

SPECIFICATIONS

Customer	
Product Name	Wire Wound SMD Power Inductors
Volume Part Number	VEPD1770 Series
Customer Part Number	L052

[New Released, Revised]

SPEC No: **VEPD1770-330M-A**

【This SPEC is total 8 pages.】

PART NO: **FIA01770-01**

【ROHS Compliant Parts】

Approved By	Checked By	Issued By

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【For Customer approval Only】

Date: _____

Qualification Status: Full Restricted Rejected

Approved By	Verified By	Re-checked By	Checked By

Comments: _____



【Version change history】

Rev.	Effective Date	Changed Contents	Change Reasons	Approved By
01	/	New released	/	Luyong Han

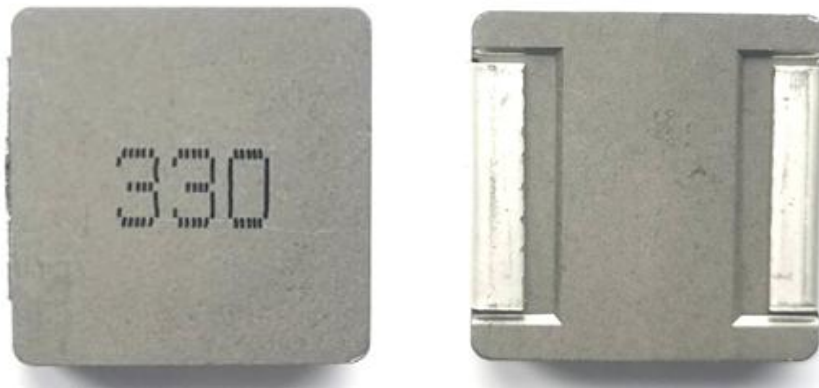
Applications:

- Laptops and PCs.
- Switchs and servers.
- Base stations, DC/DC converters.

Features :

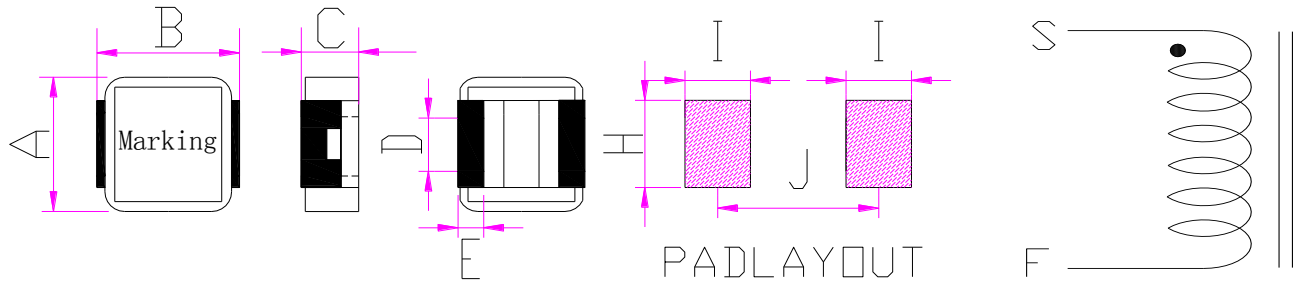
- RoHS, Halogen Free and REACH Compliance.
- High rated current.
- Ultra low buzz noise.

1. Physical drawing (Reference)



2. Dimensions in (mm)

3. Schematic



A	B	C	D	E	H	I	J
17.0±0.5	18.0±1.0	7.0Max	11.9±0.3	2.7±0.7	12.5	4.0	12.0

Characteristics :

- Saturation Current(I_{sat}):The current when the inductance Becomes 30% lower than is initial value. (T_a=20°C).
- Temperature Rise Current(I_{rms}):The current when the temperature of coil increases up to max. ΔT=40°C. (T_a=20°C).
- Operating temperature : -40°C~+125°C.
- Storage temperature range (packaging conditions): -5°C~+30°C and RH 70% (Max.)

Test equipments :

- L&Q: HP 4285A or WK3260B, VR116/VR7220.
- DCR: Milli-ohm meter, VR131.
- Electrical specifications at 25°C.

Electrical Characteristics

Part No.	Inductance (uH)	Test Frequency	RDC	Isat	Irms	Marking
			(mΩ) Max	(A) Typ.	(A) Typ.	
VEPD1770-1R0M-A	1.0 ± 20%	100KHz/0.25V	1.9	32.0	55.5	1R0
VEPD1770-1R5M-A	1.5 ± 20%	100KHz/0.25V	2.2	31.0	48.0	1R5
VEPD1770-2R2M-A	2.2 ± 20%	100KHz/0.25V	2.5	26.5	43.5	2R2
VEPD1770-3R3M-A	3.3 ± 20%	100KHz/0.25V	3.2	25.0	35.0	3R3
VEPD1770-4R7M-A	4.7 ± 20%	100KHz/0.25V	4.4	21.0	30.0	4R7
VEPD1770-6R8M-A	6.8 ± 20%	100KHz/0.25V	6.5	18.0	22.5	6R8
VEPD1770-100M-A	10 ± 20%	100KHz/0.25V	18	15.0	19.0	100
VEPD1770-150M-A	15 ± 20%	100KHz/0.25V	20.0	12.0	14.0	150
VEPD1770-220M-A	22 ± 20%	100KHz/0.25V	22.0	9.5	12.0	220
VEPD1770-330M-A	33 ± 20%	100KHz/0.25V	38.5	9.0	10.7	330
VEPD1770-470M-A	47 ± 20%	100KHz/0.25V	45.0	8.6	8.7	470
VEPD1770-560M-A	56 ± 20%	100KHz/0.25V	60.5	5.2	7.2	560
VEPD1770-680M-A	68 ± 20%	100KHz/0.25V	79.0	4.5	6.1	680
VEPD1770-101M-A	100 ± 20%	100KHz/0.25V	116.0	4.0	5.0	101

Packing method

1. Packing quantity of each reel: 300PCS/R (12-20PCS not packed at the beginning and end), affixed with the correct label, and then placed into a plastic bag (plastic bag size: 360x460mm), with a package of desiccant, sealing, reel and carrying tape dimensions. Fig. 1-1

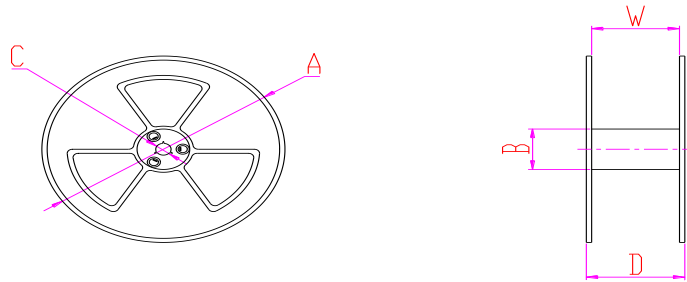
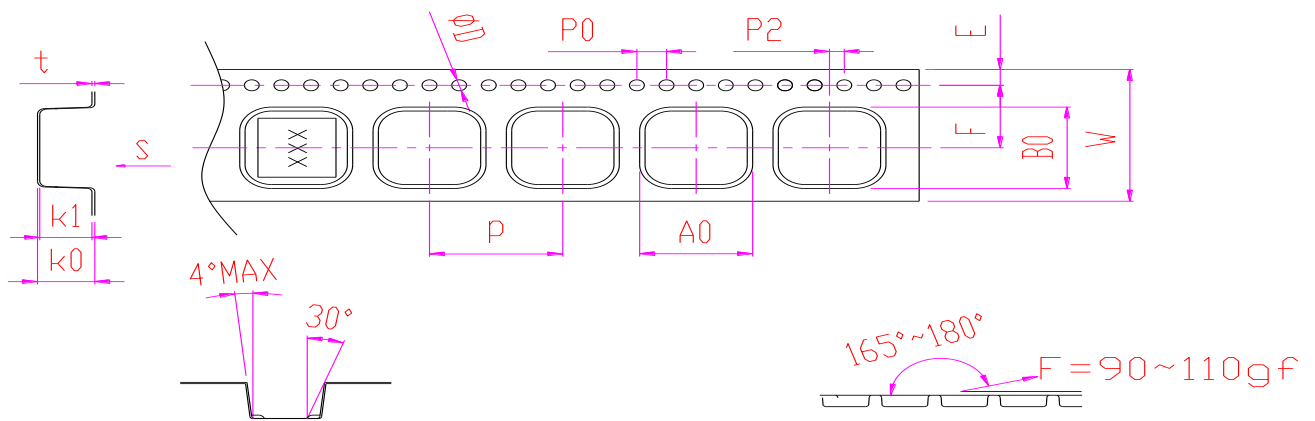


Fig .1-1

Reel dimensions , general tolerance ($\pm 0.5\text{mm}$)

A	B	C	W	D
$\Phi 330$	$\Phi 100$	$\Phi 13.5$	33.5	40.5



The general tolerance, of carrier size is $\pm < 0.2\text{mm}$.

W	A0	B0	K0	K1	P	F	E	D	P0	P2	t
32.00	18.00	18.80	7.50	7.20	24.00	15.50	1.75	1.50	4.00	2.00	0.40

- 600PCS(2volumes) per beer carton. (Beer carton size:338x338x78mm)
- Each case is packed with 1800PCS(3boxes), sealed, labeled, and the shape and size of cartons. Fig. 2-1

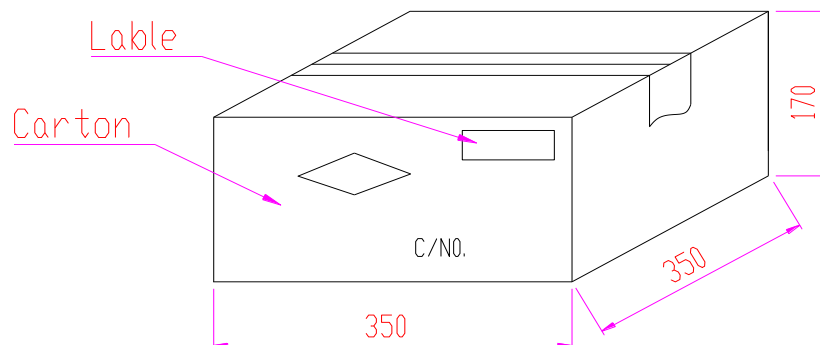
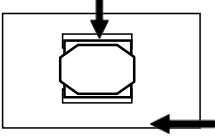
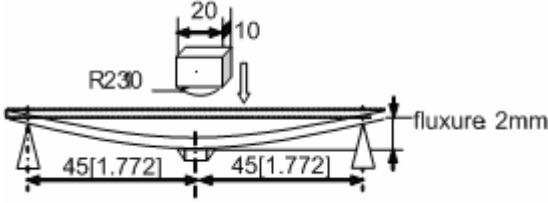
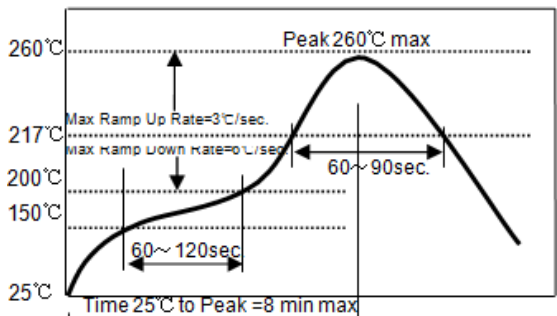
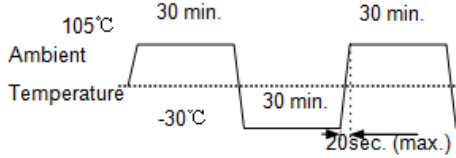


Fig. 2-1

Reliability Test:

Items	Requirements	Test Methods and Remarks
1.Terminal Strength	<p>No removal or split of the termination or other defects shall occur.</p>  <p>Fig.1-1</p>	<ol style="list-style-type: none"> ① Solder the inductor to the testing jig (glass epoxy board shown in Fig.1-1) using eutectic solder. Then apply a force in the direction of the arrow. ② 10N force. ③ Keep time: 5s
2.Resistance to Flexure	<p>No visible mechanical damage.</p>  <p>Fig.2-1</p>	<ol style="list-style-type: none"> ① Solder the chip to the test jig (glass epoxy board) using eutectic solder. Then apply a force in the direction shown as Fig.2-1. ② Flexure: 2mm ③ Pressurizing Speed: 0.5mm/sec ④ Keep time: 30±1s ⑤ Test board size: 100X40X1.0 ⑥ Land dimension: Please see
3.Vibration	<ol style="list-style-type: none"> ① No visible mechanical damage. ② Inductance change: Within ±10% 	<ol style="list-style-type: none"> ① Solder the chip to the testing jig (glass epoxy board shown as the following figure) using eutectic solder. ② The chip shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz. ③ The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).
4.Temperature coefficient	Inductance change: Within ±20%	<ol style="list-style-type: none"> ① Temperature: -40℃~+125℃ ② With a reference value of +20℃, change rate shall be calculated
5.Solderability	90% or more of electrode area shall be coated by new solder.	<ol style="list-style-type: none"> ① The test samples shall be dipped in flux, and then immersed in molten solder. ② Solder temperature: 245±5℃ ③ Duration: 5±1 sec. ④ Solder: Sn/3.0Ag/0.5Cu ⑤ Flux: 25% resin and 75% ethanol in weight ⑥ Immersion depth: all sides of mounting terminal shall be immersed
6.Resistance to Soldering Heat	<ol style="list-style-type: none"> ① No visible mechanical damage. ② Inductance change: Within ±10% 	<ol style="list-style-type: none"> ① Re-flowing Profile: Please refer to Fig. 3-1. ② Test board thickness: 1.0mm ③ Test board material: glass epoxy resin ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring  <p>Fig. 3-1</p>

7. Thermal Shock	<p>① No visible mechanical damage. ② Inductance change: Within $\pm 10\%$</p>  <p style="text-align: center;">Fig.4-1</p>	<p>① Temperature and time: $-30\pm 3^{\circ}\text{C}$ for 30 ± 3 min $\rightarrow 105^{\circ}\text{C}$ for 30 ± 3 min, please refer to Fig. 4-1. ② Transforming interval: Max. 20 sec ③ Tested cycle: 100 cycles ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring</p>
8. Resistance to Low Temperature	<p>① No visible mechanical damage ② Inductance change: Within $\pm 10\%$</p>	<p>① Temperature: $-40\pm 3^{\circ}\text{C}$ ② Duration: $1000^{\pm 24}$ hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring</p>
9. Resistance to High Temperature	<p>① No mechanical damage. ② Inductance change: Within $\pm 10\%$</p>	<p>① Temperature: $125\pm 2^{\circ}\text{C}$ ② Duration: $1000^{\pm 24}$ hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.</p>
10. Damp Heat	<p>① No mechanical damage. ② Inductance change: Within $\pm 10\%$</p>	<p>① Temperature: $60\pm 2^{\circ}\text{C}$ ② Humidity: 90% to 95%RH ③ Duration: $1000^{\pm 24}$ hours ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring</p>
11. Loading Under Damp Heat	<p>① No mechanical damage. ② Inductance change: Within $\pm 10\%$</p>	<p>① Temperature: $60\pm 2^{\circ}\text{C}$ ② Humidity: 90% to 95% RH ③ Applied current: Rated current ④ Duration: $1000^{\pm 24}$ hours ⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring</p>
12. Loading at High Temperature	<p>① No mechanical damage. ② Inductance change: Within $\pm 10\%$</p>	<p>① Temperature: $85\pm 2^{\circ}\text{C}$ ② Applied current: Rated current ③ Duration: $1000^{\pm 24}$ hours ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring</p>

Recommended Soldering Technologies:

1. Re-flowing Profile:

- △ Preheat condition: 150 ~200°C/60~120sec.
- △ Allowed time above 217°C: 60~90sec.
- △ Max temp: 260°C
- △ Max time at max temp: 5sec.
Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 2x max
Please refer to **Fig. 1-1**.

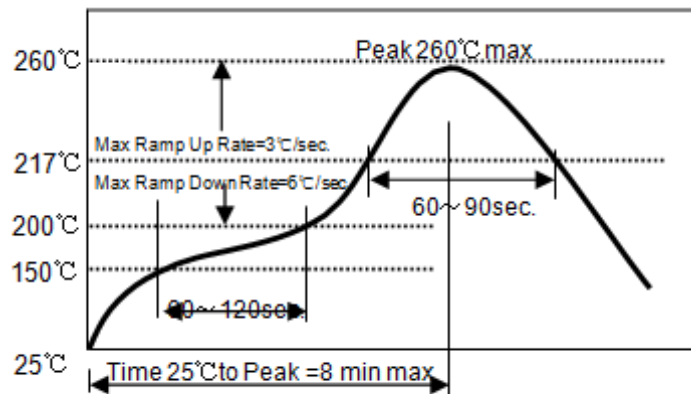


Fig. 1-1

[Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.]

2. Iron Soldering Profile:

- △ Iron soldering power: Max. 30W
- △ Pre-heating: 150°C/60sec.
- △ Soldering Tip temperature: 350°C Max.
- △ Soldering time: 3sec. Max.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Max.1 times for iron soldering
Please refer to **Fig. 2-1**.

[Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.]

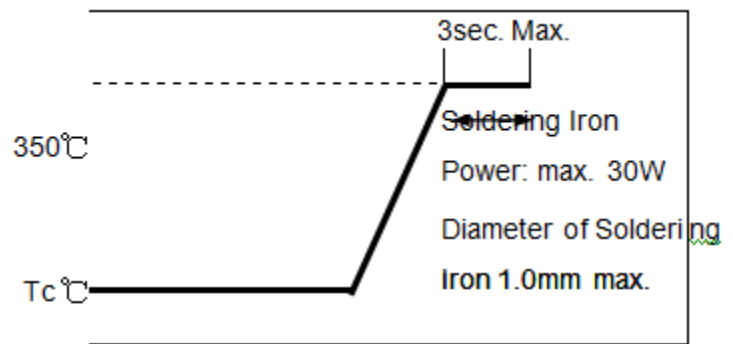


Fig. 2-1

Supplier Information

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