0.1	0.23±0.05

8-3 Packaging Quantity

Chip size	252012
Chip / Reel	2000

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8-4 Tearing Off Force



The force for tearing off cover tape is 10 to 100 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 solderability 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.

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