SMD Power Inductors – *PIM322512A Series*

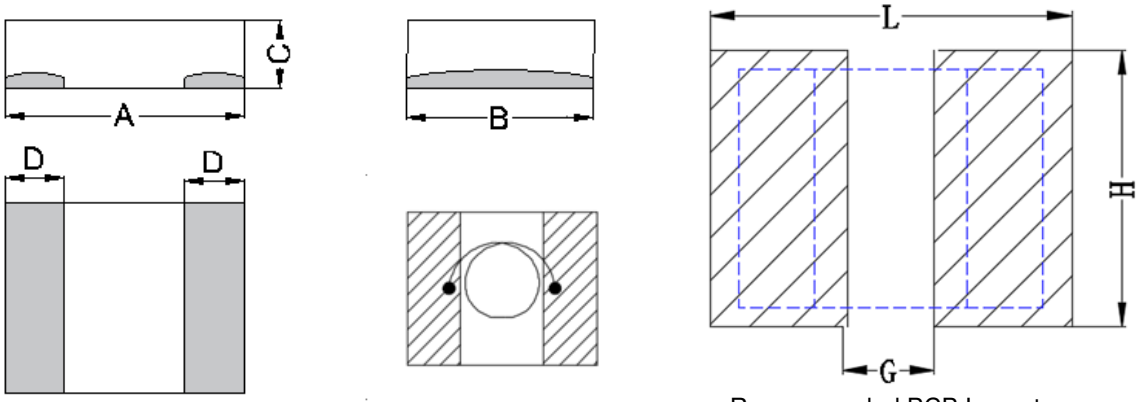
1. Part No. Expression

P I M 3 2 2 5 1 2 A R 2 2 M

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

(a) Series Code
(b) Dimension Code
(c) Inductance Code
(d) Tolerance Code

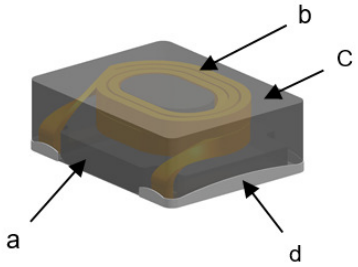
2. Configuration & Dimensions: (Unit:- mm)



Recommended PCB Layout

A	B	C	D	L	G	H
3.2±0.3	2.5±0.3	1.0±0.2	1.1±0.3	3.7 Ref	0.7 Ref	2.8 Ref

3. Materials List



(a) Core
(b) Wire
(c) Paint
(d) Terminal

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

4. General Specifications

(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 (Irms) will cause the coil temperature rise approximately ΔT of 40°C.

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

(e) Part Temperature (Ambient + Temp Rise): Should not exceed 125°C under worst case operating conditions.

(f) Storage condition (Component in its packaging)

i) Temperature: Less than 40°C

ii) Humidity: 50~60% RH

5. Electrical Characteristics

Part Number	Inductance L0 (uH)±20% @1.0V/100kHz	Irms (A) Typ.	Irms (A) Max.	Isat (A) Typ.	Isat (A) Max.	DCR (mΩ) Typ.	DCR (mΩ) Max.
PIM322512AR22M	0.22	9.5	9.0	9.3	8.7	7.4	8.5
PIM322512AR33M	0.33	8.5	8.0	9.1	8.5	10.0	13.0
PIM322512AR47M	0.47	7.0	6.5	8.2	7.4	16.0	19.2
PIM322512AR68M	0.68	6.2	5.7	7.3	6.8	20.0	24.0
PIM322512A1R0M	1.00	5.5	5.0	6.5	5.7	26.0	32.0
PIM322512A1R5M	1.50	4.4	3.9	5.0	4.5	44.0	53.0
PIM322512A2R2M	2.20	4.0	3.6	4.8	4.3	61.0	73.0
PIM322512A3R3M	3.30	3.1	2.8	3.4	3.0	87.0	101.0
PIM322512A4R7M	4.70	2.2	1.9	2.8	2.4	122.0	146.0

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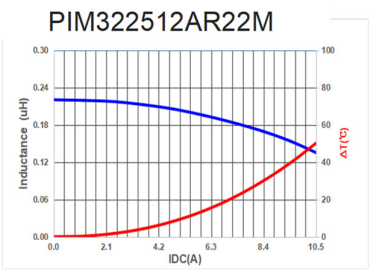
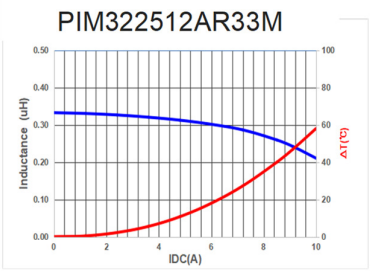
6. Characteristics Curves

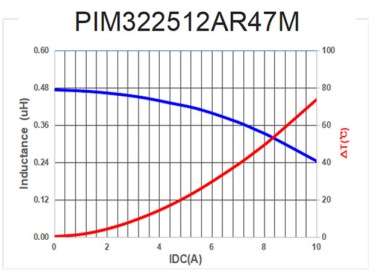
PIM322512AR22M



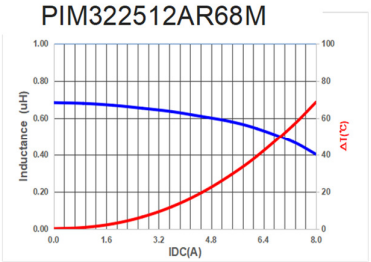
PIM322512AR33M



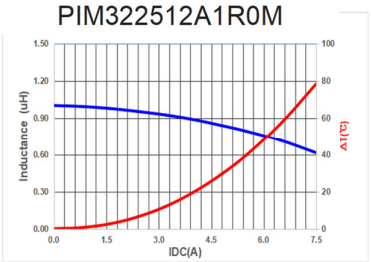
PIM322512AR47M



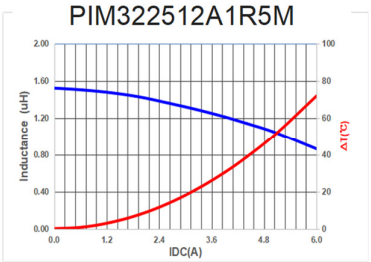
PIM322512AR68M



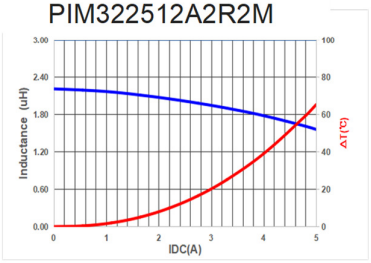
PIM322512A1R0M



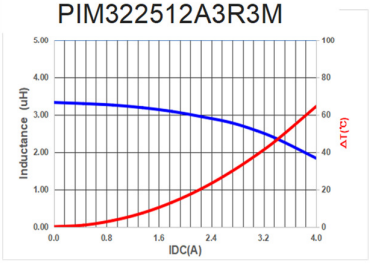
PIM322512A1R5M



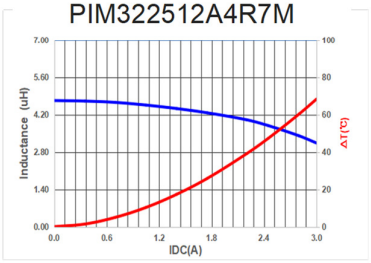
PIM322512A2R2M



PIM322512A3R3M



PIM322512A4R7M



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7. Soldering and Mounting

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

7-1 IR Soldering Reflow

Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

7-2 Iron Reflow

Products attachment with a 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 (Figure 2).

Note:

a) Preheat circuit and products to 150°C.

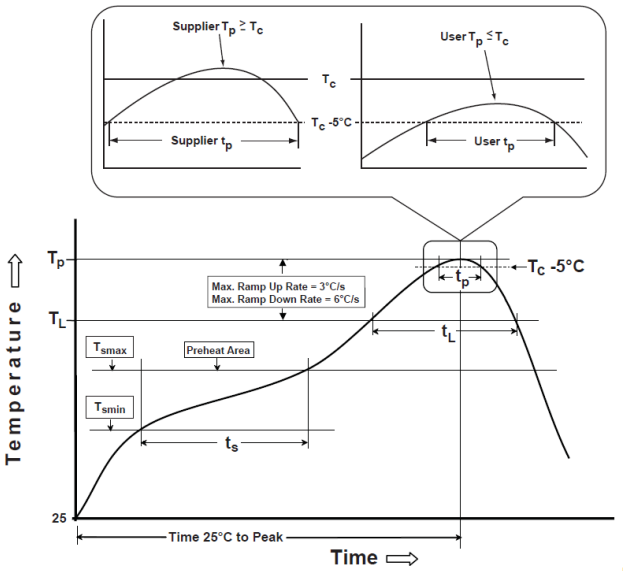
b) 355°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip

d) 1.0mm tip diameter (Max.)

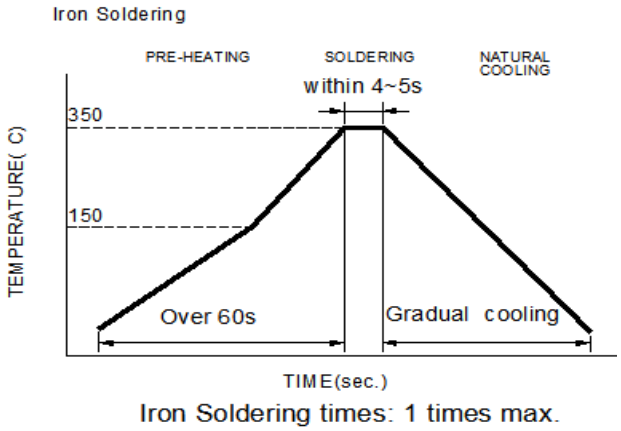
e) Use a 20 watt soldering iron with tip diameter of 1.0mm

f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Iron Soldering times: 1 times max.

Soldering iron method: 350± 5°C Max

Figure 2: Iron soldering temperature profiles

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Table (1.1): Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min (T_{smin}) -Temperature Max (T_{smax}) -Time (t_s) from (T_{smin} to T_{smax})	 150℃ 200℃ 60-120seconds
Ramp-up rate ($T_L$to T_p)	3℃/second max.
Liquidus temperature (T_L) Time (t_L) maintained above T_L	217℃ 60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time (t_p) at Tc- 5℃ (Tp should be equal to or less than Tc.)	< 30 seconds
Ramp-down rate (T_p to T_L)	6℃ /second max.
Time 25℃ to peak temperature	8 minutes max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc.**

Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260℃	260℃	260℃
	1.6-2.5mm	260℃	250℃	245℃
	≥2.5mm	250℃	245℃	245℃

Reflow is referred to standard IPC/JEDEC J-STD-020E.

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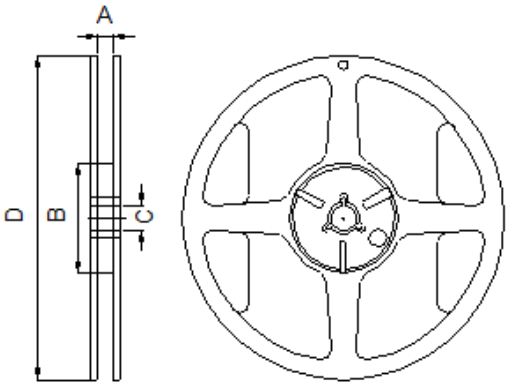
8. Packaging Information

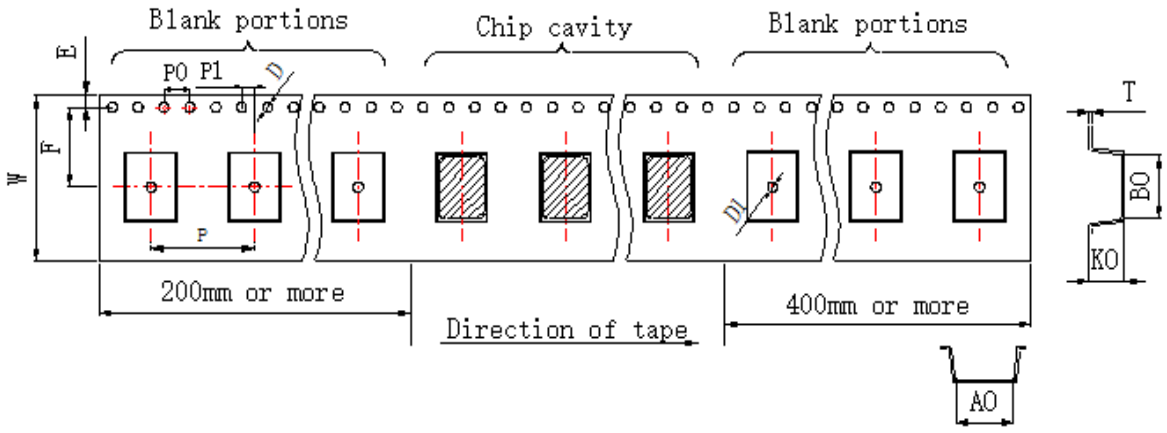
8-1 Reel Dimension



7"x8mm

Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	8.4+1.5/-0.0	50 Min	13+5.5/-0.2	178±2.0

8-2 Tape Dimension



Series	Size	B0(mm)	A0(mm)	K0(mm)	W(mm)	P(mm)	P0(mm)
		3.6±0.1	2.9±0.1	1.4±0.1	8.0±0.1	4.0±0.1	4.0±0.1
PIM	322512A	P1(mm)	E(mm)	F(mm)	T(mm)	D/D1(mm)	
		2.0±0.1	1.75±0.1	3.5±0.1	0.22±0.05	1.5+0.1/-0.0	

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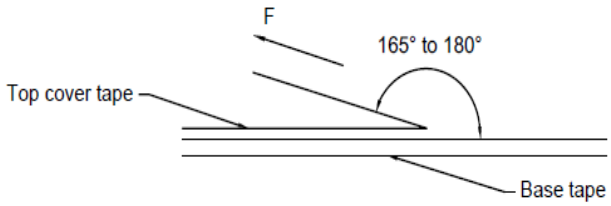
8-3 Packaging Quantity

Chip Size	PIM322512A
Chip / Reel	2000

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
5~35	45~85	860~1060	300±10

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.