

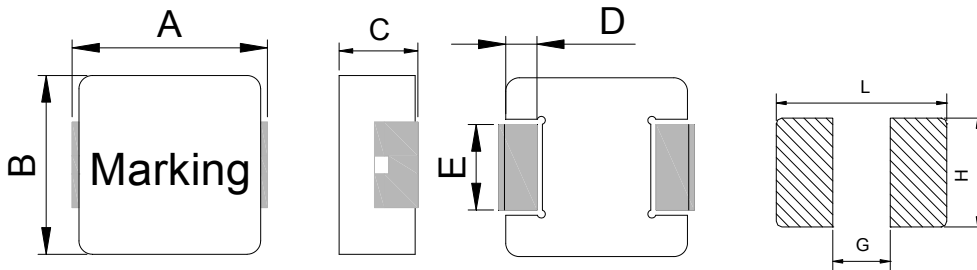
1. Part No. Expression:

PIAQ0402SP1R0MN

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

- a) Series Code
- b) Dimension Code
- c) Type Code
- d) Inductance Code
- e) Tolerance Code

2. Configuration & Dimensions:



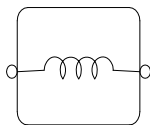
- Note:
1. The above PCB layout is for reference only.
 2. Solder paste thickness of 0.12mm and above is recommended.
 3. Marking: Inductance code.

Recommended PC Board Pattern

Unit: mm

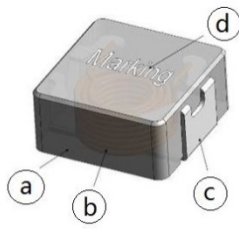
A	B	C	D	E	L	G	H
4.45±0.25	4.10±0.2	1.80±0.2	0.80±0.25	2.00±0.2	5.20 Ref.	2.20 Ref.	2.50 Ref.

3. Schematic:



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

4. Material List:



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

5. General Specification:

- (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) Heat Rated Current (I_{rms}) will cause the coil temperature rise approximately ΔT of 40°C.
- (e) Saturation Current (I_{sat}) will cause L₀ to drop approximately 30%.
- (f) Part Temp. (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

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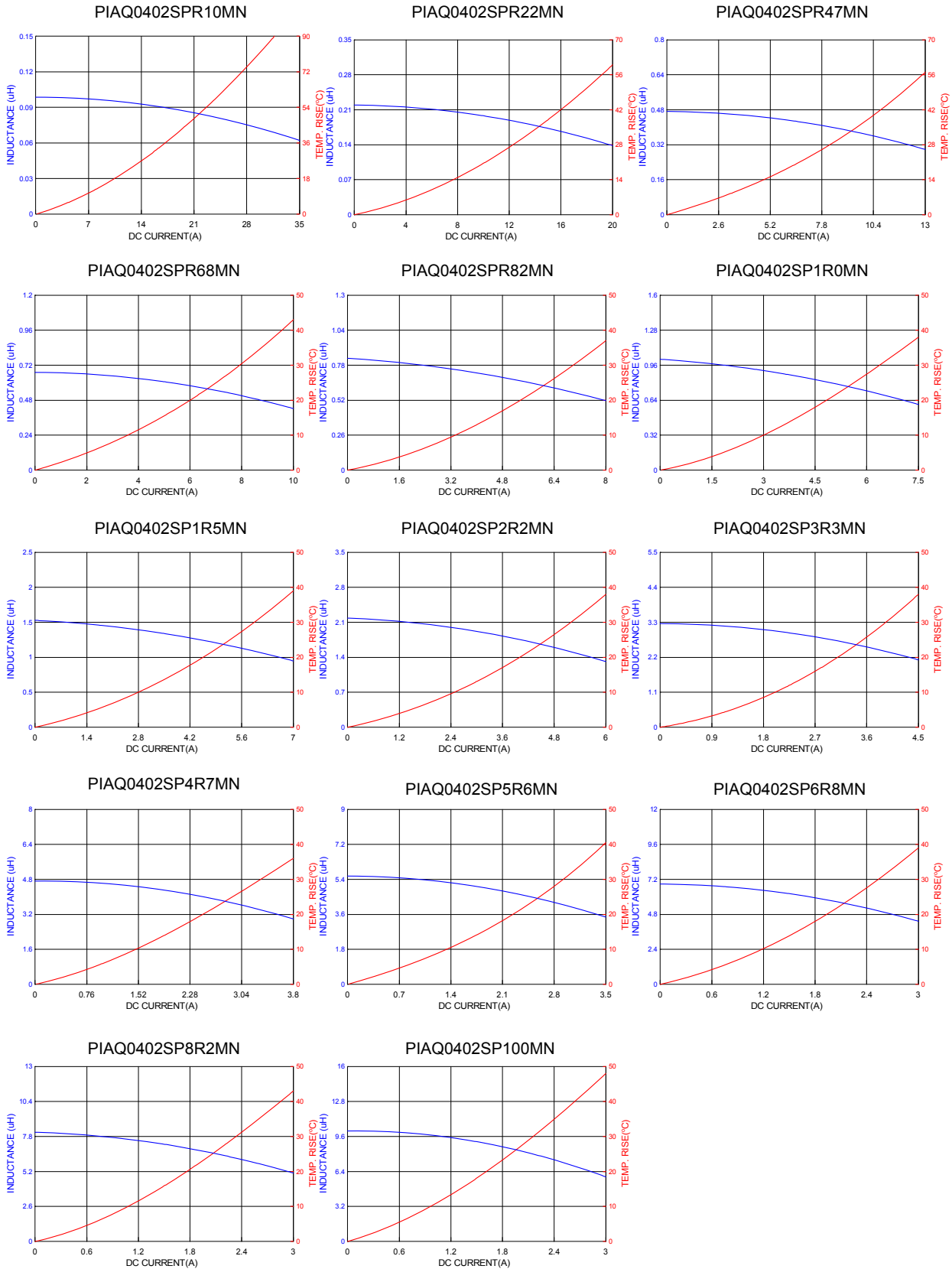
6. Electrical Characteristics:

Part Number	Inductance L (uH) ±20% @ 0A	Test Frequency (Hz)	I _{rms} (A) Typ.	I _{rms} (A) Max.	I _{sat} (A) Typ.	I _{sat} (A) Max.	DCR (mΩ) Typ.	DCR (mΩ) Max.
PIAQ0402SPR10MN	0.10	1.0V/100K	16.0	14.0	26.0	22.0	2.9	3.2
PIAQ0402SPR22MN	0.22	1.0V/100K	14.0	12.5	15.0	13.0	4.8	5.5
PIAQ0402SPR47MN	0.47	1.0V/100K	10.0	9.0	9.0	8.0	9.5	11.0
PIAQ0402SPR68MN	0.68	1.0V/100K	9.0	8.0	7.6	6.6	11.6	13.5
PIAQ0402SPR82MN	0.82	1.0V/100K	8.0	7.0	6.0	5.5	16.3	18.8
PIAQ0402SP1R0MN	1.00	1.0V/100K	7.5	6.5	5.5	5.0	19.0	22.0
PIAQ0402SP1R5MN	1.50	1.0V/100K	6.7	5.8	5.2	4.8	27.0	31.0
PIAQ0402SP2R2MN	2.20	1.0V/100K	5.5	5.0	4.5	4.0	41.0	48.0
PIAQ0402SP3R3MN	3.30	1.0V/100K	4.5	3.5	3.1	2.7	65.0	75.0
PIAQ0402SP4R7MN	4.70	1.0V/100K	3.8	3.2	2.8	2.5	84.0	95.0
PIAQ0402SP5R6MN	5.60	1.0V/100K	3.2	2.8	2.6	2.3	97.0	115
PIAQ0402SP6R8MN	6.80	1.0V/100K	2.9	2.5	2.4	2.1	131	157
PIAQ0402SP8R2MN	8.20	1.0V/100K	2.6	2.3	2.2	2.0	140	168
PIAQ0402SP100MN	10.0	1.0V/100K	2.4	2.2	2.1	1.9	165	215

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7. Characteristics Curves:



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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

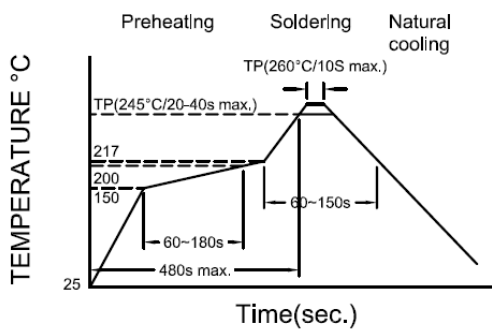
Recommended temperature profiles for re-flow soldering in Figure 1.

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.

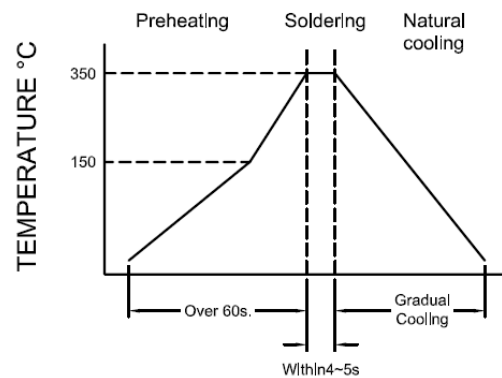
Note:

- 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

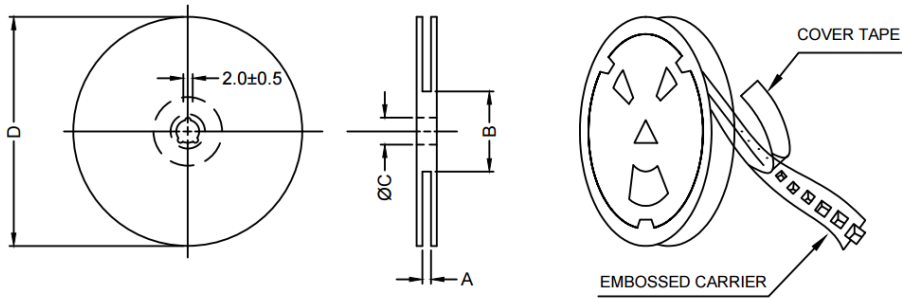
Fig.2

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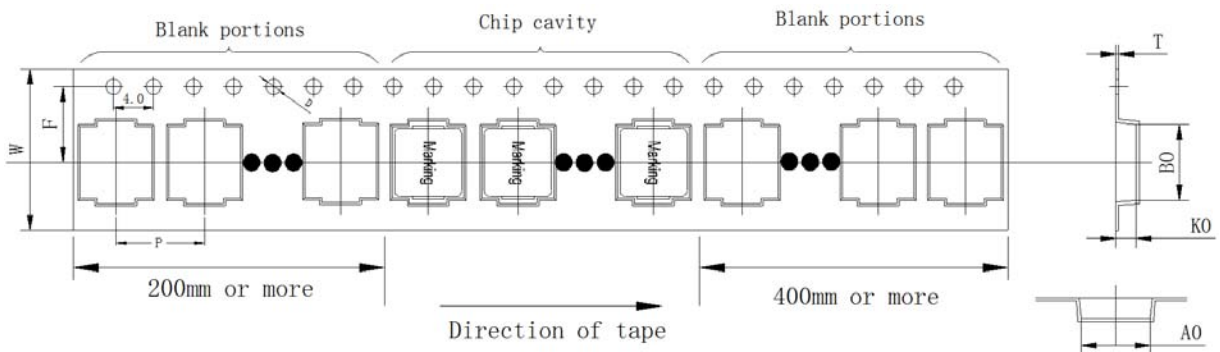
9. Packaging Information:

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)
PIAQ	0402	5.0±0.1	4.4±0.1	2.3±0.1	8.0±0.1	12.0±0.3	5.5±0.1	0.35±0.05	1.5±0.1

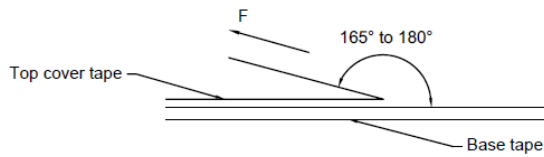
9-3 Packaging Quantity

PIAQ	0402
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. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

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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