SMD Power Inductor – PIMQ252012A *Series*

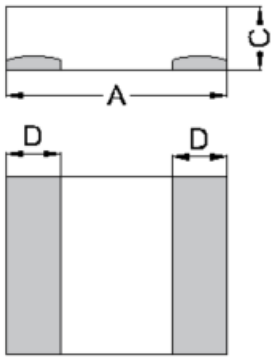
1. Part No. Expression

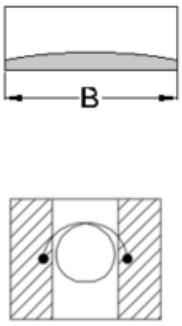
P I M Q 2 5 2 0 1 2 A R 2 4 M N

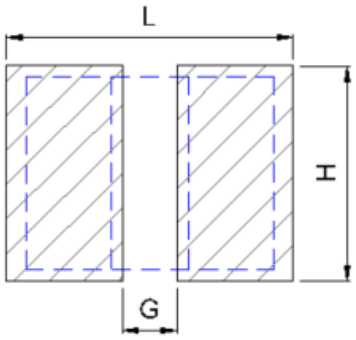
(a) (b) (c) (d) (e) (f)

(a)	Series Code	(d)	Inductance Code
(b)	Dimension Code	(e)	Tolerance Code
(c)	Material Code	(f)	Special Code

2. Configuration & Dimensions (Unit: mm)







Recommended PCB Pattern

A(mm)	B(mm)	C(mm)	D(mm)	L(mm)	G(mm)	H(mm)
2.5±0.3	2.0±0.3	1.0±0.2	0.9±0.3	2.9 Ref	0.5 Ref	2.3 Ref

3. General Specification

(a) Reliability test for this part meets AEC-Q200 standard.

(b) Operating Temp.: -55°C to +150°C (Inclusive of coil temp rise).

(c) Storage Temp.: -55°C to +150°C (on board).

(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) Rated DC current: The lower value of Irms and Isat.

(g) The part temperature (ambient + temp rise) should not exceed 150°C under worst case operating conditions.

(h) Rated voltage 25V DC. The application of voltage depends on many factors, over voltage may cause components failure、high temperature、and burn-out.

(i) Storage condition (component in its packaging)

i) Temperature: Less than 40°C

ii) Humidity: Less than 60% RH

4. Electrical Characteristics

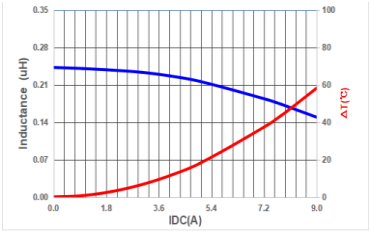
Part No.	Inductance @0A (μH) ± 20%	Irms (A) Typ	Irms (A) Max	Isat (A) Typ	Isat (A) Max	DCR (mΩ) Typ	DCR (mΩ) Max	Operating Voltage (V) Max
PIMQ252012AR24MN	0.24	7.3	6.8	7.8	7.2	11.0	13.2	15
PIMQ252012AR33MN	0.33	6.8	6.3	7.5	6.8	14.0	17.0	15
PIMQ252012AR47MN	0.47	6.2	5.6	6.2	5.6	15.0	18.0	15
PIMQ252012AR68MN	0.68	5.3	4.9	5.5	5.0	23.0	27.6	15
PIMQ252012A1R0MN	1.00	4.5	4.2	5.0	4.2	33.0	39.6	15
PIMQ252012A1R5MN	1.50	3.7	3.4	4.0	3.5	43.0	51.6	15
PIMQ252012A2R2MN	2.20	3.1	2.8	3.4	3.1	66.0	79.2	15
PIMQ252012A3R3MN	3.30	2.4	2.2	3.0	2.7	115	138	15
PIMQ252012A4R7MN	4.70	2.0	1.8	2.8	2.5	170	204	15

Note:

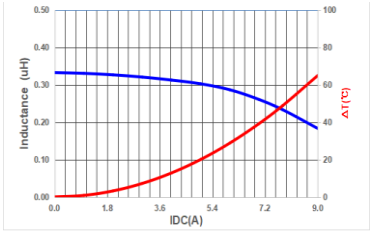
1. Test Frequency: 1.0V/100kHz
2. All test data referenced to 25°C ambient

5. Characteristics Curve

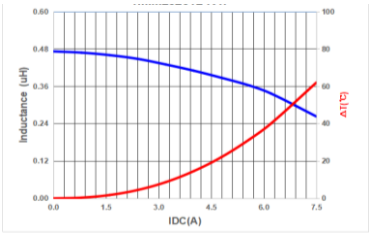
PIMQ252012AR24MN



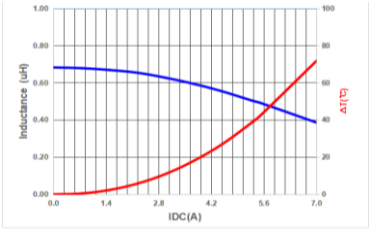
PIMQ252012AR33MN



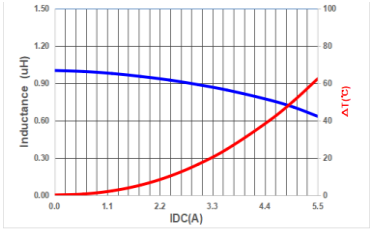
PIMQ252012AR47MN



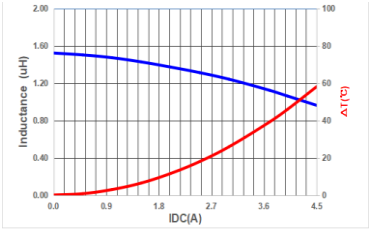
PIMQ252012AR68MN



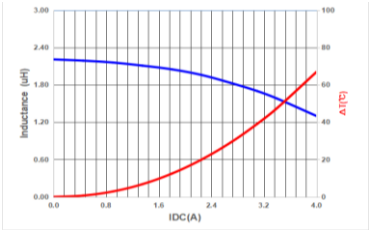
PIMQ252012A1R0MN



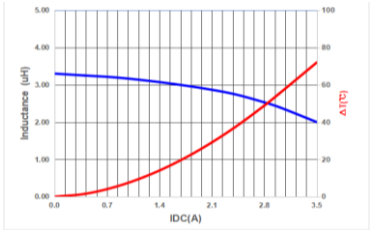
PIMQ252012A1R5MN



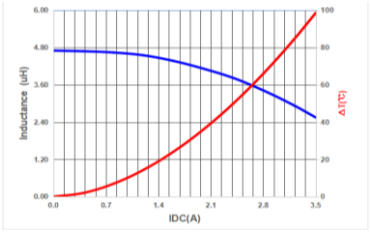
PIMQ252012A2R2MN



PIMQ252012A3R3MN



PIMQ252012A4R7MN



6. Soldering Specifications

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

6-1 IR Soldering Reflow

Recommended temperature profiles for lead free re-flow soldering in Figure 1. Table 1.1 & 1.2 (J-STD-020E).

6-2 Iron Reflow (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) 280°C tip temperature (Max.)

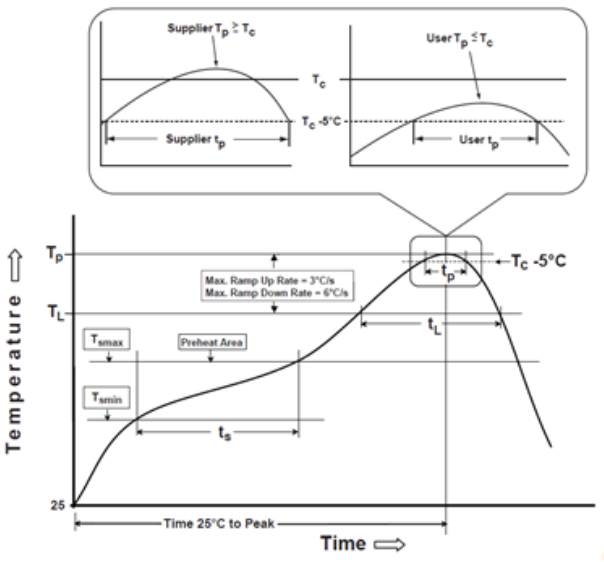
c) Never contact the ceramic with the iron tip.

d) 1.0mm tip diameter (Max.)

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

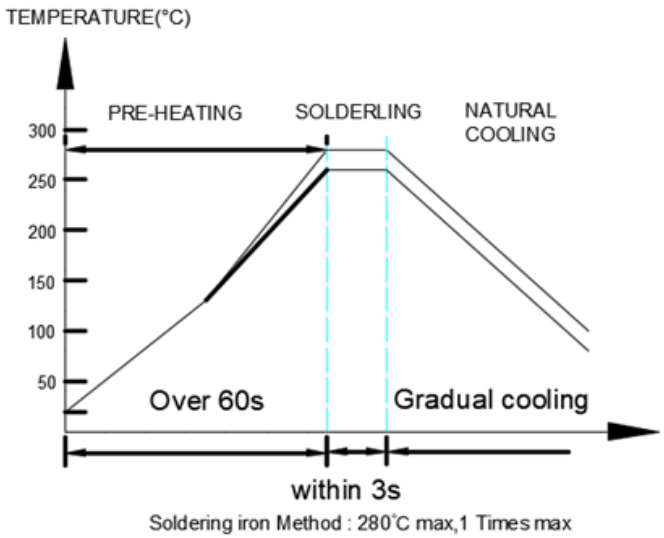
f) Limit soldering time to 3 secs.

Fig.1 IR Soldering Reflow



Reflow times: 3 times max

Fig.2 Iron soldering temperature profiles



Soldering iron Method : 280°C max,1 Times max

Table1.1: Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min (T_{smin}) -Temperature Max (T_{smax}) -Time(t_s) from (T_{smin} to T_{smax})	 150°C 200°C 60-120seconds
Ramp-up rate ($T_L$to T_p)	3°C /second max.
Liquidus temperature (T_L) Time(t_L)maintained above T_L	217°C 60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time(t_p) at Tc- 5°C (Tp should be equal to or less than Tc.)	< 30 seconds
Ramp-down rate (T_p to T_L)	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc.**

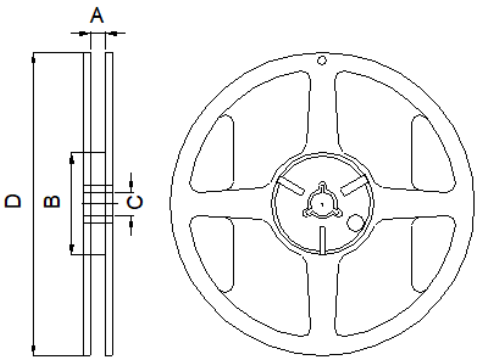
Table 1.2: Package Thickness/Volume and Classification Temperature (Tc)

	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E.

7. Packaging Information

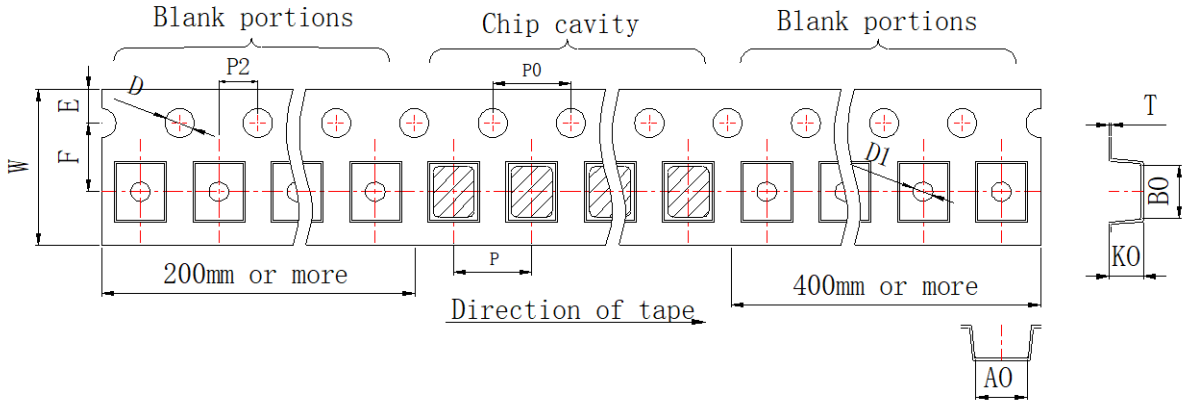
7-1. Reel Dimension (Unit: mm)



7"x8mm

Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	8.4+1.5/-0.0	50 min	13+5.5/-0.2	178±2.0

7-2. Tape Dimension (Unit: mm)



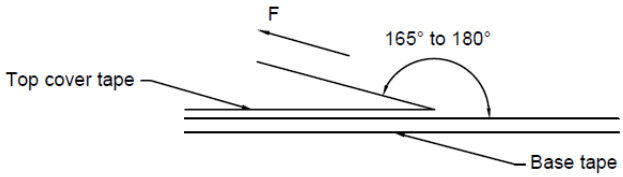
B0(mm)	A0(mm)	K0(mm)	W(mm)	P(mm)	P0(mm)
2.9±0.1	2.45±0.1	1.35±0.1	8.0±0.1	4.0±0.1	4.0±0.1
P2(mm)	E(mm)	F(mm)	T(mm)	D/D1(mm)	
2.0±0.1	1.75±0.1	3.5±0.1	0.24±0.05	1.5+0.1/-0.0	

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

7-3. Packaging Quantity

Chip/ Reel	2,000

7-4. Tearing Off Force



The force for tearing off cover tape is 10 to 100 grams in the arrow direction under the following conditions. (referenced ANSI/EIA-481-D-2008 of 4.11 standard).

Room Temp (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5 - 35	45 - 85	860 - 1060	300±10

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.