

COIL SPECIFICATION



ZenithTek

Brand

Product Series Code

File Version

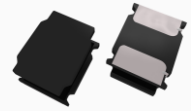
Description

ZenithTek

ZADP - (SQUARE) - SERIES

V0

SMD Low Profile Magnetic Epoxy Inductor



Features

- High Rated Current
- Low DC Resistance
- A Series of Package Size and Wide Inductance Range
- 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

ZADP - 4012 ME S - 2R2 M

1 2 3 4 5 6

1.Product Code:
ZADP = ZenithTek Code.

4.Material Code:
S = Material.

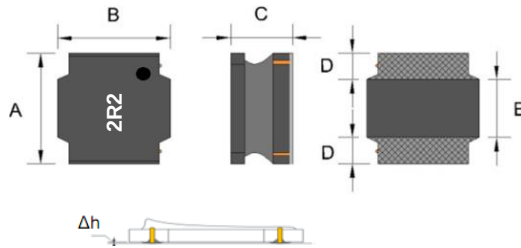
2.Dimension Code:
4012 = 4.0 * 4.0 * 1.2 mm.

5.Inductance Code:
2R2 = 2.2μH.

3.Type Code:
ME = Magnetic Epoxy Type.

6.Tolerance Code:
M = 20%.

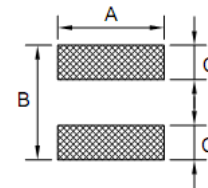
Dimension (Unit: mm)



Δh: Clearance between terminal and the surface of plate must be 0.1mm max when coil is placed on a flat plate.

Type	A(±0.2)	B(±0.2)	C(Max.)	D(Ref.)	E(Ref.)
ZADP-4012	4.00	4.00	1.20	0.95	2.10
ZADP-4020	4.00	4.00	2.00	0.95	2.10

Land Pattern (Unit: mm)

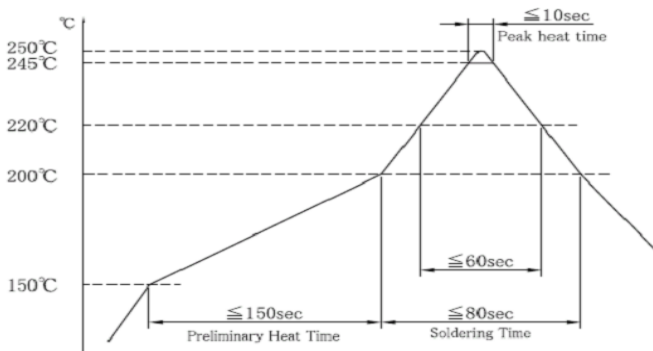


Type	A(Ref.)	B(Ref.)	C(Ref.)
ZADP-4012	3.70	4.10	1.10
ZADP-4020	3.70	4.10	1.10

Product Structure



Reflow Heat Endurance



Schematic



Operating & Storage Conditions

Operating Temp. : -40°C~+125°C (including self-temp. rise)
Storage Temp. : -40°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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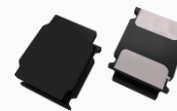
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Electrical Characteristic

Part Number	Inductance (μ H)	Tolerance (%)	Test Frequency (MHz)/(1V)	SRF(MHz) (Min.)	DCR (Ω)/(Max.)	DCR (Ω)/(Typ.)	Saturation Current (Isat) (A)/(Max.)	Saturation Current (Isat) (A)/(Typ.)	Temperature Current (Irms) (A)/(Max.)	Temperature Current (Irms) (A)/(Typ.)
ZADP-4012MES-R33M	0.33	20	1	113	0.032	0.027	10.30	11.50	4.30	4.90
ZADP-4012MES-R47M	0.47	20	1	96	0.041	0.034	9.10	9.90	3.80	4.40
ZADP-4012MES-R68M	0.68	20	1	70	0.041	0.034	5.50	6.35	3.80	4.40
ZADP-4012MES-1R0M	1.00	20	1	55	0.059	0.049	5.70	6.60	3.20	3.70
ZADP-4012MES-1R2M	1.20	20	1	48	0.059	0.049	4.00	4.80	3.20	3.70
ZADP-4012MES-1R5M	1.50	20	1	38	0.070	0.058	3.90	4.60	2.90	3.30
ZADP-4012MES-2R2M	2.20	20	1	28	0.079	0.066	2.80	3.30	2.70	3.10
ZADP-4012MES-3R3M	3.30	20	1	23	0.125	0.104	2.80	3.30	2.10	2.50
ZADP-4012MES-4R7M	4.70	20	1	19	0.166	0.138	2.30	2.60	1.90	2.20
ZADP-4012MES-6R8M	6.80	20	1	17	0.226	0.188	1.60	2.20	1.60	1.85
ZADP-4012MES-100M	10	20	1	12	0.335	0.279	1.55	1.85	1.30	1.50
ZADP-4012MES-220M	22	20	1	7	0.679	0.566	1.05	1.30	0.90	1.05

Note 1: Tolerance Code: M= $\pm 20\%$, N= $\pm 30\%$.

Note 2: Definition of saturation current (Isat): DC current at which the inductance drops approximate 30% from its value without current.

Note 3: Definition of temperature rise current (Irms): DC current that causes the temperature rise ($\Delta T = 40^\circ\text{C}$) from 20°C ambient.

Note 4: The part temperature (ambient + temp. rise) should not exceed 125°C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should verified in the end application.

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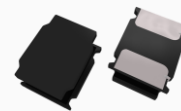
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ZADP-4020MES-R22M	0.22	20	1	108	0.013	0.011	18.70	22.00	8.20	9.50
ZADP-4020MES-R47M	0.47	20	1	72	0.022	0.018	13.40	15.50	6.40	7.40
ZADP-4020MES-R68M	0.68	20	1	57	0.022	0.018	8.70	11.10	6.40	7.40
ZADP-4020MES-1R0M	1.00	20	1	37	0.026	0.022	8.70	11.10	5.80	6.70
ZADP-4020MES-1R5M	1.50	20	1	30	0.036	0.030	7.70	9.60	5.20	6.00
ZADP-4020MES-2R2M	2.20	20	1	25	0.048	0.040	6.10	7.60	4.30	5.00
ZADP-4020MES-3R3M	3.30	20	1	19	0.072	0.060	4.70	5.90	3.45	4.00
ZADP-4020MES-4R7M	4.70	20	1	17	0.108	0.090	4.00	4.90	2.85	3.30
ZADP-4020MES-6R8M	6.80	20	1	13	0.156	0.130	3.00	4.20	2.40	2.80
ZADP-4020MES-100M	10	20	1	11	0.216	0.180	2.80	3.50	2.00	2.35

Note 1: Tolerance Code: M= $\pm 20\%$, N= $\pm 30\%$.

Note 2: Definition of saturation current (Isat): DC current at which the inductance drops approximate 30% from its value without current.

Note 3: Definition of temperature rise current (Irms): DC current that causes the temperature rise ($\Delta T = 40^\circ\text{C}$) from 20°C ambient.

Note 4: The part temperature (ambient + temp. rise) should not exceed 125°C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should verified in the end application.

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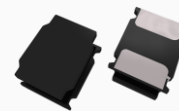
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Reliability Test

No.	Item	Specification	Test Method
1	Temperature Shock.	Appearance: No damage. Inductance: within $\pm 10\%$ of initial.	Temperature: $-40\pm 2^{\circ}\text{C}$ ~ $+125\pm 2^{\circ}\text{C}$ Kept for 30 minutes. Transition time : 5 minutes. 100 Cycles.
2	Humidity Resistance.	Appearance: No damage. Inductance: within $\pm 10\%$ of initial.	Temperature: $40\pm 2^{\circ}\text{C}$. Relative Humidity: 90%. Duration: 500 +4/-0 hours.
3	High Temperature Resistance.	Appearance: No damage. Inductance: within $\pm 10\%$ of initial.	Temperature: $125\pm 2^{\circ}\text{C}$. Duration: 1000 +4/-0 hours.
4	Low Temperature Resistance.	Appearance: No damage. Inductance: within $\pm 10\%$ of initial.	Temperature: $-40\pm 2^{\circ}\text{C}$. Duration: 1000 +4/-0 hours.
5	Vibration test.	Appearance: No damage. Inductance: within $\pm 10\%$ 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 $\pm 10\%$ of initial.	Solder temperature: $260 +0/-5^{\circ}\text{C}$. 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°C , 60sec. Solder temperature: $245\pm 5^{\circ}\text{C}$. Duration : 5 sec.
8	Flexure Strength.	No visible mechanical damage.	Flexure: 2mm. Pressurizing Speed: 0.5mm/sec. Keep time: 30 ± 1 sec.
9	Terminal Strength.	No visible mechanical damage.	Reflow 2 times. Force: 10N , Keep time: 5 sec , X,Y directs.

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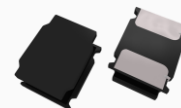
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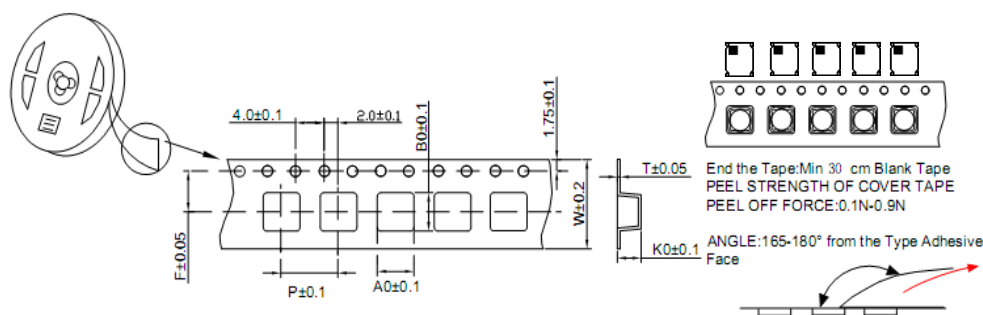
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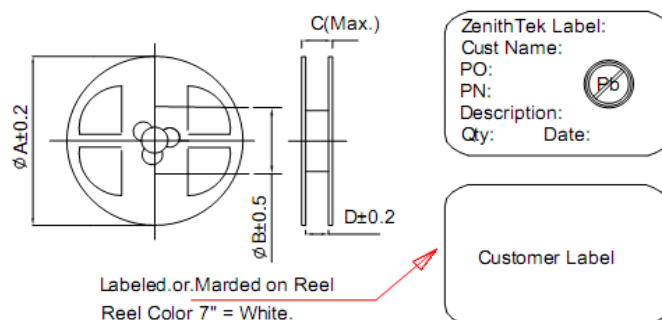
Package

Taping Dimension (mm)



Size(mm)	W	P	A0	B0	K0	T	F
ZADP-4012	12.00	8.00	4.30	4.30	1.60	0.35	5.50
ZADP-4020	12.00	8.00	4.30	4.30	2.40	0.40	5.50

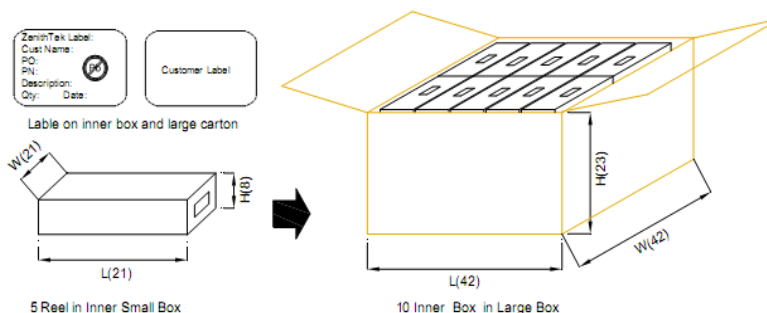
Reel Dimension (mm)



Labeled or Marked on Reel
Reel Color 7" = White.

Size(mm)	A	B	C	D	Reel/Size	Qty./Size
ZADP-4012	330	100	17.7	12.4	13"	4500 Pcs
ZADP-4020	330	100	18.4	12.4	13"	3000 Pcs

Box Dimension (mm)



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