Molded Choke Coil – *PIA1205SP Series*

1. Part No. Expression:

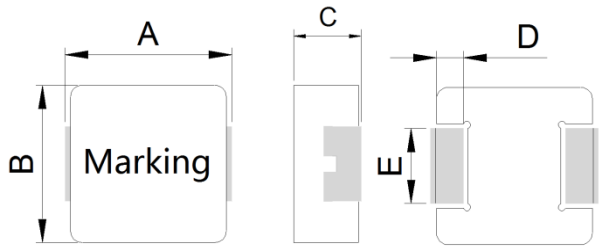
P I A 1 2 0 5 S P 1 R 0 M N

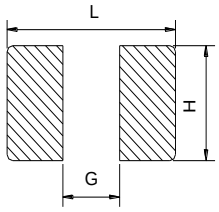
(a) (b) (c) (d) (e)(f)

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

2. Configuration & Dimensions:

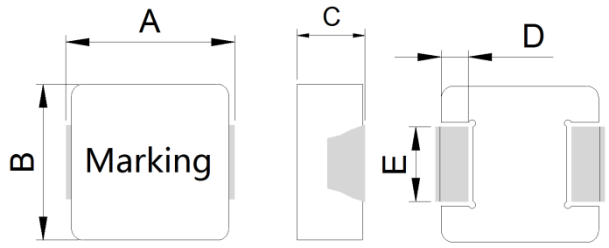
a. Lead Frame





Recommend PC Board Pattern

b. Non Lead Frame



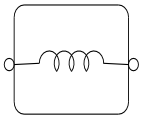
Note:

1. The above PCB layout is for reference only.
2. Solder paste thickness of 0.15mm and above is recommended.
3. Marking: Top row – Inductance code, Bottom row – YYWW.

Unit: mm

A	B	C	D	L	G	H	E	Inductance
13.5±0.5	12.6±0.2	4.7±0.3	2.3±0.3	14.5 Ref.	8.0 Ref.	5.0 Ref.	4.0±0.3	1.0uH and below
							4.7±0.3	1.2uH and above

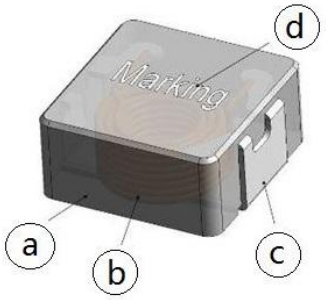
3. Schematic:



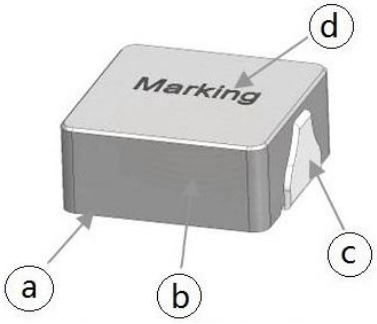
NOTE: Specifications subject to change without notice. Please check our website for latest information.

4. Material List:

a) Lead Frame



b) Non-lead Frame



a) Core

b) Wire

c) Terminal

d) Ink

5. 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) Humidity Range. : 85 ± 2% RH.

(d) Heat Rated Current (Irms) will cause the coil temperature rise approximately Δt of 40°C.

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

(f) Part Temp. (Ambient + Temp. Rise) should not exceed 125°C under worst case operating conditions.

(g) Storage condition (component in its packaging)

i) Temperature: Less than 40°C

ii) Humidity : 60% RH

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

6. Electrical Characteristics:

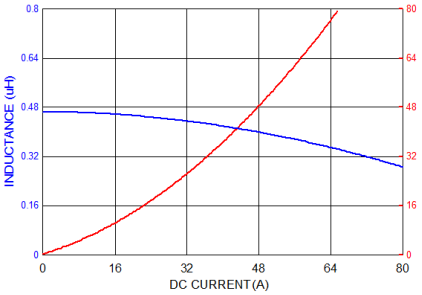
Part Number	Inductance Lo (uH) @ 0A ±20%	Test Frequency (Hz)	Heat Rating Current DC (A) Irms.		Saturation Current DC (A) Isat.		DCR (mΩ) Typ.	DCR (mΩ) Max.	Type
			Typ.	Max.	Typ.	Max.			
PIA1205SPR47MN	0.47	1.0V/100K	38.0	34.0	65.0	58.0	0.77	0.90	Non lead frame
PIA1205SPR56MN	0.56	1.0V/100K	36.0	32.5	57.0	50.0	1.10	1.30	Non lead frame
PIA1205SPR68MN	0.68	1.0V/100K	34.0	31.0	50.0	42.0	1.30	1.55	Non lead frame
PIA1205SPR82MN	0.82	1.0V/100K	32.0	29.0	44.0	38.0	1.40	1.70	Non lead frame
PIA1205SP1R0MN	1.00	1.0V/100K	30.0	27.0	40.0	34.0	1.60	1.90	Non lead frame
PIA1205SP1R2MN	1.20	1.0V/100K	27.0	24.0	34.0	30.0	2.40	2.80	Non lead frame
PIA1205SP1R5MN	1.50	1.0V/100K	25.0	22.0	31.0	28.0	3.20	3.80	Lead frame
PIA1205SP1R8MN	1.80	1.0V/100K	22.0	19.0	28.0	25.0	3.70	4.30	Lead frame
PIA1205SP2R2MN	2.20	1.0V/100K	17.0	15.5	26.0	23.0	4.10	4.80	Lead frame
PIA1205SP3R3MN	3.30	1.0V/100K	15.5	14.0	23.0	20.5	6.00	7.00	Lead frame
PIA1205SP4R7MN	4.70	1.0V/100K	14.0	12.5	18.5	16.0	8.80	10.2	Lead frame
PIA1205SP5R6MN	5.60	1.0V/100K	13.0	12.0	17.5	15.5	10.0	12.0	Lead frame
PIA1205SP6R8MN	6.80	1.0V/100K	12.0	11.0	16.5	15.0	13.0	16.0	Lead frame
PIA1205SP8R2MN	8.20	1.0V/100K	11.0	10.0	13.5	12.0	15.0	18.0	Lead frame
PIA1205SP100MN	10.0	1.0V/100K	10.0	9.00	13.0	10.5	19.2	22.0	Lead frame
PIA1205SP150MN	15.0	1.0V/100K	9.40	8.20	11.0	9.20	30.0	36.0	Lead frame
PIA1205SP220MN	22.0	1.0V/100K	8.00	7.00	8.50	7.50	42.0	52.0	Lead frame
PIA1205SP330MN	33.0	1.0V/100K	6.00	5.20	7.30	6.50	66.0	80.0	Lead frame

Notes:

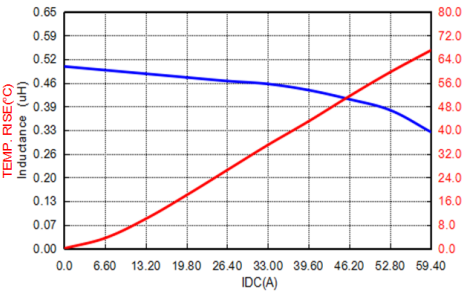
1) At all times, the current supplied to the product should not exceed Isat Max. value.

7. Characteristics Curves:

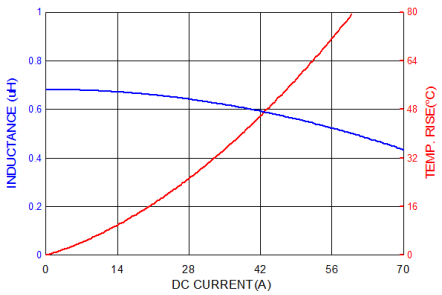
PIA1205SPR47MN



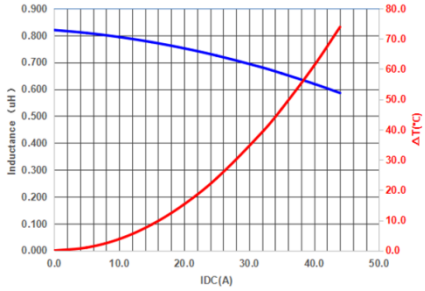
PIA1205SPR56MN



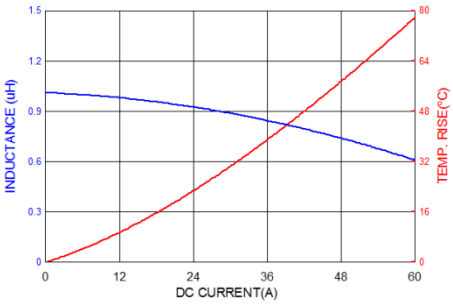
PIA1205SPR68MN



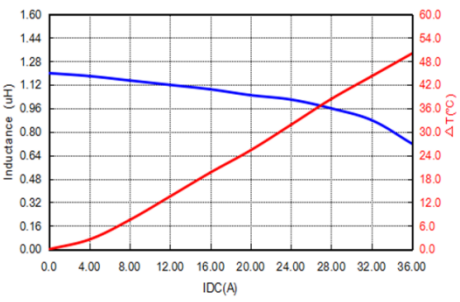
PIA1205SPR82MN



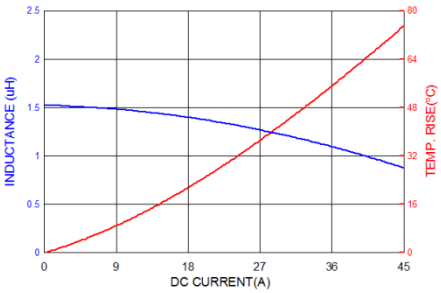
PIA1205SP1R0MN



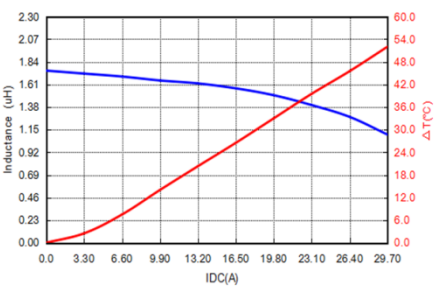
PIA1205SP1R2MN



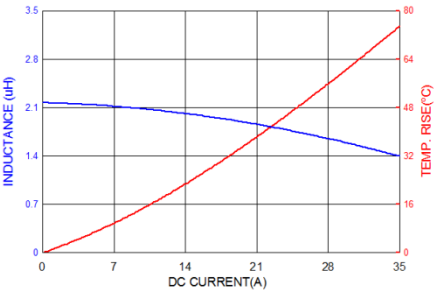
PIA1205SP1R5MN



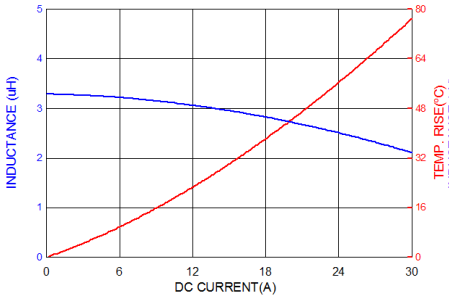
PIA1205SP1R8MN



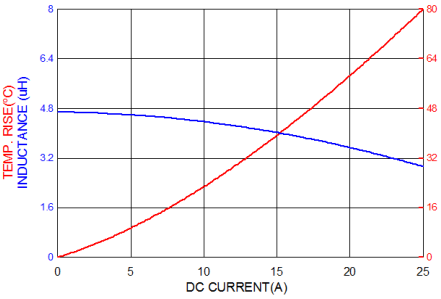
PIA1205SP2R2MN



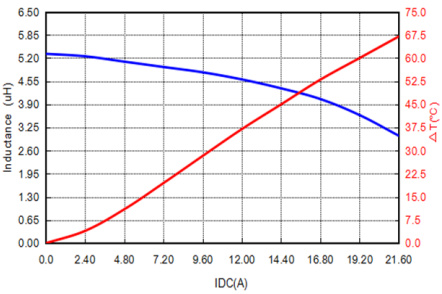
PIA1205SP3R3MN



PIA1205SP4R7MN



PIA1205SP5R6MN



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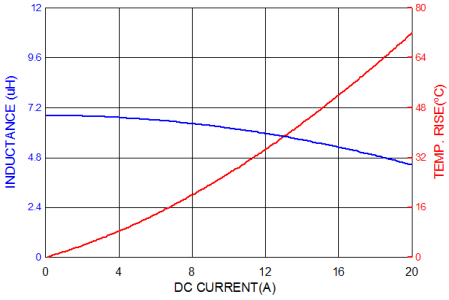
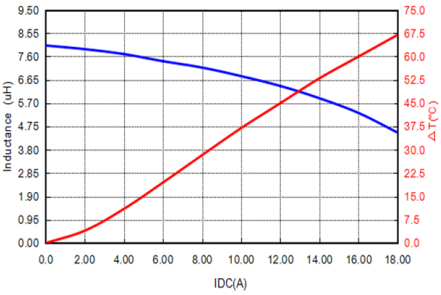
Molded Choke Coil – *PIA1205SP Series*

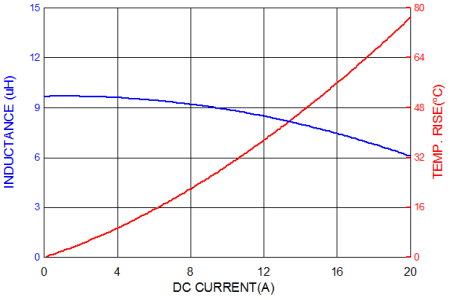
PIA1205SP6R8MN



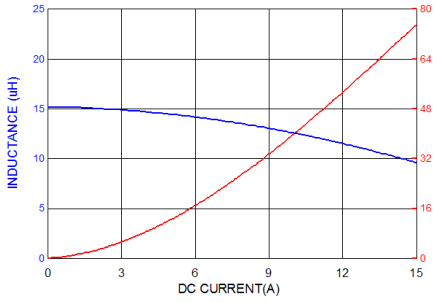
PIA1205SP8R2MN



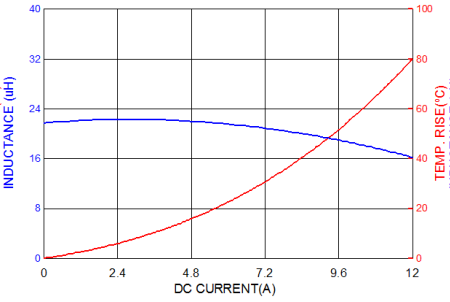
PIA1205SP100MN



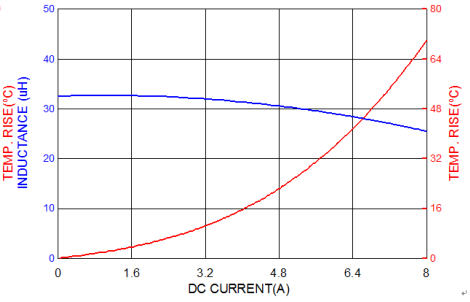
PIA1205SP150MN



PIA1205SP220MN



PIA1205SP330MN



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8. Soldering:

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.

8-1 Solder Re-flow:

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

8-2 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.

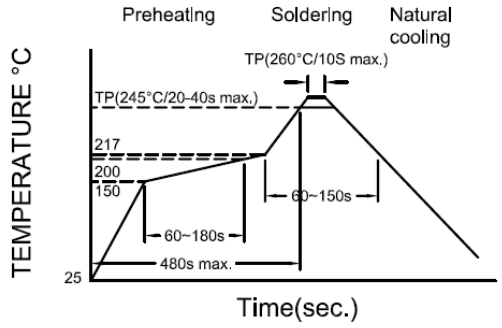
b) 355°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip

d) 1.0mm tip diameter (Max.)

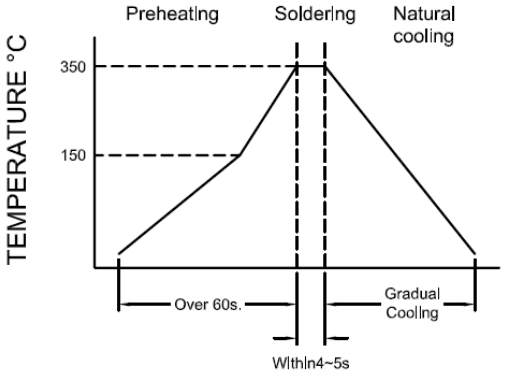
e) Use a 20 watt soldering iron with tip diameter of 1.0mm

f) Limit soldering time to 4~5 secs.



Reflow times: 3 times max

Fig.1

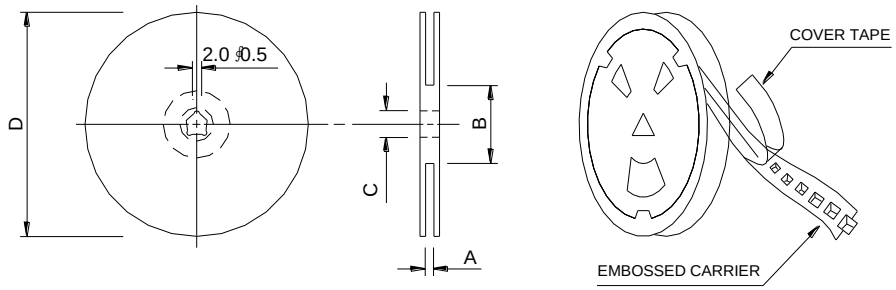


Iron Soldering times：1 times max

Fig.2

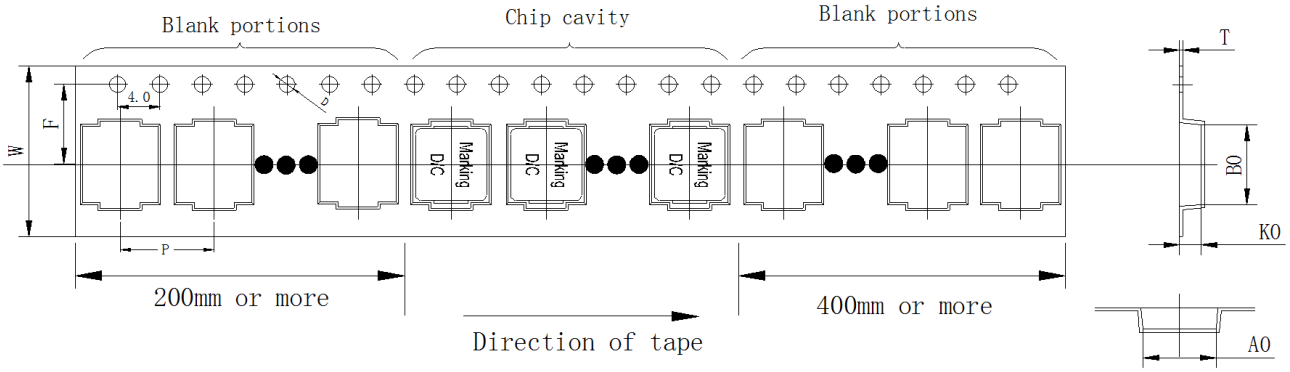
9. Packaging Information:

9-1 Reel Dimension:



Type	A(mm)	B(mm)	C(mm)	D(mm)
13”x24mm	24.4+2/-0	100±2	13.0 +0.5/-0.2	330

9-2 Tape Dimension:



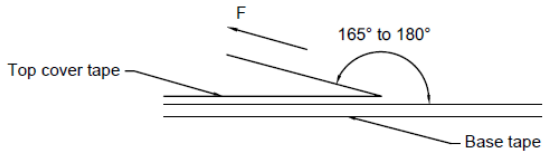
Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	T(mm)	D(mm)
PIA	1205	14.1±0.1	12.9±0.1	5.5±0.1	16.0±0.1	24.0±0.3	11.5±0.1	0.35±0.05	1.5±0.1

9-3 Packaging Quantity:

PIA	1205
Chip / Reel	500
Inner box	1000
Carton	4000

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

9-4 Tearing Off Force:



The force for tearing off cover tape is 10 to 130 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.