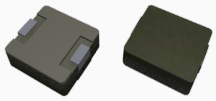
COIL SPECIFICATION

Brand	ZenithTek
Product Series Code	ZPWM-4012ML-Series
File Version	V1.2
Description	SMD Molding Power Inductor



Features

- High Rated Current.
- Low DC Resistance.
- High Frequency Range from 1MHz to 5MHz.
- Halogen Free, Lead Free, RoHS and REACH Compliance.

Applications

- DC to DC Converter.
- Computing, Mobile, Networking.
- IoT, Gaming, Audio Devices.
- Industrial PC, Storage Devices.

Product Identification

ZPWM	-	4012	M	L	-	1R0	M
1		2	3	4		5	6

1.Product Code:
ZPWM = ZenithTek Code.

2.Dimension Code:
4012 = 4.4 * 4.2 * 1.2 mm.

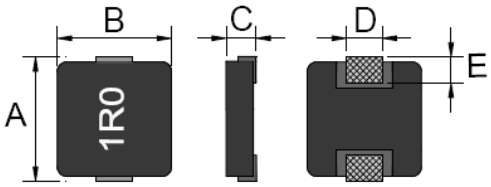
3.Type Code:
M = Molding Type.

4.Marking Code:
L = Ink.

5.Inductance Code:
1R0 = 1.0μH.

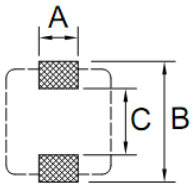
6.Tolerance Code:
M = 20%.

Dimension (Unit: mm)



Type	A	B	C(Max.)	D(Ref.)	E(Ref.)
ZPWM-4012	4.40±0.35	4.20±0.25	1.20	2.00	0.80

Land Pattern (Unit: mm)



Type	A(Ref.)	B(Ref.)	C(Ref.)
ZPWM-4012	2.50	5.20	2.20

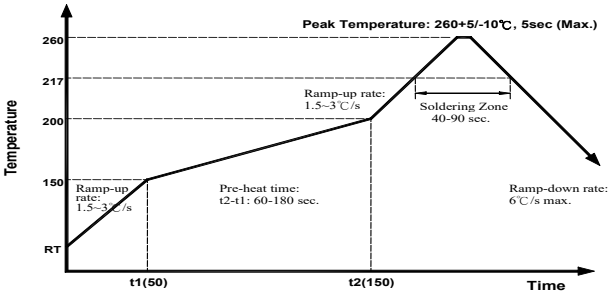
Product Structure



Schematic



Reflow Heat Endurance



Operating & Storage Conditions

Operating Temp. : -55°C~+125°C (including self-temp. rise)
Storage Temp. : -55°C~+125°C (for PCBA)

Standard & Atmospheric Conditions

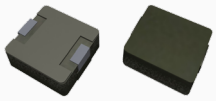
Ambient Temp. : 20°C±15°C / Relative Humidity : 65±20%.
If there may be any doubt on the result, measurement shall be made within the following limits :
Ambient Temp. : 25°C±5°C / Relative Humidity : 75±10%.

Test Equipment

LCR Meter : WK-3260B / DC Source : WK-3265B.
Micro ohm Meter : HIOKI-RM3545.
Caliper : Mitsutoyo 150mm.

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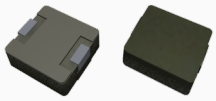
Electrical Characteristic

Part Number	Inductance (μH)@0A	Tolerance (%)	Test Frequency (KHz)/1V/0A	DCR (mΩ/Typ.)	DCR (mΩ/Max.)	Heat Rating Current IDC(Amp./Typ.)	Saturation Current Isat(Amp./Typ.)
ZPWM-4012ML-R47☐	0.47	20	100	19.0	21.0	6.00	6.80
ZPWM-4012ML-1R0☐	1.00	20	100	43.0	47.0	4.50	5.50
ZPWM-4012ML-2R2☐	2.20	20	100	79.4	83.5	2.75	3.50
ZPWM-4012ML-4R7☐	4.70	20	100	175.0	195.0	1.80	2.80

Note 1: Tolerance Code: M= ±20%.
Note 2: All test data is referenced to 25°C ambient.
Note 3: Operating Temperature Range -55°C to +125°C.
Note 4: Typical Heat Rating DC Current would cause an approximately ΔT of 40°C.
Note 5: Typical Saturation DC Current would cause L0 to drop approximately 30%.
Note 6: The Part temperature (ambient + ΔT) should not exceed 125°C under worst case operating conditions.
Note 7: Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all effect the part temperature. Part temperature should be verified in the end application.

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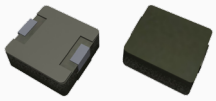


Reliability Test

No.	Item	Specification	Test Method
1	Temperature Shock.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: -55±2℃~+125±2℃ Kept for 30 minutes. Transition time : 5 minutes. 100 Cycles.
2	Humidity Resistance.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: 40±2℃. Relative Humidity: 90%. Duration: 500 +4/-0 hours.
3	High Temperature Resistance.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: 125±2℃. Duration: 1000 +4/-0 hours.
4	Low Temperature Resistance.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: -55±2℃. Duration: 1000 +4/-0 hours.
5	Vibration test.	Appearance: No damage. Inductance: within ±10% of initial.	Oscillation Frequency: 10Hz to 55Hz to 10Hz in 60 seconds as a period. Total amplitude: 1.5mm. Testing Time: a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).
6	Solderability Heat test.	Appearance: No damage. Inductance: within ±10% of initial.	Solder temperature: 260 +0/-5℃. Duration: 5 sec. Allowed reflow time: 2 times.
7	Solderability test.	90% or more of electrode area shall be coated by new solder.	Preheating: 160℃,60sec. Solder temperature: 245±5℃. Duration : 5 sec.
8	Flexure Strength.	No visible mechanical damage.	Flexure: 2mm. Pressurizing Speed: 0.5mm/sec. Keep time: 30±1sec.
9	Terminal Strength.	No visible mechanical damage.	Reflow 2 times. Force: 10N，Keep time: 5 sec，X,Y directs.

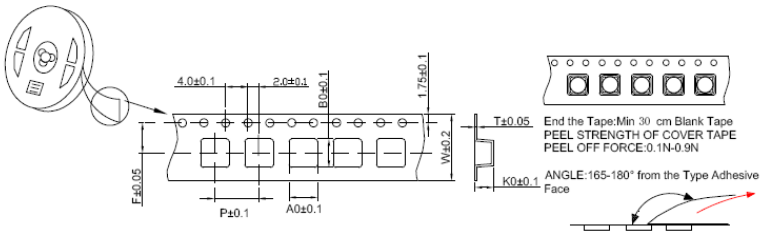
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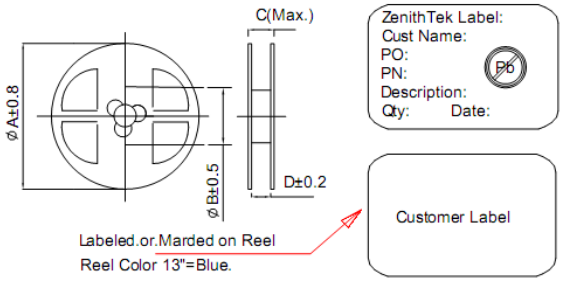
Package

Taping Dimension (mm)



Size(mm)	W	P	A0	B0	K0	T	F
ZPWM-4012ML	12.00	8.00	4.50	4.80	1.40	0.35	5.50

Reel Dimension (mm)



Size(mm)	A	B	C	D	Reel/Size	Qty./Size
ZPWM-4012ML	330	100	16.5	12.5	13”	3000 Pcs

Box Dimension (mm)

