Molded Choke Coil – *PIAQ2313SP Series*

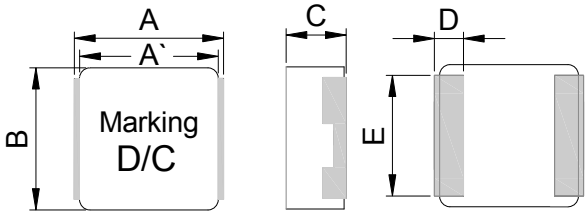
1. Part No. Expression:

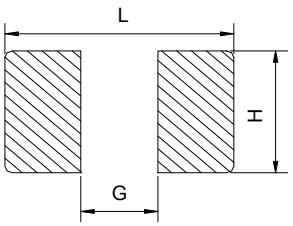
P I A Q 2 3 1 3 S P 1 R 5 M N

(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:





Recommend PC Board Pattern

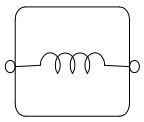
Note:

1. The above PCB layout is for reference only.
2. Solder paste thickness of 0.20mm and above is recommended.
3. Marking: Top row – Inductance code, Bottom row – YYWW

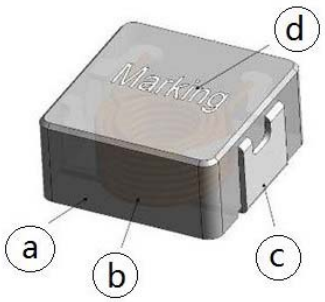
Unit: mm

A	A'	B	C	D	E	G	H	L
23.5±0.5	22.7±0.3	22.0±0.3	12.6±0.4	5.0±0.4	19.0±0.3	12.5 Ref.	19.6 Ref.	24.0 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) Reliability test for this part meets AEC-Q200 standard.

(b) Operating Temp. : -55°C to +155°C (Inclusive of coil temp rise).

(c) Storage Temp. : -55°C to +155°C (on board).

(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 Temperature (Ambient + Temp. Rise): should not exceed 155°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 ±20%	Test Frequency (Hz)	Heat Rating Current DC (A) Irms.		Saturation Current DC (A) Isat.		DCR (mΩ)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
PIAQ2313SP1R5MN	1.50	1.0V/100K	62.0	57.0	52.0	48.0	1.0	1.15
PIAQ2313SP2R2MN	2.20	1.0V/100K	58.0	52.0	48.0	43.0	1.05	1.25
PIAQ2313SP3R3MN	3.30	1.0V/100K	49.0	47.0	41.0	37.0	1.5	1.75
PIAQ2313SP4R7MN	4.70	1.0V/100K	47.0	44.0	38.0	34.0	1.9	2.2
PIAQ2313SP6R8MN	6.80	1.0V/100K	40.0	36.0	36.0	32.0	2.7	3.1
PIAQ2313SP100MN	10.0	1.0V/100K	33.0	30.0	28.0	20.0	3.8	4.15
PIAQ2313SP220MN	22.0	1.0V/100K	22.0	18.0	15.0	14.0	9.2	11.0
PIAQ2313SP230MN	23.0	1.0V/100K	22.0	18.0	15.0	14.0	9.2	11.0
PIAQ2313SP330MN	33.0	1.0V/100K	19.0	16.0	12.0	10.5	13.5	15.4
PIAQ2313SP470MN	47.0	1.0V/100K	17.0	14.0	12.0	10.0	17.3	20.8
PIAQ2313SP680MN	68.0	1.0V/100K	14.0	12.0	12.0	9.0	26.2	29.5
PIAQ2313SP750MN	75.0	1.0V/100K	13.0	11.0	10.5	8.5	27.5	31.6
PIAQ2313SP820MN	82.0	1.0V/100K	12.0	10.0	9.0	7.7	31.0	34.2
PIAQ2313SP101MN	100	1.0V/100K	11.0	9.5	9.0	7.5	36.0	40.0

Notes:

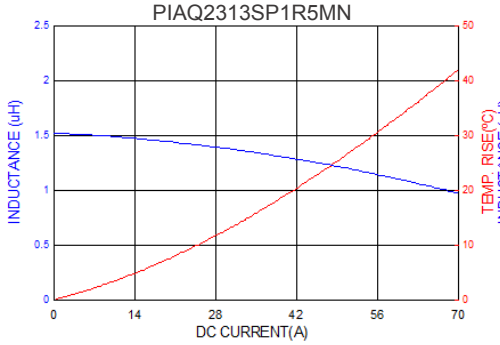
1) At all times, the current supplied to the product should not exceed Isat Max. value.

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

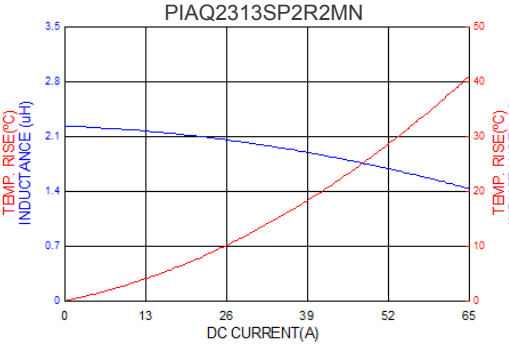
Molded Choke Coil – *PIAQ2313SP Series*

7. Characteristics Curves:

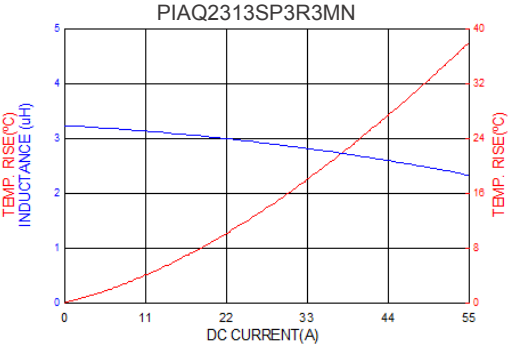
PIAQ2313SP1R5MN



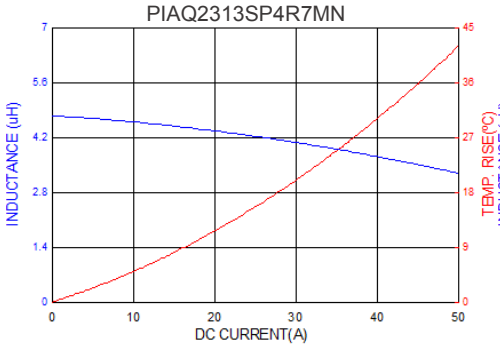
PIAQ2313SP2R2MN



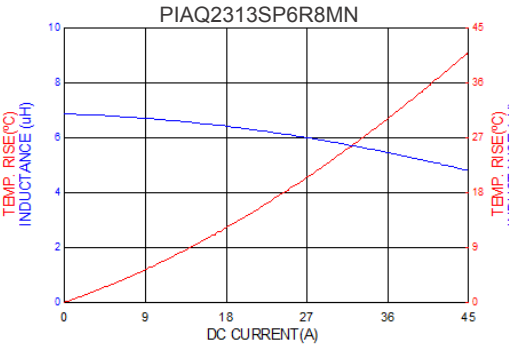
PIAQ2313SP3R3MN



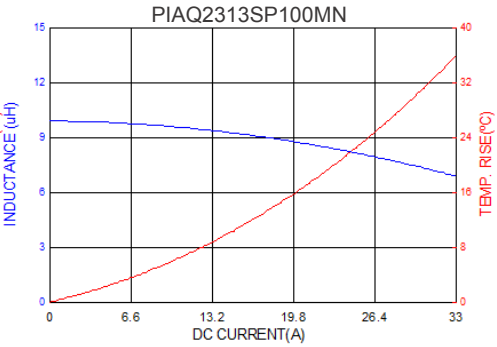
PIAQ2313SP4R7MN



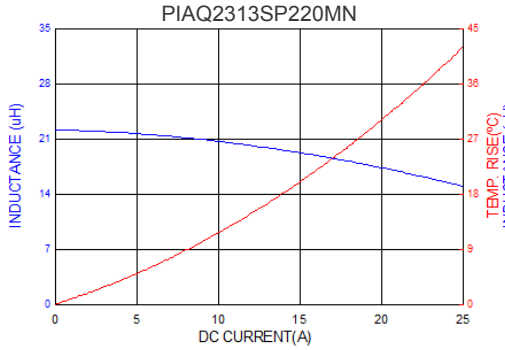
PIAQ2313SP6R8MN



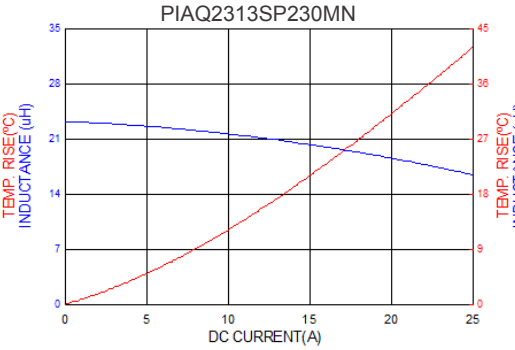
PIAQ2313SP100MN



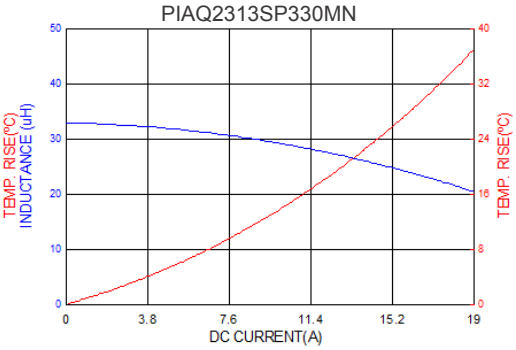
PIAQ2313SP220MN



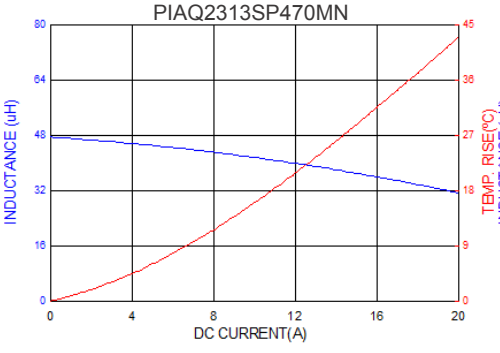
PIAQ2313SP230MN



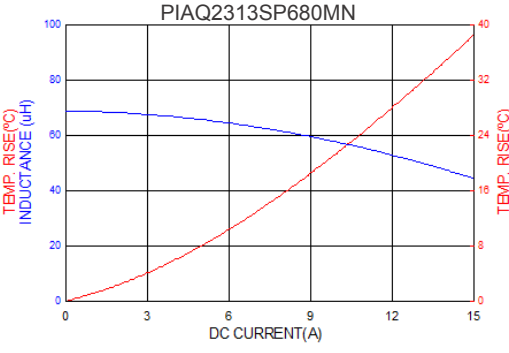
PIAQ2313SP330MN



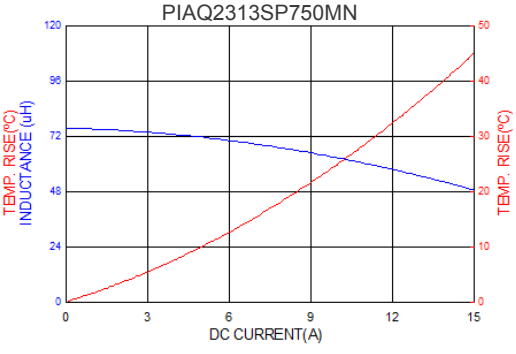
PIAQ2313SP470MN



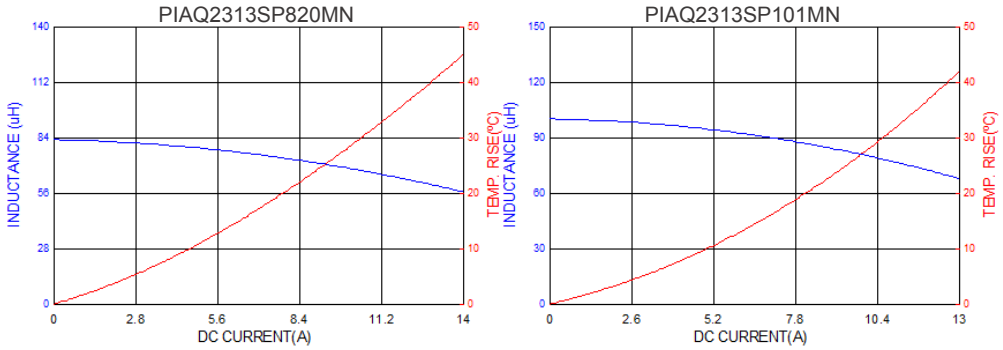
PIAQ2313SP680MN



PIAQ2313SP750MN



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.

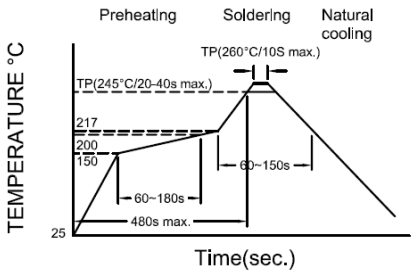
b) 355°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip

d) 1.0mm tip diameter (Max.)

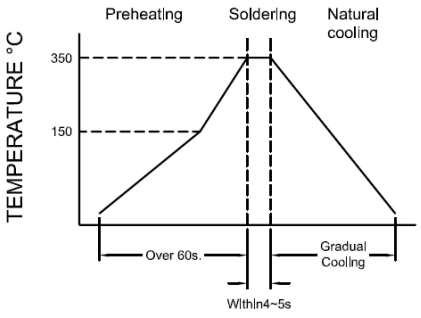
e) Use a 20 watt soldering iron with tip diameter of 1.0mm

f) Limit soldering time to 4~5 secs.



Reflow times: 3 times max

Fig.1



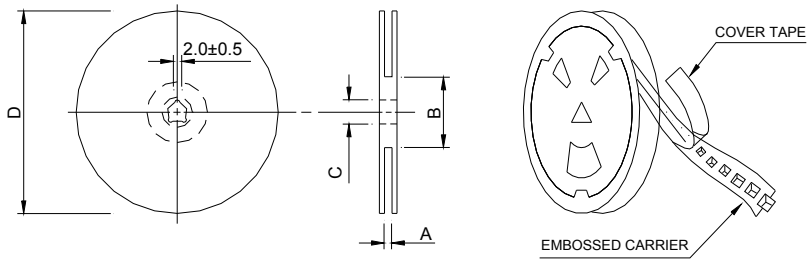
Iron Soldering times：1 times max

Fig.2

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

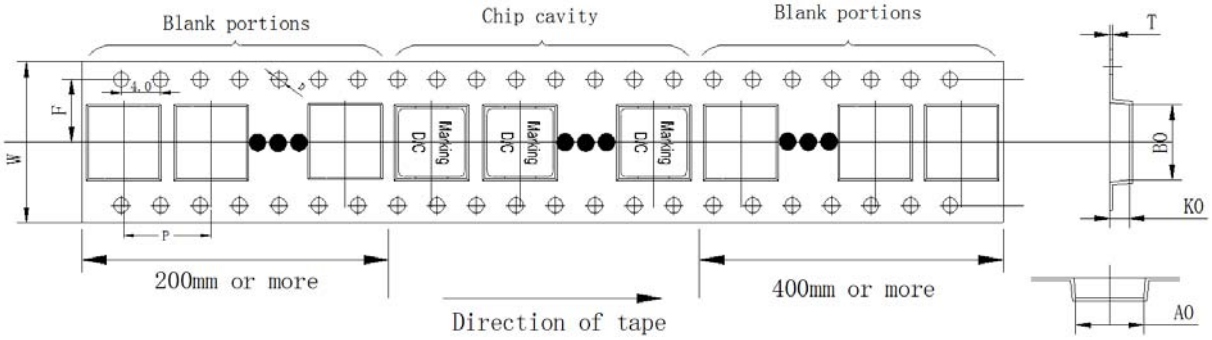
9. Packaging Information:

9-1 Reel Dimension:



Type	A(mm)	B(mm)	C(mm)	D(mm)
13”x44mm	44.4+2/-0	100±2	13.0 +0.5/-0.2	330

9-2 Tape Dimension:



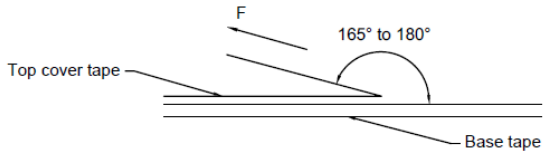
Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	T(mm)	D(mm)
PIAQ	2313	25.0±0.1	23.0±0.1	13.6±0.1	32.0±0.1	44.0±0.3	20.2±0.1	0.5±0.05	1.5±0.1

9-3 Packaging Quantity:

PIAQ	2313
Chip / Reel	80
Inner box	80
Carton	320

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.