APPROVAL SHEET

PRODUCT	**Multilayer Power Inductor (MIP)**
SERIES	MIP
PART NO.	
DESCRIPTION	
ISSUE DATE	2024/04/17
REVISION DATE	2024/04/17
REFERENCE NO.	ENS000023130

RoHS COMPLIANCE ITEM

Halogen Free

CUSTOMER APPROVAL

CUSTOMER _____ **CUSTOMER PN** _____

■ **Vendor:** Walsin Technology Corporation
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■ **Manufacturer:** INPAQ Technology Co., Ltd.
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Note:
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Multilayer Power Inductor (MIP Series)

Engineering Specification

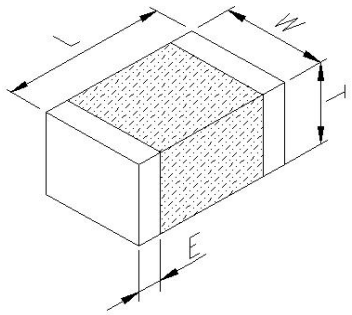
1. Features

- The monolithic construction performs high reliability and ensures a closed magnetic flux in a component avoids magnetic leakage and interference .
- Allow for higher mounting density.
- Low DC resistance.

2. Applications

- Suitable for DVD , DSC , PND , PC , NB , Power Line

3. Shapes and Dimensions



TYPE	2012 (EIA0805)	2016 (EIA0806)
L	2.00±0.20	2.00±0.20
W	1.25±0.20	1.60±0.20
T	0.90±0.10	0.90±0.10
E	0.50±0.30	0.50±0.30
Unit	mm	

4. Explanation of Part Number

MIP	2012	2R2	M	B	E
1	2	3	4	5	6

1 Series Name
2 Size Code : The first two digitals: length(mm)，the last two digitals: width(mm)
3 Inductance : R = Decimal point，Unit = μH
4 Tolerance : M = ±20%
5 Soldering : Green Parts，B= Lead-Free for whole chip
6 Packaging : E = Embossed plastic tape, 7" reel

5. Electrical Specification

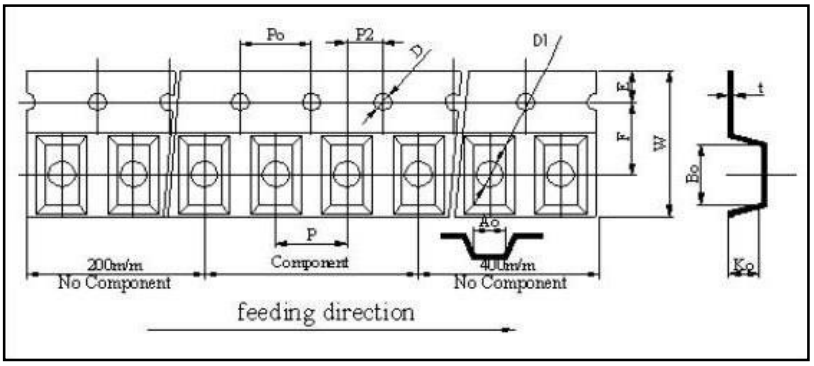
Part Number.	Inductance±20% (μH)	Test Freq. (MHz)	SRF (MHz)	DCR±25% (Ω)	Rated Current (mA)
2012 Series					
MIP2012 1R0MBE	1.00	1	90	0.100	1100
MIP2012 2R2MBE	2.20	1	70	0.170	900
MIP2012 3R3MBE	3.30	1	50	0.200	800
MIP2012 4R7MBE	4.70	1	40	0.230	700
2016 Series					
MIP2016 2R2MBE	2.20	1	40	0.120	1100
MIP2016 4R7MBE	4.70	1	20	0.160	900
Test Instruments and Conditions	•HP4291B-RF Impedance / Material Analyzer •HP4338A/B Milliohm meter Test Frequency : 1 MHz / OSC Level : 100mV				

*1：For special part number which is not shown in the above table, please refer to appendix.

*2：Apply DC 0.4 ~ 0.6A to chip for 1 ~ 3 sec. before to measure inductance

6. Packing

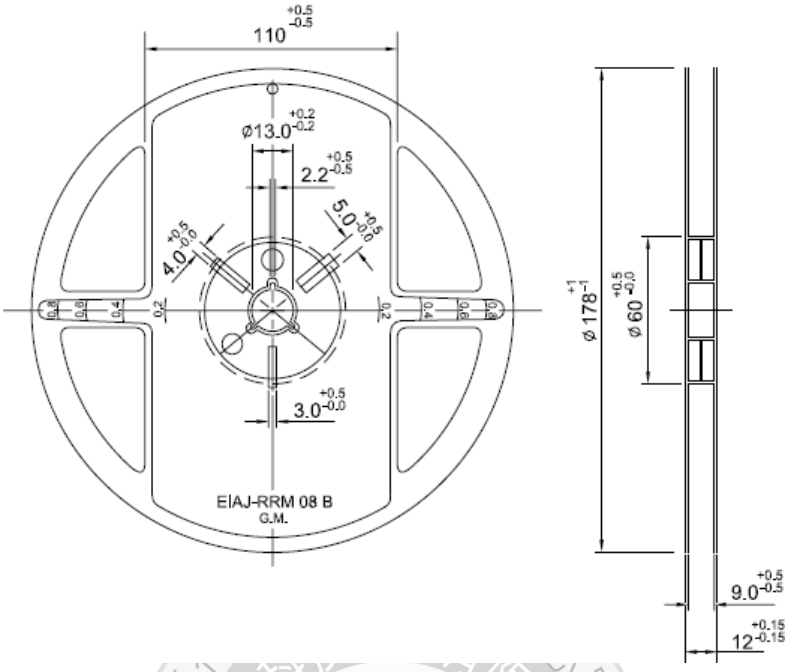
- **Plastic Carrier (E)**



- **Taping Dimension**

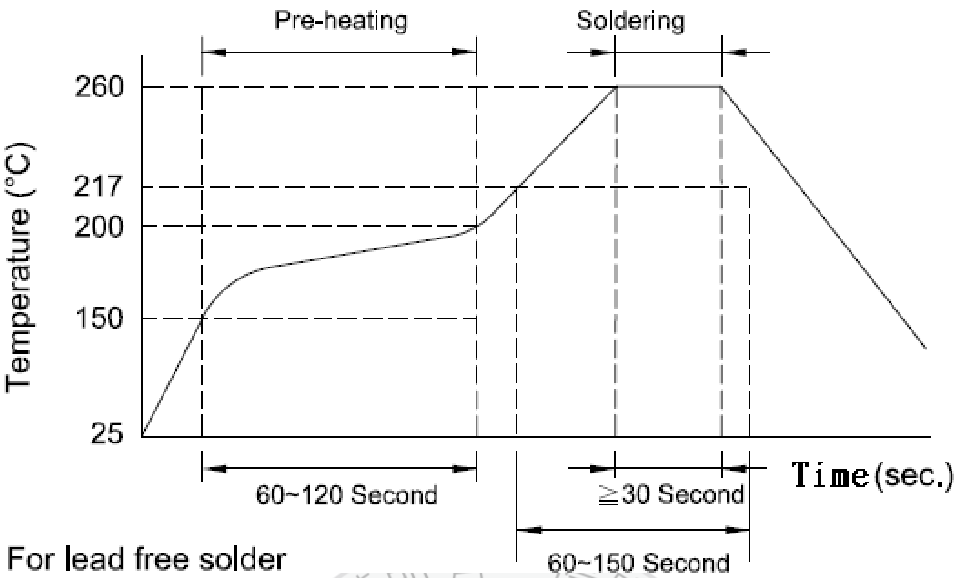
(mm)	2012	2016
Symbol	**E**	**E**
W	8.00 ± 0.10	8.00 ± 0.10
P	4.00 ± 0.10	4.00 ± 0.10
E	1.75 ± 0.10	1.75 ± 0.10
F	3.50 ± 0.10	3.50 ± 0.10
D	1.55 ± 0.05	1.55 ± 0.05
D1	1.00 ± 0.05	1.00 ± 0.05
Po	4.00 ± 0.10	4.00 ± 0.10
10Po	40.0 ± 0.20	40.0 ± 0.20
P2	2.00 ± 0.10	2.00 ± 0.10
Ao	1.40 ± 0.10	1.80 ± 0.10
Bo	2.30 ± 0.10	2.20 ± 0.10
Ko(T)	1.13 ± 0.10	1.15 ± 0.10
t	0.22 ± 0.05	0.22 ± 0.05

- **Reel Dimension**



PART SIZE (EIA SIZE)	**2012 (0805)**	**2016 (0806)**
Qty.(pcs)	3,000	3,000
BOX	5 reels / inner box	5 reels / inner box

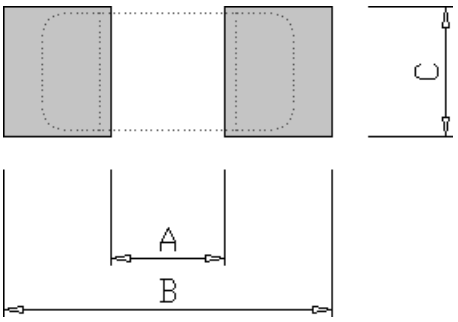
7. Recommended Soldering Conditions



For lead free solder

8. Land Patterns Reflow Soldering

- **Solder Land Information**



Size(mm)	A	B	C
2012	1.0 ~ 1.2	3.0 ~ 4.0	0.8 ~ 1.1
2016	1.0 ~ 1.2	3.0 ~ 4.0	1.0 ~ 1.5

9. Reliability Performance

Test item	Test condition	Criteria
Resistance to Solder Heat	1. Solder temperature : 260 ± 5℃ 2. Flux : Rosin 3. DIP time : 10 ± 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. No mechanical damage 3. Inductance value should be within ± 20 % of the initial value * Apply DC 0.4 ~ 0.6A to chip for 1 ~ 3 sec. before to measure inductance.
Solderability	1. Solder temperature : 235 ± 5℃ 2. Flux : Rosin 3. DIP time : 5 ± 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. No mechanical damage

Test item	Test condition	Criteria
Adhesive Test	1. Reflow temperature : 245℃ It shall be Soldered on the substrate applying direction parallel to the substrate 2. Apply force(F) : 5 N 3. Test time : 10 sec	1. No mechanical damage 2. Soldering the products on PCB after the pulling test force > 5 N
Temperature Cycle	1. Temperature:-40 ~ 85℃ For 30 minutes each 2. Cycle: 100 cycles 3. Measurement:At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within ±20% of the initial value * Apply DC 0.4 ~ 0.6A to chip for 1 ~ 3 sec. before to measure inductance.
High Temperature Resistance	1. Temperature: 85 ± 5℃ 2. Testing time: 1000 hrs 3. Measurement: at ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within ±20% of the initial value * Apply DC 0.4 ~ 0.6A to chip for 1 ~ 3 sec. before to measure inductance.
Humidity	1. Temperature: 40℃ ± 2℃ 2. Humidity: 90-95 % RH 3. Testing time: 1000 hrs 4. Measurement:At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within ±20% of the initial value * Apply DC 0.4 ~ 0.6A to chip for 1 ~ 3 sec. before to measure inductance.
Rated Current	At ambient temperature & humidity Testing time:5 minutes (under full rated current)	MIP product surface temp：below room temperature plus 40℃

10. General Technical Data

- Operating temperature range : - 40℃ ~ +85℃
- Storage Condition : Less than 40℃ and 70% RH
- Storage time : 12 months Max.
- Soldering method : Reflow