Molded Choke Coil – *PIA0502SP Series*

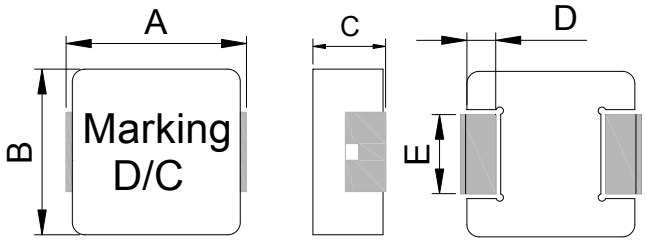
1. Part No. Expression:

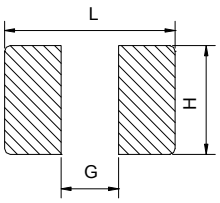
P I A 0 5 0 2 S P 1 R 0 M N

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

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

2. Configuration & Dimensions:





Recommended PC Board Pattern

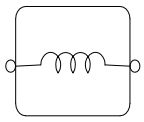
Note:

1. The above PCB layout is for reference only.
2. Solder paste thickness of 0.12mm and above is recommended.
3. Marking: Top row – Inductance code, Bottom row – YYWW

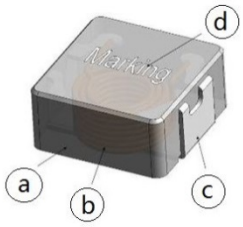
Unit: mm

A	B	C	D	E	L	G	H
5.7±0.3	5.2±0.2	1.8±0.2	1.0±0.3	2.5±0.3	6.0 Ref.	2.8 Ref.	2.5 Ref.

3. Schematic:



4. Material List:



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

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

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.

(e) Saturation Current (Isat) 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

6. Electrical Characteristics:

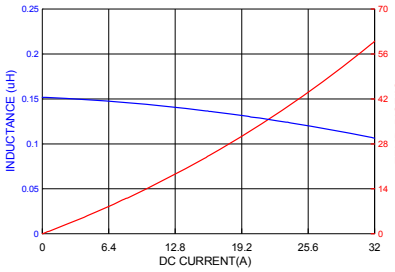
Part Number	Inductance L (uH) @ 0A	Test Frequency (Hz)	Irms (A) Typ.	Irms (A) Max.	Isat (A) Typ.	Isat (A) Max.	DCR (mΩ) Typ.	DCR (mΩ) Max.
PIA0502SPR15YN	0.15	1.0V/100K	22	19	27	24	2.8	3.2
PIA0502SPR22MN	0.22	1.0V/100K	16	14	20	17	3.8	4.4
PIA0502SPR33MN	0.33	1.0V/100K	14	13	11	9.0	5.2	6
PIA0502SPR47MN	0.47	1.0V/100K	13	11	9.0	8.0	6.1	7.2
PIA0502SPR68MN	0.68	1.0V/100K	12	10	8.0	7.0	8	9.2
PIA0502SP1R0MN	1.00	1.0V/100K	8.6	7.5	7.5	6.5	14	16.2
PIA0502SP1R5MN	1.50	1.0V/100K	7.5	6.5	7.0	6.0	22	26.4
PIA0502SP2R2MN	2.20	1.0V/100K	6.5	6.0	5.8	5.0	29	34
PIA0502SP3R3MN	3.30	1.0V/100K	6.0	5.0	5.0	4.7	50	60

*Tolerance code: M = ±20%, Y= ±30%

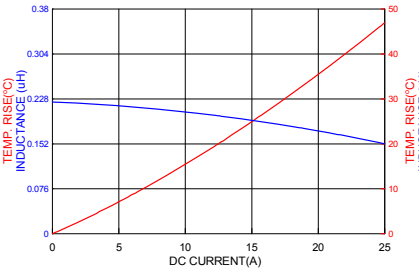
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7. Characteristics Curves:

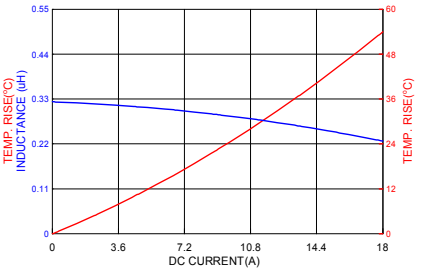
PIA0502SPR15YN



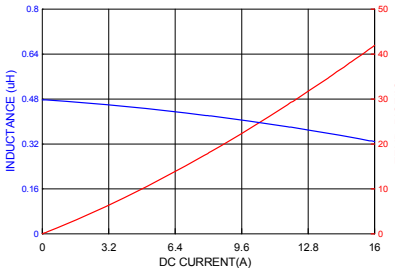
PIA0502SPR22MN



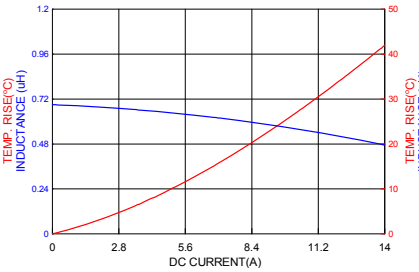
PIA0502SPR33MN



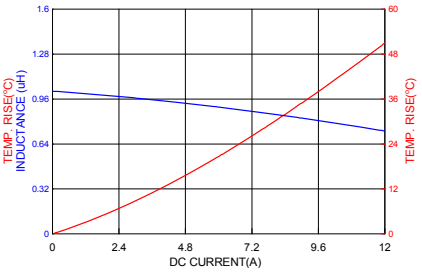
PIA0502SPR47MN



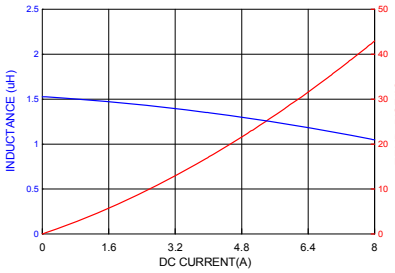
PIA0502SPR68MN



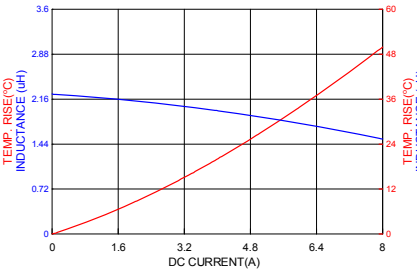
PIA0502SP1R0MN



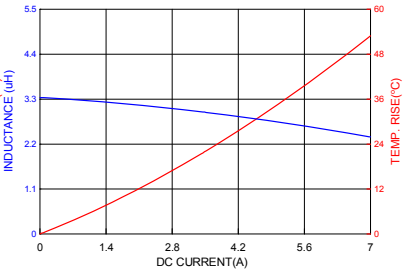
PIA0502SP1R5MN



PIA0502SP2R2MN



PIA0502SP3R3MN



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.

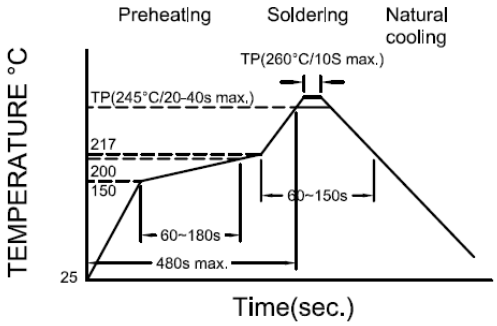
b) 355°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip

d) 1.0mm tip diameter (Max.)

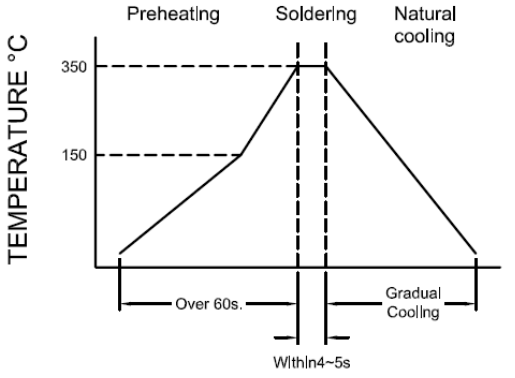
e) Use a 20 watt soldering iron with tip diameter of 1.0mm

f) Limit soldering time to 4~5 secs.



Reflow times: 3 times max

Fig.1



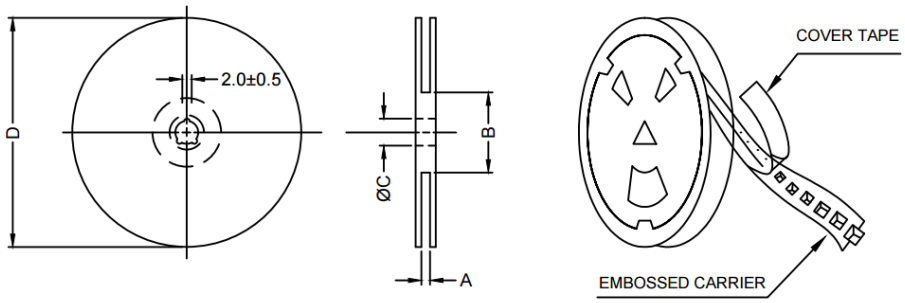
Iron Soldering times: 1 times max

Fig.2

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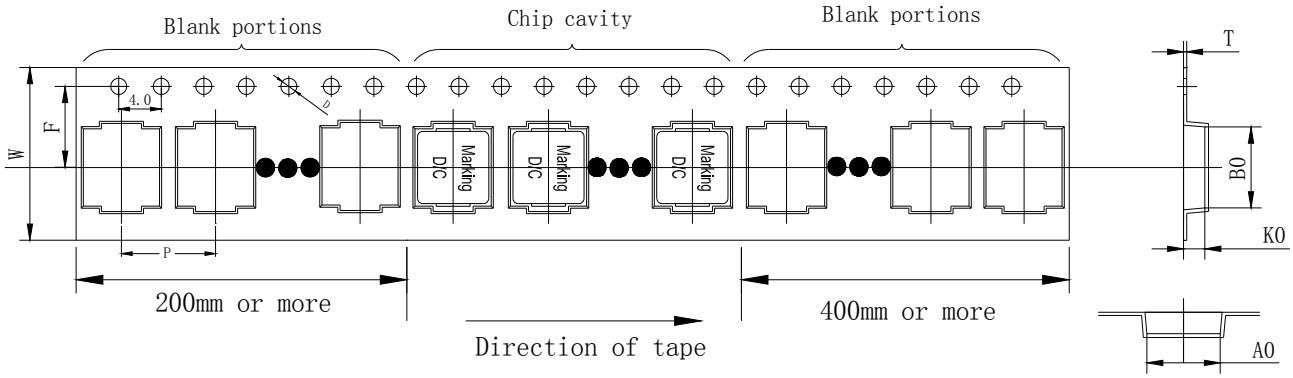
9. Packaging Information:

9-1 Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
13"x12mm	12.4+2/-0	100±2	13+0.5/-0.2	330

9-2 Tape Dimension



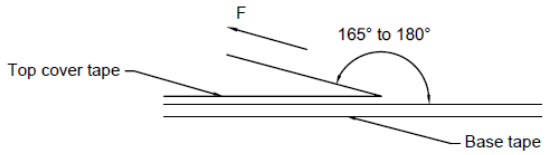
Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	T(mm)	D(mm)
PIA	0502	6.2±0.1	5.6±.1	2.3±0.1	8.0±0.1	12.0±0.3	5.5±0.1	0.35±0.05	1.5±0.1

9-3 Packaging Quantity

PIA	0502
Chip / Reel	3000
Inner box	6000
Carton	24000

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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.

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