

COIL SPECIFICATION



ZenithTek

Brand **ZenithTek**
 Product Series Code **ZBWM252012A1-Series**
 File Version **V0**
 Description **SMD Power Inductor**

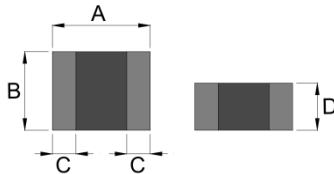
Features

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

Product Identification

ZBWM 252012 A1 R33 M S
 1 2 3 4 5 6

Dimension (Unit: mm)



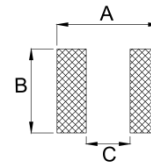
Type	A(±0.2)	B(±0.2)	C(±0.2)	D(Max.)
ZBWM252012A1	2.50	2.00	0.60	1.20

Applications

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

- 1.Product Code: ZBWM = ZenithTek Code.
- 2.Dimension Code: 252012 = 2.5 * 2.0 * 1.2 mm.
- 3.Type Code: A1.
- 4.Inductance Code: R33 = 0.33µH.
- 5.Tolerance Code: M = 20%.
- 6.Inner Code: S.

Land Pattern (Unit: mm)



Type	A(Ref.)	B(Ref.)	C(Ref.)
ZBWM252012A1	2.80	2.00	1.20

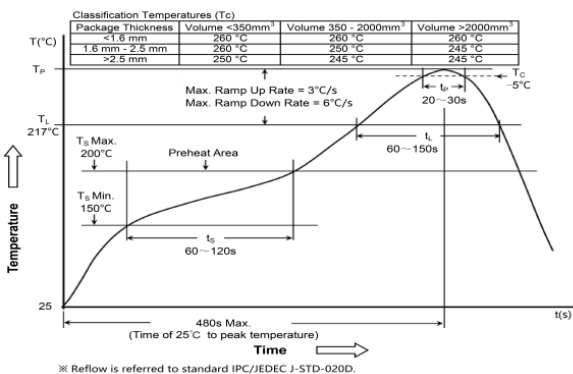
Product Structure



Schematic



Reflow Heat Endurance



Operating Conditions

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

Standard & Atmospheric Condition

Ambient Temp. : 25°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±2°C / Relative Humidity : 65±5%.

Test Equipment

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

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Electrical Characteristic

Part Number	Inductance (µH)	Tolerance (%)	Test Frequency (MHz)/0.5V	DCR (mΩ/Typ.)	DCR (mΩ/Max.)	Heat Rating Current (I _{rms}) (A)/(Typ.)	Heat Rating Current (I _{rms}) (A)/(Max.)	Saturation Current (I _{sat}) (A)/(Typ.)	Saturation Current (I _{sat}) (A)/(Max.)
ZBWM252012A1R33NS	0.33	30	1	18.5	24	5.50	4.70	8.00	6.90
ZBWM252012A1R47MS	0.47	20	1	21.5	26	5.50	4.50	6.60	5.50
ZBWM252012A1R62MS	0.62	20	1	25	30	5.50	4.40	6.50	5.40
ZBWM252012A1R68MS	0.68	20	1	25	30.	5.50	4.40	5.70	4.40
ZBWM252012A11R0MS	1.00	20	1	38	46	4.00	3.20	5.30	4.70
ZBWM252012A11R5MS	1.50	20	1	57	68	3.10	2.50	4.60	3.80
ZBWM252012A12R2MS	2.20	20	1	79	95	2.70	2.20	3.40	3.10
ZBWM252012A13R3MS	3.30	20	1	131	157	2.10	1.70	2.70	2.30
ZBWM252012A14R7MS	4.70	20	1	177	212	1.75	1.40	2.30	2.00

- Note 1: Tolerance Code: M= ±20%, N= ±30%.
- Note 2: All test data is referenced to 25°C ambient.
- Note 3: Operating Temperature Range -40°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 nominal L 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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Care Note

1 Care note for Use

- (1) Storage Condition:
Temperature and humidity conditions : <35°C and < 60%RH.
- (2) Use Temperature:
 - a. Minimum Temperature: -40°C Ambient temperature of power choke coil.
 - b. Maximum Temperature: +125°C The value of temperature including ambient of the transformer and temperature rise of power choke coil.
 - c. There is not a problem from -40°C ~ +125°C in a reliability test.
 - d. However, this is not meant a temperature grade guarantee of UL.
- (3) Model:
When this power choke coil was used in a similar or new product to the original one, sometimes it might be unable to satisfy the specifications due to difference of condition of usage.
- (4) Drop:
If the power choke coil suffered mechanical stress such as drop, characteristic may become poor (due to damage on coil bobbin, etc.). Never use such stressed power choke coil.

2 Care note for Safety

- (1) Provision to Abnormal Condition:
This power choke coil itself does not have any protective function in abnormal condition such as overload, short-circuit and open-circuit conditions, etc.
Therefore, it shall be confirmed as the end product that there is no risk of smoking, fire, dielectric withstand voltage, insulation resistance, etc. in abnormal conditions to provide protective devices and/or protection circuit in the end product.
- (2) Temperature Rise:
Temperature rise of power choke coil depends on the installation condition on end products.
It shall be confirmed on the actual end product that temperature rise of power choke coil is in the limit of specified temperature class.
- (3) Dielectric Strength:
Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.
- (4) Water:
This power choke coil must not be used in wet condition by water, coffee or any liquid because insulation strength becomes very low on the condition.
- (5) Detergent:
Please consult our company once in case of this because the confirmation of reliability etc. is needed when the washing medicine is used for the power choke coil.

3 To maintain the solderability of terminal electrodes

- (1) Recommendation: inductors should be used within 12 months from the time of delivery.
- (2) Packaging material should be kept away from where chlorine or sulfur exists.
- (3) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
- (4) The use of tweezers or vacuum pick up is strongly recommended for individual components.
- (5) Bulk handling should ensure that abrasion and mechanical shock are minimized.

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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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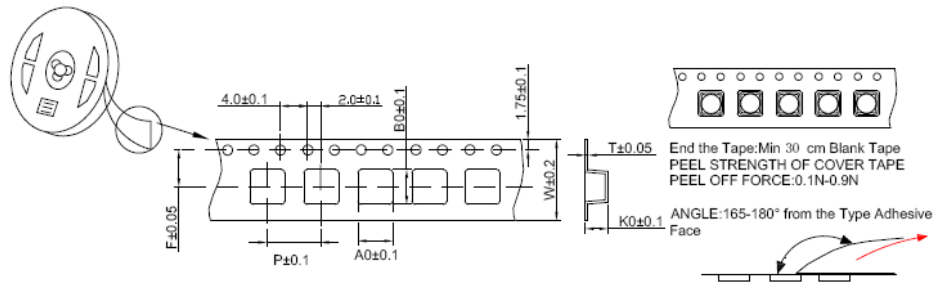


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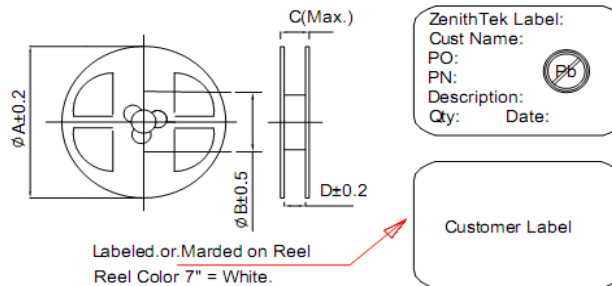
Package

Taping Dimension (mm)



Size(mm)	W	P	A0	B0	K0	T	F
ZBWM252012	8.00	4.00	2.20	2.75	1.30	0.25	3.50

Reel Dimension (mm)



Size(mm)	A	B	C	D	Reel/Size	Qty./Size
ZBWM252012	178	60	14.4	8.4	7"	3000 Pcs

Box Dimension (mm)

