Molded Choke Coil – *PIA1005S Series*

1. Part No. Expression:

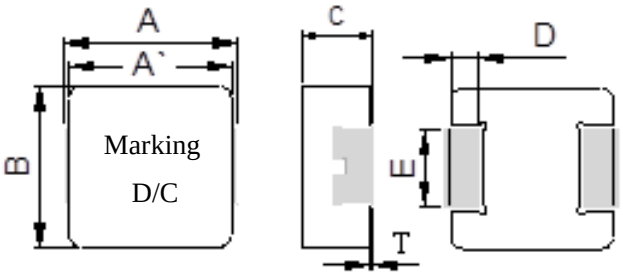
P I A 1 0 0 5 S 1 R 0 M N

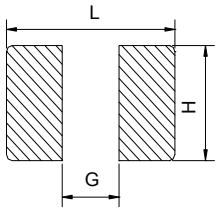
(a) (b) (c) (d) (e)(f)

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

2. Configuration & Dimensions:

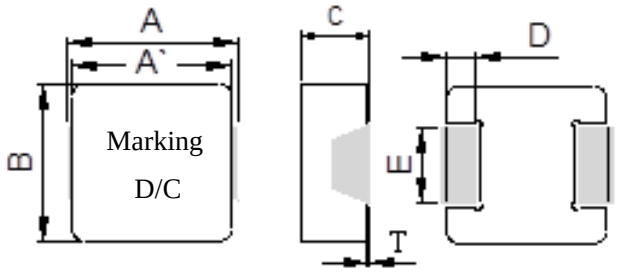
a. Lead Frame





Recommend PC Board Pattern

b. Non Lead Frame



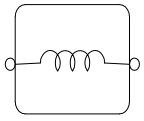
Note:

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	A`	B	C	D	T	G	H	L	E	Inductance
11.0±0.5	10.0±0.5	10.0±0.3	4.8±0.2	2.0±0.3	0 - 0.2	5.4	3.5	12.5	2.5±0.3	Between 0.68-1.50uH
									3.0±0.3	0.47uH and below 2.20uH and above

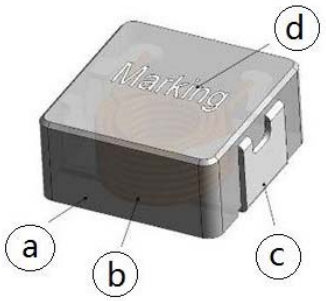
3. Schematic:



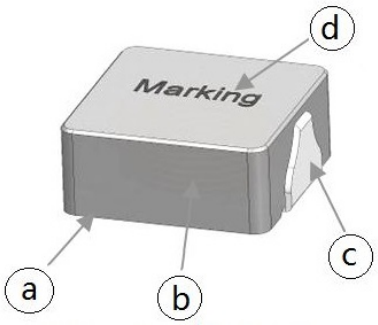
NOTE: Specifications subject to change without notice. Please check our website for latest information.

4. Material List:

i) Lead Frame



ii) Non-lead Frame



a) Core

b) Wire

c) Terminal

d) Ink

5. General Specification:

(a) Operating Temp. : -40°C to +125°C (Inclusive of coil temp 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 (keep 1min)

(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: -10 to 40°C

ii) Humidity : 50~60% RH

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

6. Electrical Characteristics:

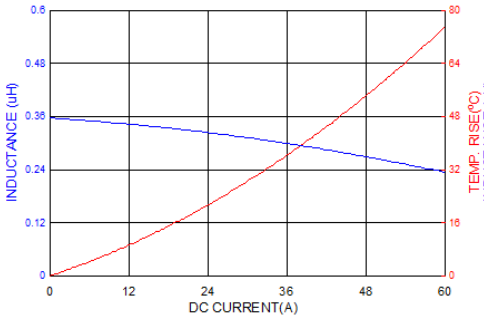
Part Number	Inductance Lo (uH) @ 0A ±20%	Test Frequency, L	Heat Rating Current DC (A) Irms.		Saturation Current DC (A) Isat.		DCR (mΩ)Typ.	DCR (mΩ)Max.	Type
			Typ.	Max.	Typ.	Max.			
PIA1005SR36MN	0.36	100kHz/1.0V	34.0	30.0	52.0	46.0	0.82	0.92	Non lead frame
PIA1005SR47MN	0.47	100kHz/1.0V	33.0	29.0	46.0	40.0	1.15	1.32	Non lead frame
PIA1005SR68MN	0.68	100kHz/1.0V	28.0	25.0	35.0	32.0	1.6	1.9	Non lead frame
PIA1005S1R0MN	1.00	100kHz/1.0V	25.0	23.0	33.0	30.0	2.6	3.0	Non lead frame
PIA1005S1R5MN	1.50	100kHz/1.0V	23.0	21.0	27.0	24.0	3.4	3.8	Non lead frame
PIA1005S2R2MN	2.20	100kHz/1.0V	19.5	17.5	20.0	18.0	5.1	5.6	Lead frame
PIA1005S3R3MN	3.30	100kHz/1.0V	17.0	15.0	17.5	15.5	8.1	9.1	Lead frame
PIA1005S4R7MN	4.70	100kHz/1.0V	15.0	13.0	16.0	14.0	9.3	10.5	Lead frame
PIA1005S5R6MN	5.60	100kHz/1.0V	13.0	11.0	15.0	12.5	12.8	14.4	Lead frame
PIA1005S6R8MN	6.80	100kHz/1.0V	12.0	10.0	14.0	12.0	15.0	17.3	Lead frame
PIA1005S100MN	10.0	100kHz/1.0V	7.6	7.2	13.0	11.0	18.9	21.8	Lead frame
PIA1005S101MN	100.0	100kHz/1.0V	2.2	2.0	2.8	2.4	242.0	290.0	Lead frame

Notes:

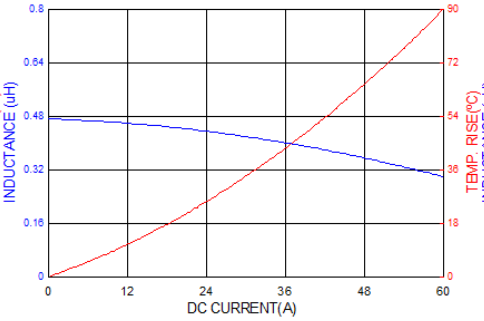
1) At all times, the current supplied to the product should not exceed Isat Max. value.

7. Characteristics Curves:

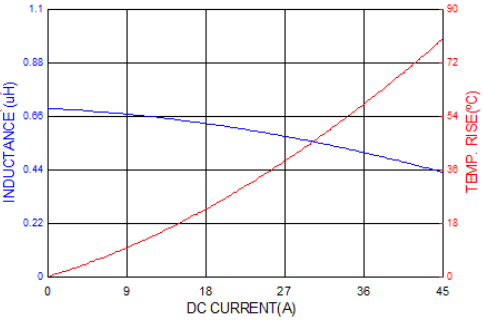
PIA1005SR36MN



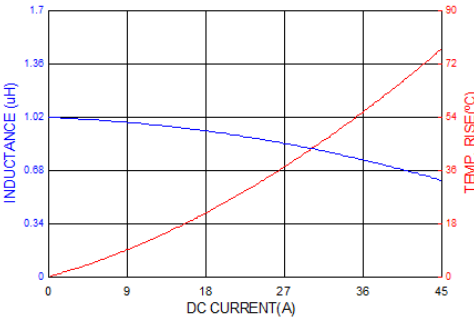
PIA1005SR47MN



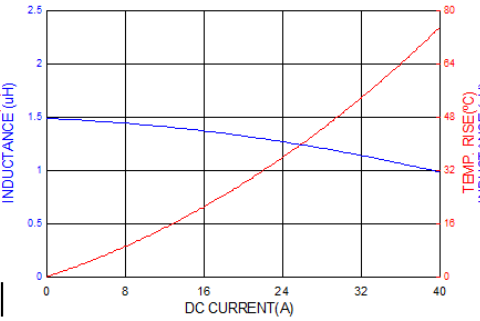
PIA1005SR68MN



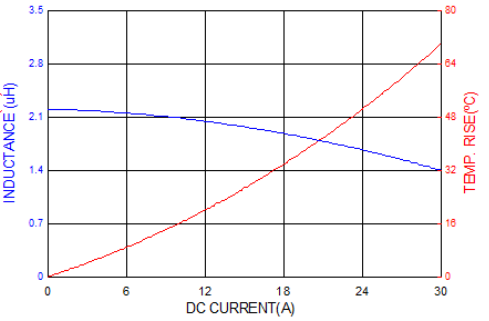
PIA1005S1R0MN



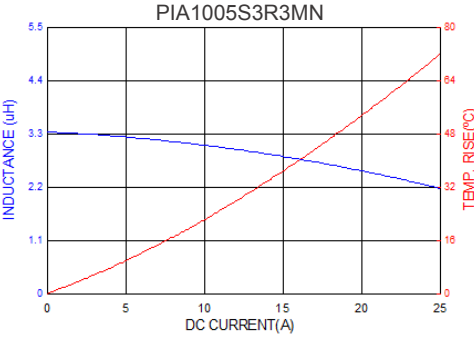
PIA1005S1R5MN



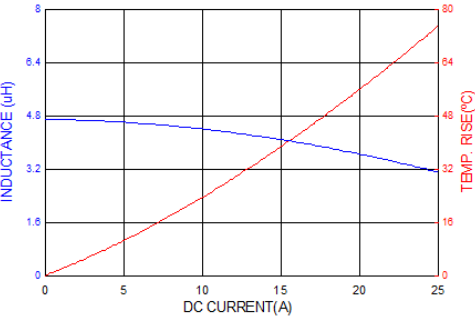
PIA1005S2R2MN



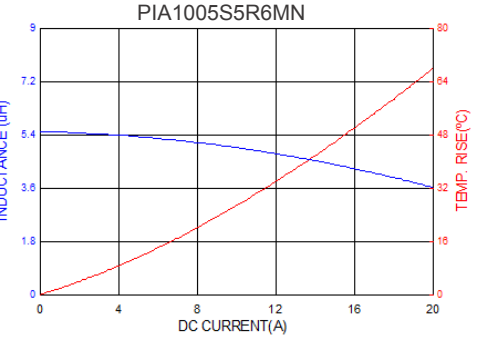
PIA1005S3R3MN



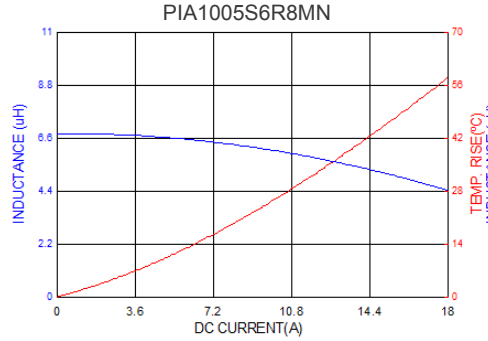
PIA1005S4R7MN



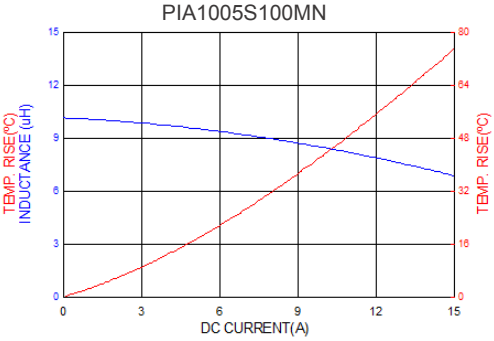
PIA1005S5R6MN



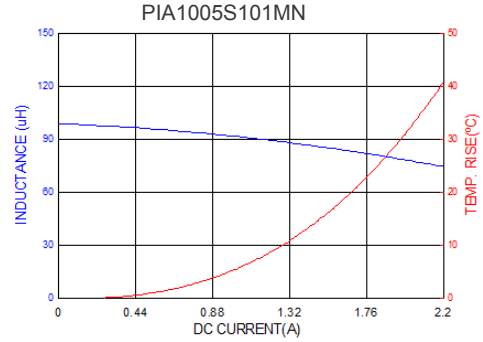
PIA1005S6R8MN



PIA1005S100MN



PIA1005S101MN



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

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.

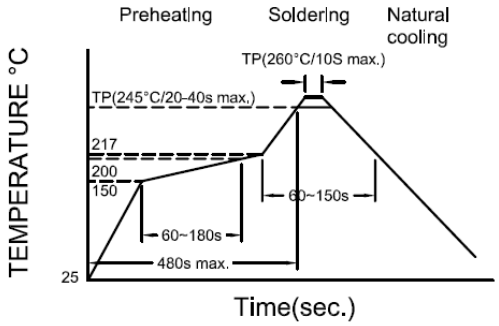
b) 355°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip

d) 1.0mm tip diameter (Max.)

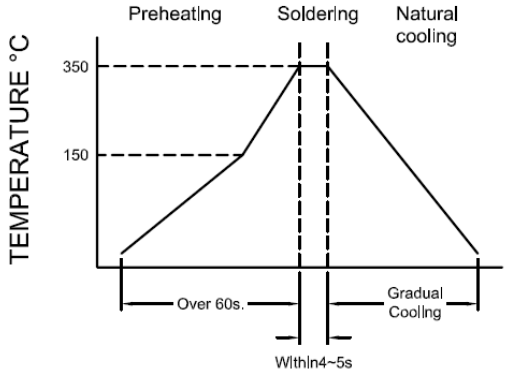
e) Use a 20 watt soldering iron with tip diameter of 1.0mm

f) Limit soldering time to 4~5 secs.



Reflow times: 3 times max

Fig.1

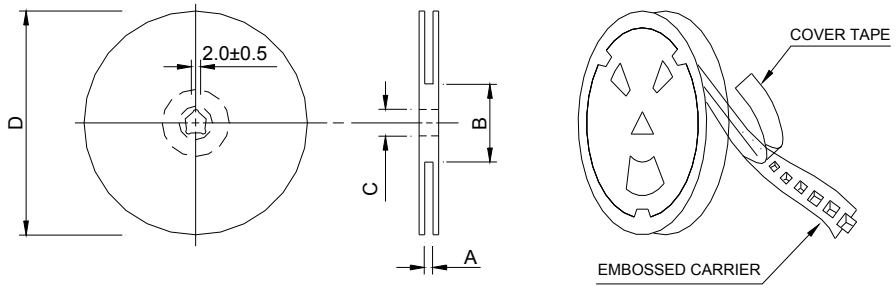


Iron Soldering times：1 times max

Fig.2

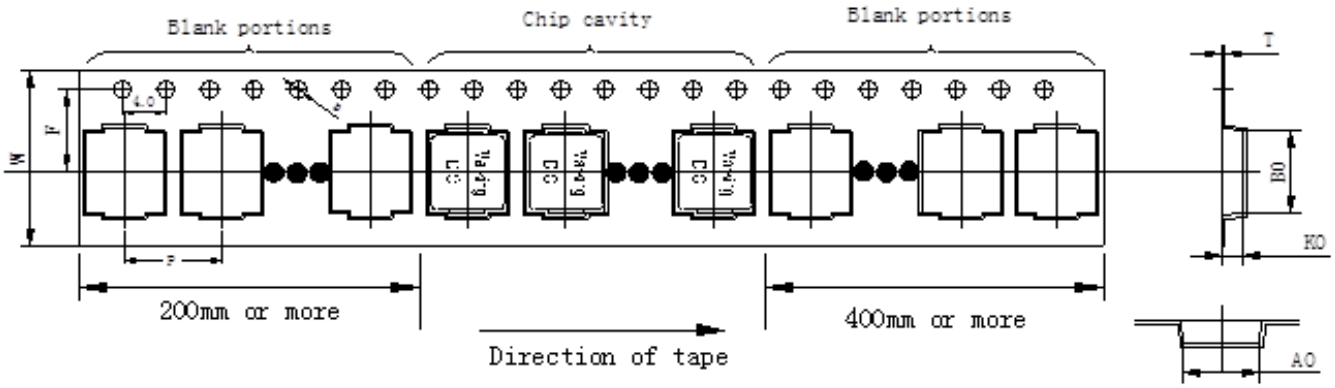
9. Packaging Information:

9-1 Reel Dimension:



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

9-2 Tape Dimension:



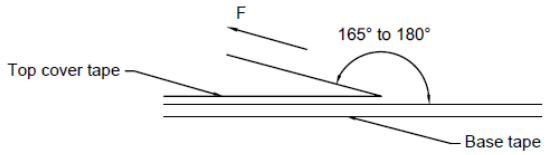
Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	T(mm)	D(mm)
PIA	1005	11.6±0.1	10.4±0.1	5.3±0.1	16.0±0.1	24.0±0.3	11.5±0.1	0.35±0.10	1.5±0.1

9-3 Packaging Quantity:

PIA	1005
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.