

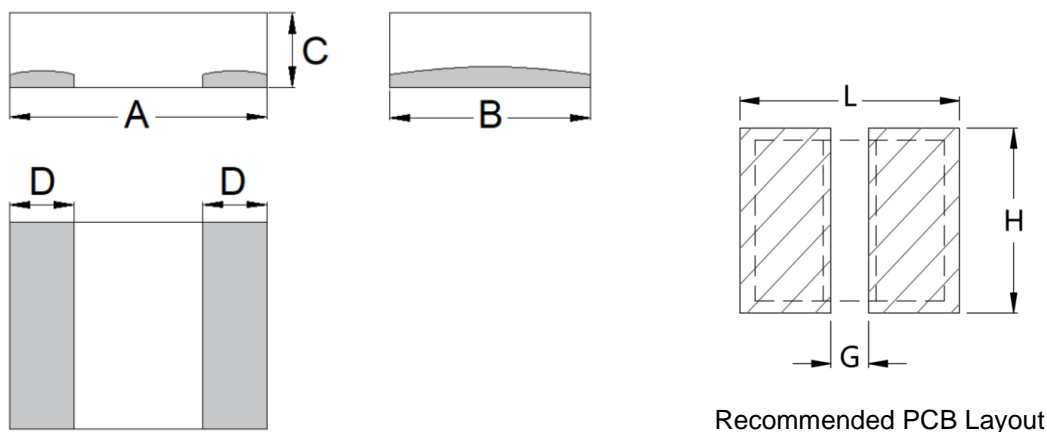
## 1. Part No. Expression

**PIM 322512 A R22 M**

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

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

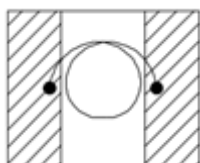
## 2. Configuration & Dimensions (Unit: mm)



Note: The above PCB layout reference only.

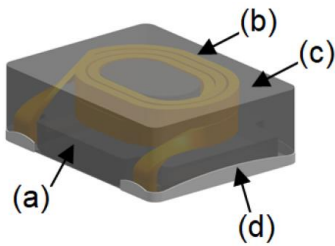
A	B	C	D	L	G	H
3.2±0.3	2.5±0.3	1.0±0.2	1.1±0.3	3.7 Ref	0.7 Ref	2.8 Ref

## 3. Schematic



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

#### 4. Material List



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

#### 5. 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) All test data referenced to 25°C ambient.
- (d) Heat Rated Current (I<sub>rms</sub>) will cause the coil temperature rise approximately  $\Delta T$  of 40°C.
- (e) Saturation Current (I<sub>sat</sub>) will cause inductance L<sub>0</sub> to drop approximately 30%.
- (f) Rated DC Current: The lower value of I<sub>rms</sub> and I<sub>sat</sub>.
- (g) Part Temperature (Ambient + Temp. Rise): Should not exceed 125°C under worst case operating conditions.
- (h) Maximum Operating Voltage: 15V
- (i) Storage Condition (Component in its packaging)
  - i) Temperature: Less than 40°C
  - ii) Humidity: Less than 60% RH

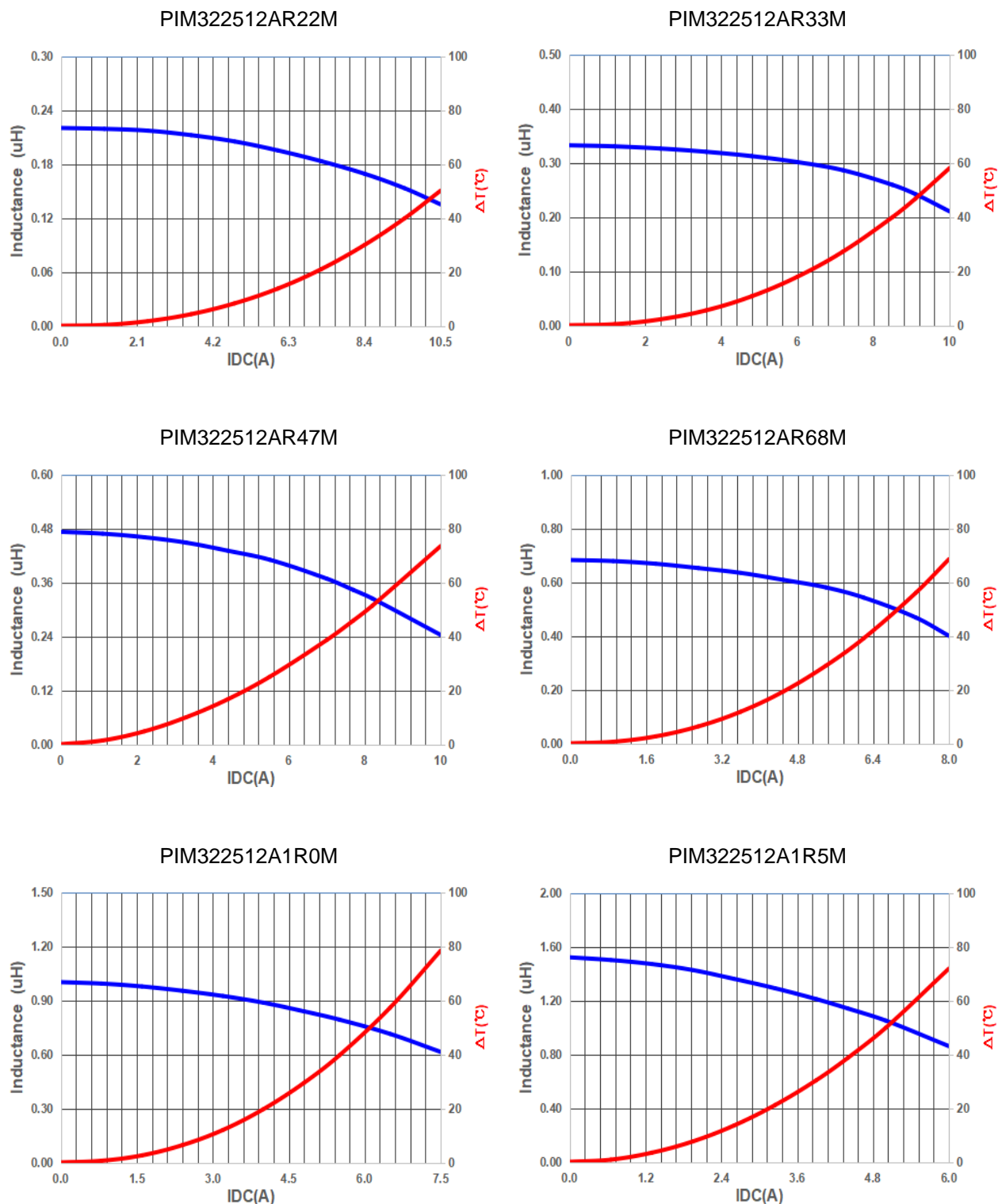
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## 6. Electrical Characteristics

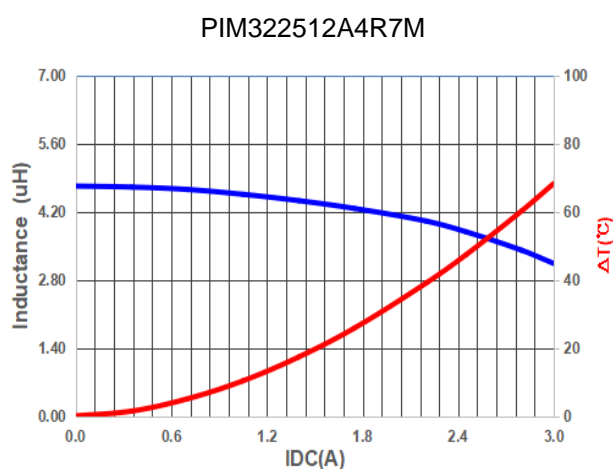
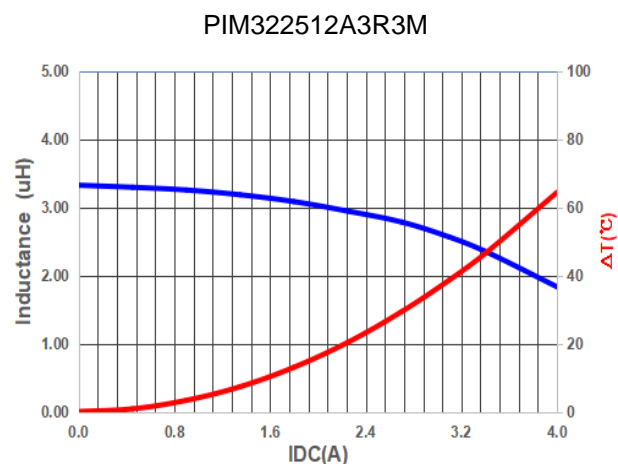
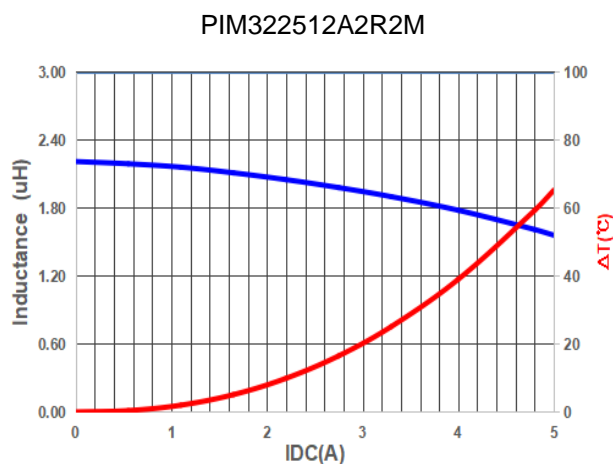
Part Number	Inductance ( $\mu$ H) @0A $\pm 20\%$	Test Frequency	I <sub>rms</sub> (A)		I <sub>sat</sub> (A)		DCR (m $\Omega$ )	
			Typ	Max	Typ	Max	Typ	Max
PIM322512AR22M	0.22	1.0V/100KHz	9.5	9.0	9.3	8.7	7.4	8.5
PIM322512AR33M	0.33	1.0V/100KHz	8.5	8.0	9.1	8.5	10.0	13.0
PIM322512AR47M	0.47	1.0V/100KHz	7.0	6.5	8.2	7.4	16.0	19.2
PIM322512AR68M	0.68	1.0V/100KHz	6.2	5.7	7.3	6.8	20.0	24.0
PIM322512A1R0M	1.00	1.0V/100KHz	5.5	5.0	6.5	5.7	26.0	32.0
PIM322512A1R5M	1.50	1.0V/100KHz	4.4	3.9	5.0	4.5	44.0	53.0
PIM322512A2R2M	2.20	1.0V/100KHz	4.0	3.6	4.8	4.3	61.0	73.0
PIM322512A3R3M	3.30	1.0V/100KHz	3.1	2.8	3.4	3.0	87.0	101.0
PIM322512A4R7M	4.70	1.0V/100KHz	2.2	1.9	2.8	2.4	122.0	146.0

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## 7. Characteristics Curve



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## 8. Soldering Specification

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.

### 8-1. IR Soldering Reflow

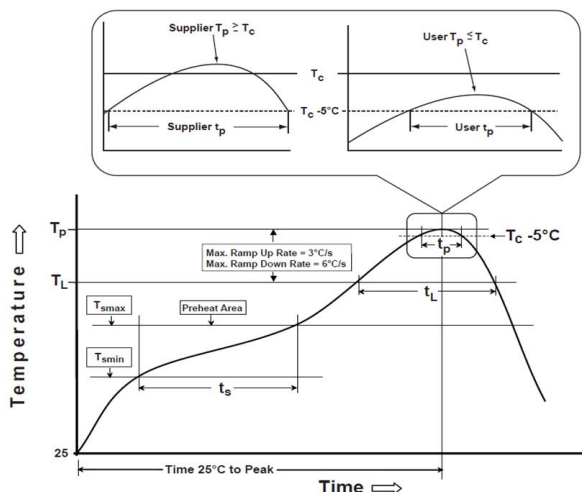
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

### 8-2. 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).

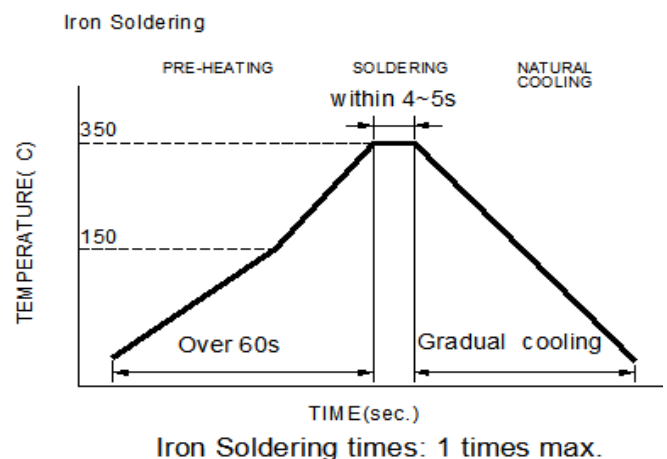
Note:

- Preheat circuit and products to 150°C.
- 355°C tip temperature (Max.)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (Max.)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



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 ( $T_{smin}$ )	150°C
-Temperature Max ( $T_{smax}$ )	200°C
-Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120seconds
Ramp-up rate ( $T_L$ to $T_p$ )	3°C /second max.
Liquids temperature ( $T_L$ )	217°C
Time ( $t_L$ ) maintained above $T_L$	60-150 seconds
Classification temperature ( $T_c$ )	See Table (1.2)
Time ( $t_p$ ) at $T_c - 5^\circ\text{C}$ ( $T_p$ should be equal to or less than $T_c$ .)	* < 30 seconds
Ramp-down rate ( $T_p$ to $T_L$ )	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

**$T_p$** : maximum peak package body temperature,  **$T_c$** : the classification temperature.

For user (customer)  **$T_p$**  should be equal to or less than  **$T_c$** .

\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

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

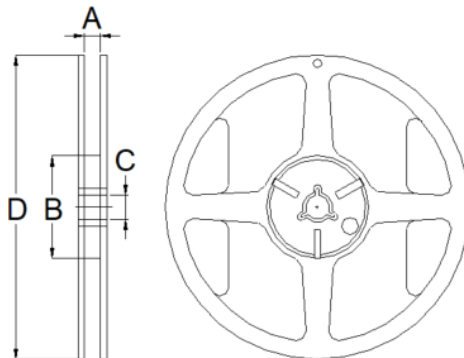
	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

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

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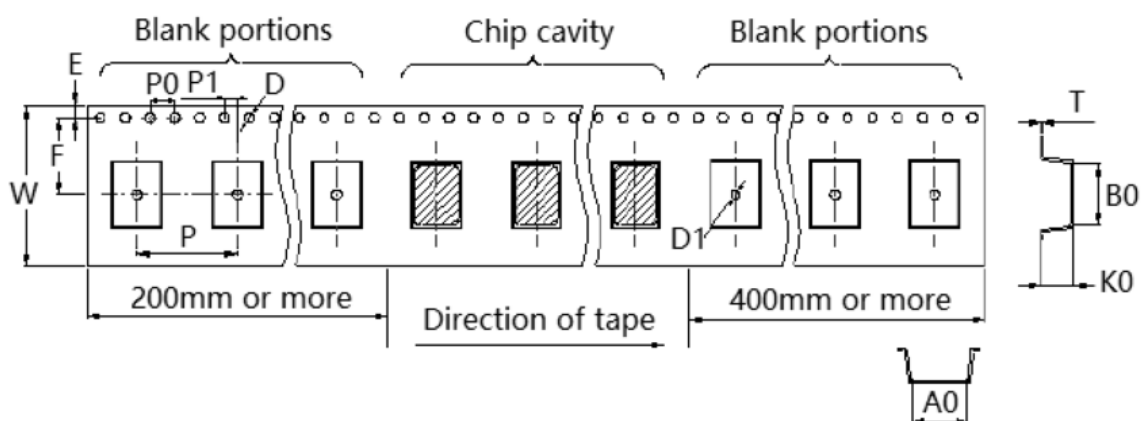
## 9. Packaging Information

### 9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
7"x8mm	$8.4+1.5/-0.0$	50.0 Min	$13.0+5.5/-0.2$	$178.0\pm2.0$

### 9-2. Tape Dimension (Unit: mm)



B0	A0	K0	W	P	P0
$3.60\pm0.10$	$2.90\pm0.10$	$1.40\pm0.10$	$8.00\pm0.10$	$4.00\pm0.10$	$4.00\pm0.10$
P1	E	F	T	D/D1	
$2.00\pm0.10$	$1.75\pm0.10$	$3.50\pm0.10$	$0.22\pm0.05$	$1.50+0.10/-0.00$	

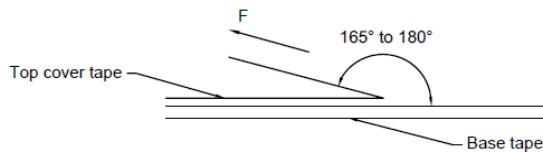
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## 9-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	2,000
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## 9-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.

(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

## 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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