

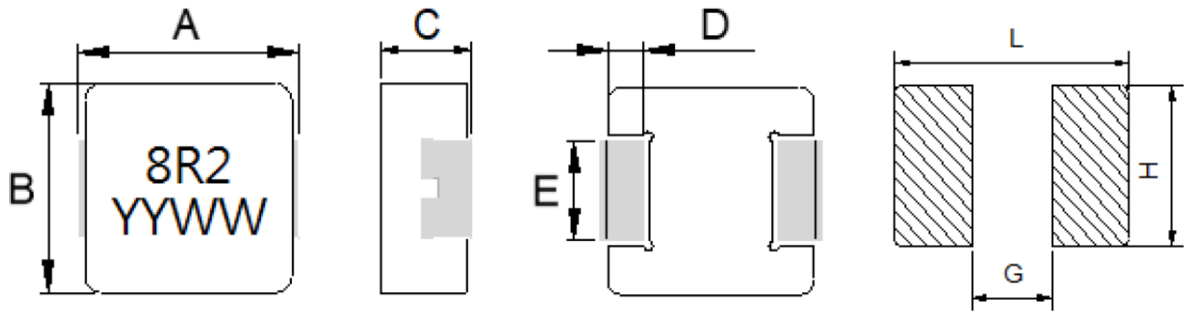
1. Part No. Expression

PIAQ1206SP8R2MN

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

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

2. Configuration & Dimensions (Unit: mm)



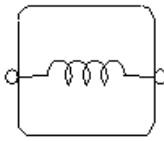
Recommended PCB Layout

- Note:
1. The above PCB layout reference only.
 2. Recommend solder paste thickness at 0.15 mm and above.
 3. Marking: Top= Inductance Code, Bottom=YYWWV (Year/World week), Black

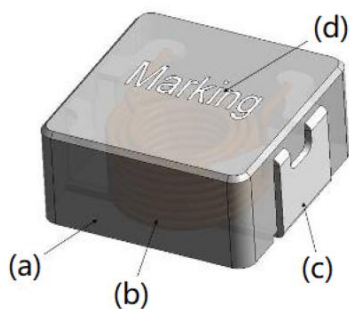
A	B	C	D	E	L	G	H
13.5±0.5	12.6±0.2	5.7±0.3	2.3±0.3	4.7±0.3	14.5 Ref	8.0 Ref	5.0 Ref

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

3. Schematic



4. Material List



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

5. General Specifications

- (a) Reliability test for this part meets AEC-Q200 standard.
- (b) Operating Temp.: -55°C to +155°C (including self-temperature rise)
- (c) Storage Temp.: -55°C to +155°C (on board)
- (d) All test data referenced to 25°C ambient.
- (e) Heat Rated Current (Irms) will cause the coil temperature rise approximately ΔT of 40°C. (keep 1min)
- (f) Saturation Current (Isat) will cause inductance L0 to drop approximately 30%.
- (g) Rated Current: The lower value of Isat and Irms.
- (h) Part Temperature (Ambient + Temp. Rise): Should not exceed 155°C under worst case operating conditions.
- (i) Maximum Operating Voltage: 80V
- (j) Storage Condition (Component in its packaging)
 - i) Temperature: Less than 40°C
 - ii) Humidity: Less than 60% RH

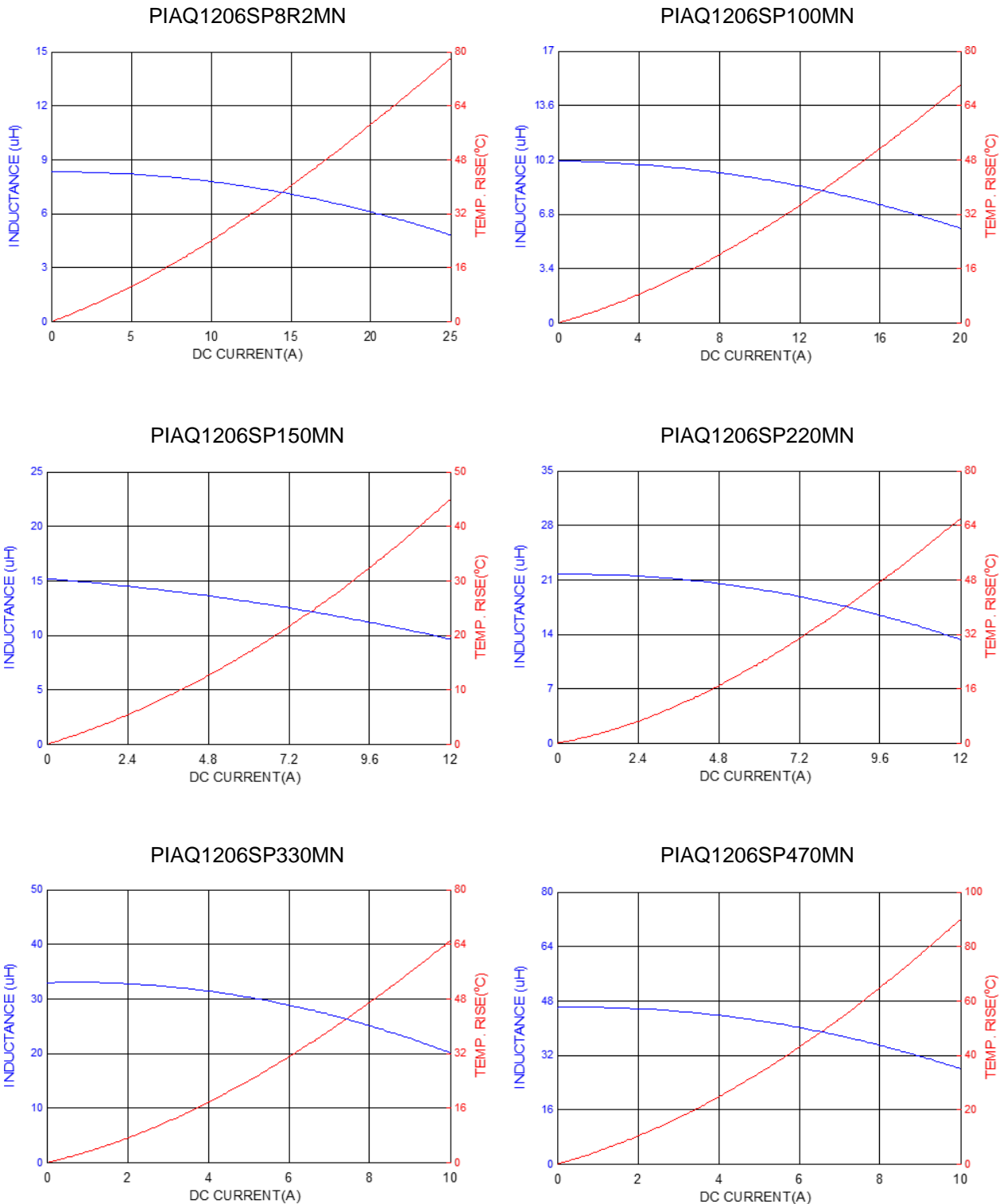
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6. Electrical Characteristics

Part Number	Inductance Lo (uH) @ 0A ±20%	Test Frequency	I _{rms} (A)		I _{sat} (A)		DCR (mΩ)	
			Typ	Max	Typ	Max	Typ	Max
PIAQ1206SP8R2MN	8.20	1.0V/100KHz	13.5	12.0	17.0	15.5	13.5	16.0
PIAQ1206SP100MN	10.0	1.0V/100KHz	12.0	10.5	16.0	14.5	15.5	18.6
PIAQ1206SP150MN	15.0	1.0V/100KHz	10.0	8.50	10.0	9.00	24.0	29.0
PIAQ1206SP220MN	22.0	1.0V/100KHz	8.00	7.00	9.00	8.00	31.2	37.5
PIAQ1206SP330MN	33.0	1.0V/100KHz	6.50	5.50	7.80	6.70	56.0	68.0
PIAQ1206SP470MN	47.0	1.0V/100KHz	5.20	4.50	6.70	5.50	76.0	88.0
PIAQ1206SP680MN	68.0	1.0V/100KHz	4.50	3.70	5.80	5.00	103	124
PIAQ1206SP101MN	100	1.0V/100KHz	3.20	2.80	5.00	4.00	162	195
PIAQ1206SP151MN	150	1.0V/100KHz	2.60	2.20	4.10	3.20	270	325

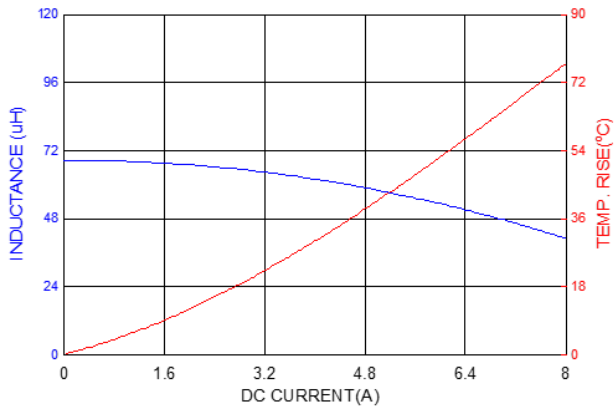
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7. Characteristics Curve

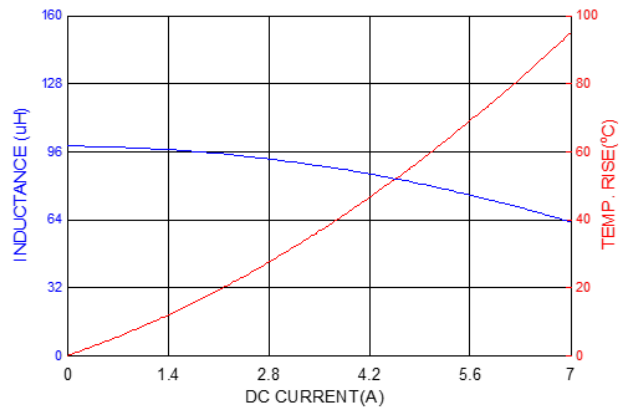


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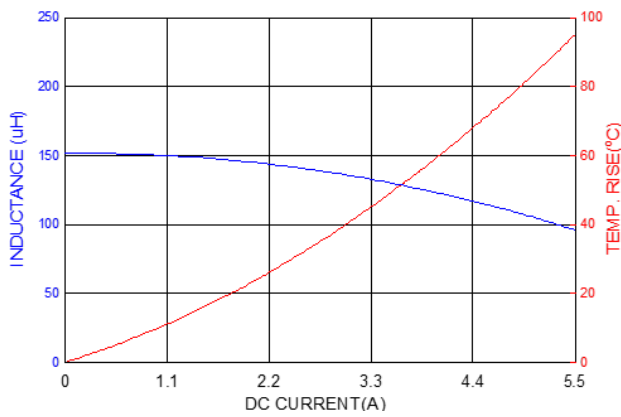
PIAQ1206SP680MN



PIAQ1206SP101MN



PIAQ1206SP151MN



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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

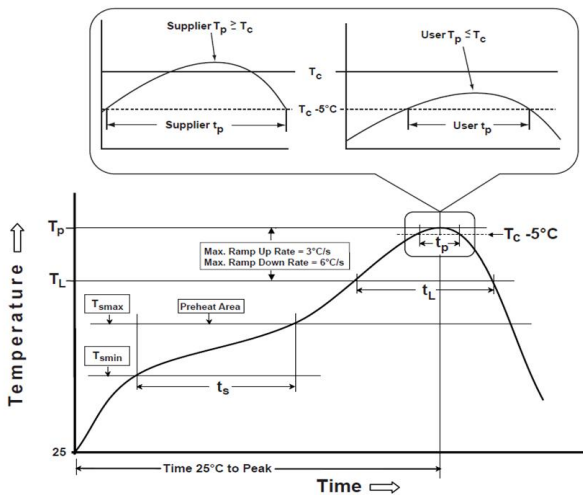
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

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).

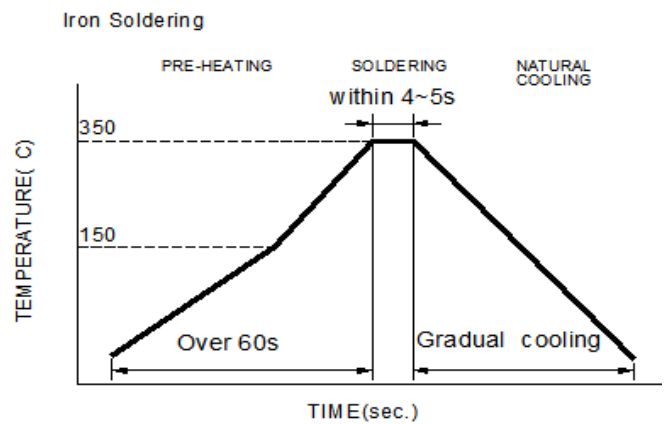
Note:

- (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})	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)

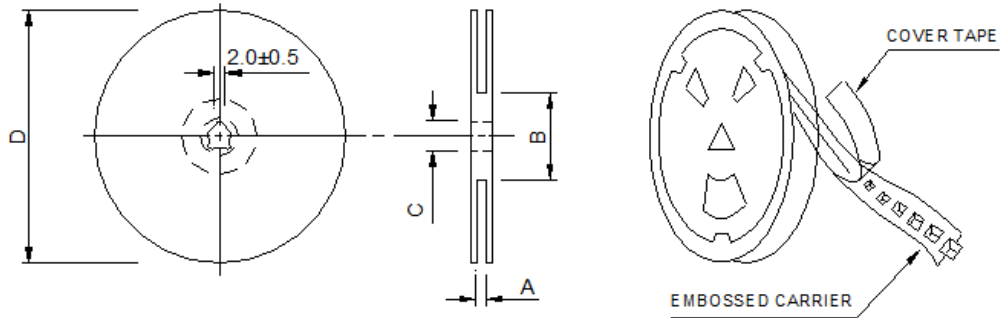
	Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

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

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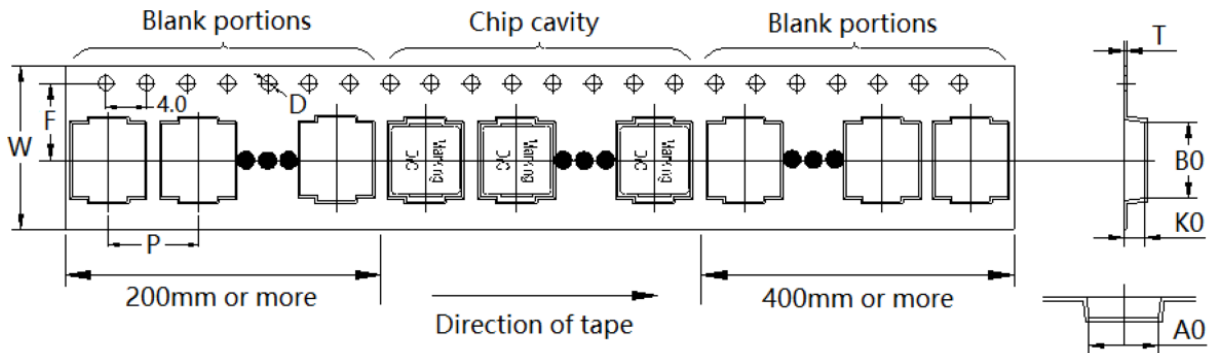
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
13"x24mm	24.4+2.0/-0.0	100.0±2.0	13.5±0.5	330.0

9-2. Tape Dimension (Unit: mm)



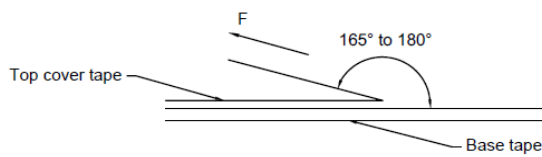
B0	A0	K0	P
14.10±0.10	12.90±0.10	6.50±0.10	16.00±0.10
W	F	T	D
24.00±0.30	11.50±0.10	0.35±0.10	1.50±0.10

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9-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	500
Inner box	1,000
Carton	4,000

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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