

SPECIFICATIONS

Customer	
Product Name	Wire Wound SMD Power Inductors
Volume Part Number	VE7850 Series
Customer Part Number	

☒ New Released, ☐ Revised]

【This SPEC is total 8 pages.】

【ROHS Compliant Parts】

SPEC No: **VE7850-101M**

PART NO: **FIA07850-26**

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:

- Power supply for VTRs. LCD televisions.
- Notebook PCs, Portable communication equipment.
- DC/DC converters, etc.

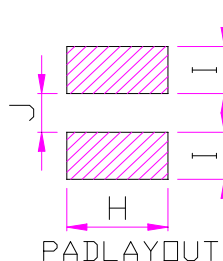
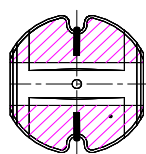
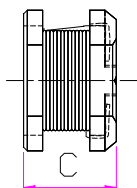
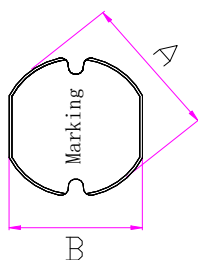
Features :

- Silver Plated Type, Low cost designed.
- Available on tape and reel for auto surface mounting.

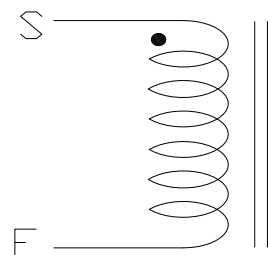
1. Product physical map



2. Dimensions in (mm)



3. Schematic



A	B	C	H	I	J
7.8 ± 0.3	7.0 ± 0.3	5.0 ± 0.3	7.5	3.0	2.0

Characteristics :

- Saturation Current(I_{sat}):The current when the inductance Becomes 20% lower than is initial value. ($T_a=20^\circ\text{C}$).
- Temperature Rise Current(I_{rms}):The current when the temperature of coil increases up to max. $\Delta T=40^\circ\text{C}$. ($T_a=20^\circ\text{C}$)
- Operating temperature : $-30^\circ\text{C} \sim +105^\circ\text{C}$.
- Storage temperature range (packaging conditions): $-5^\circ\text{C} \sim +30^\circ\text{C}$ and RH 70% (Max.)

Test equipments :

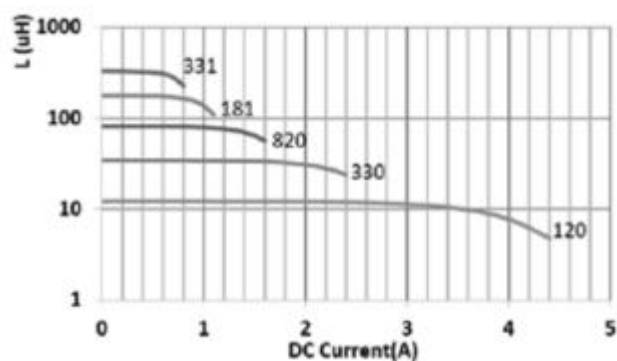
- L&Q: HP 4285A or HP 4284A, VR116/VR7210.
- DCR: Milli-ohm meter, VR131.
- Electrical specifications at 25°C .

Electrical Characteristics

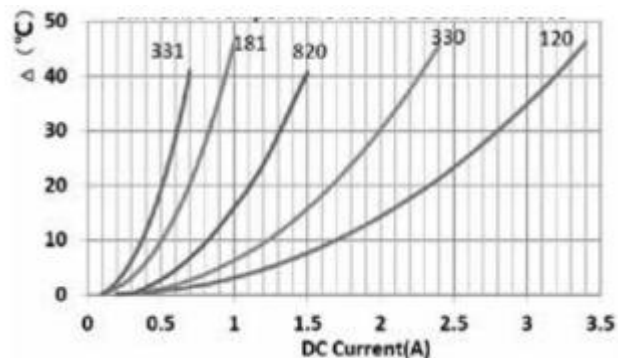
Part No.	L(uH)	Test Frequency	DCR(Ω)		I sat (A)		I rms (A)		Marking
			Max.	Typ.	Max.	Typ.	Max.	Typ.	
VE7850-100K	10±10%	1KHz/0.25V	70m	33m	2.88	3.60	3.20	3.80	100
VE7850-120K	12±10%	1KHz/0.25V	80m	46m	2.56	3.20	2.60	3.20	120
VE7850-150K	15±10%	1KHz/0.25V	90m	53m	2.25	2.80	2.55	3.10	150
VE7850-180K	18±10%	1KHz/0.25V	100m	59m	2.08	2.60	2.25	2.80	180
VE7850-220K	22±10%	1KHz/0.25V	110m	70m	1.95	2.40	2.10	2.60	220
VE7850-270K	27±10%	1KHz/0.25V	120m	87m	1.75	2.20	1.98	2.40	270
VE7850-330K	33±10%	1KHz/0.25V	0.13	0.10	1.52	1.90	1.82	2.25	330
VE7850-390K	39±10%	1KHz/0.25V	0.16	0.12	1.44	1.80	1.62	2.00	390
VE7850-470K	47±10%	1KHz/0.25V	0.18	0.14	1.28	1.60	1.50	1.90	470
VE7850-560K	56±10%	1KHz/0.25V	0.24	0.17	1.20	1.50	1.43	1.80	560
VE7850-680K	68±10%	1KHz/0.25V	0.28	0.20	1.12	1.40	1.30	1.60	680
VE7850-820K	82±10%	1KHz/0.25V	0.37	0.23	1.04	1.30	1.23	1.50	820
VE7850-101K	100±10%	1KHz/0.25V	0.39	0.31	0.92	1.15	1.08	1.32	101
VE7850-121K	120±10%	1KHz/0.25V	0.47	0.35	0.80	1.00	0.99	1.20	121
VE7850-151K	150±10%	1KHz/0.25V	0.64	0.40	0.72	0.90	0.90	1.10	151
VE7850-181K	180±10%	1KHz/0.25V	0.71	0.53	0.68	0.85	0.76	0.94	181
VE7850-221K	220±10%	1KHz/0.25V	0.96	0.61	0.64	0.80	0.70	0.85	221
VE7850-271K	270±10%	1KHz/0.25V	1.11	0.72	0.56	0.70	0.65	0.80	271
VE7850-331K	330±10%	1KHz/0.25V	1.26	0.95	0.52	0.65	0.58	0.70	331
VE7850-391K	390±10%	1KHz/0.25V	1.77	1.28	0.44	0.55	0.49	0.60	391
VE7850-471K	470±10%	1KHz/0.25V	1.96	1.46	0.40	0.50	0.47	0.58	471
VE7850-102K	1000±10%	1KHz/0.25V	4.55	3.65	0.24	0.30	0.27	0.32	102

Typical Performance curves:

VE7850 Inductance vs DC Current Curve



VE7850 Temperature rise vs DC Current Curve



Packing method

1. Packing quantity of each reel: 1000PCS/R (18-30PCS 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

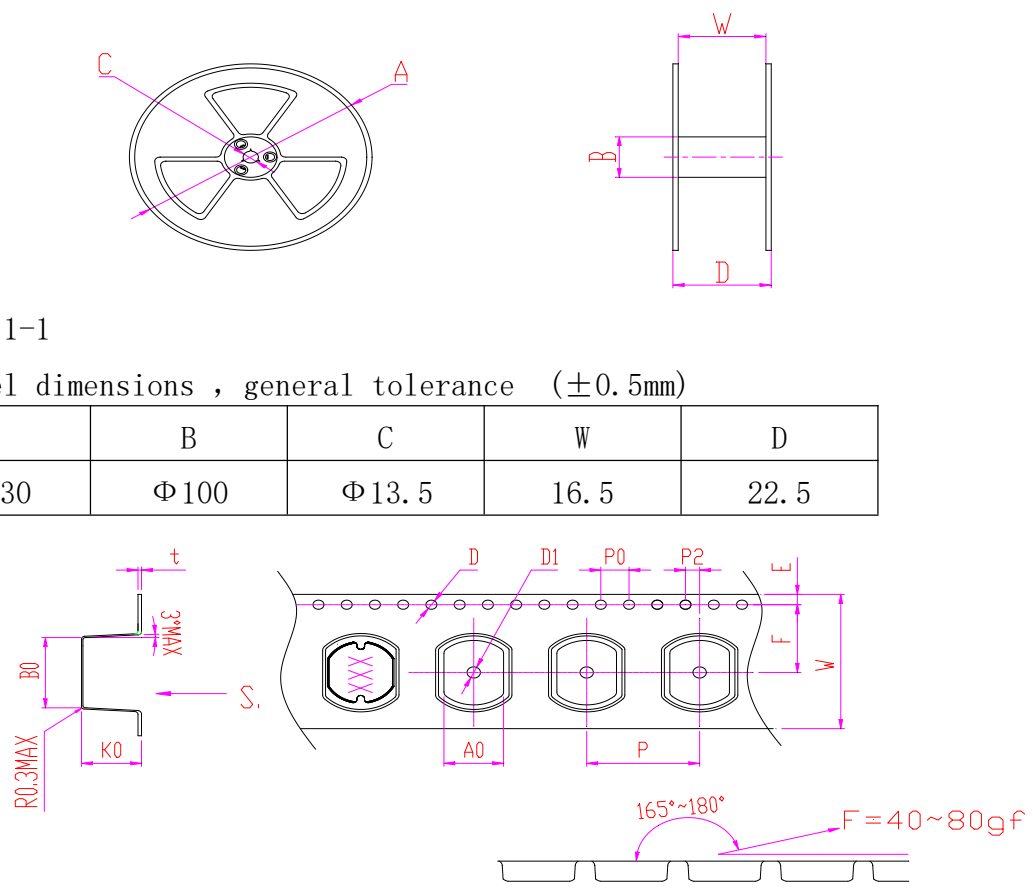


Fig .1-1

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

A	B	C	W	D
$\Phi 330$	$\Phi 100$	$\Phi 13.5$	16.5	22.5

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

W	A0	B0	K0	P	F	E	D	D1	P0	P2	t
16.00	7.35	8.20	5.40	12.00	7.5	1.75	1.50	1.50	4.00	2.00	0.35

2. 3000PCS(3volumes) per beer carton. (Beer carton size:338x338x78mm)
3. Each case is packed with 9000PCS(3boxes), sealed, labeled, and the shape and size of cartons. Fig. 2-1

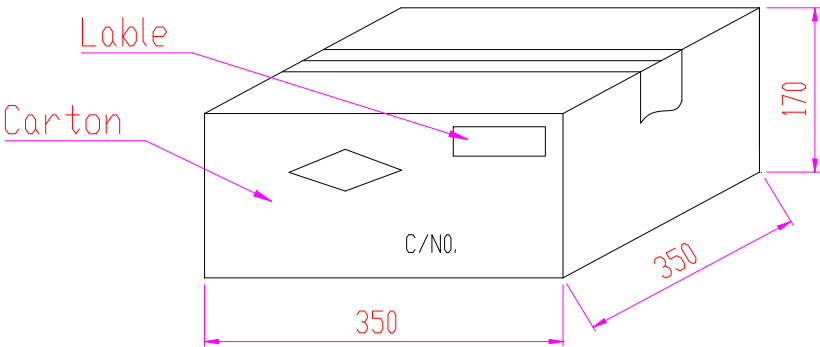
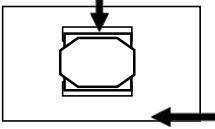
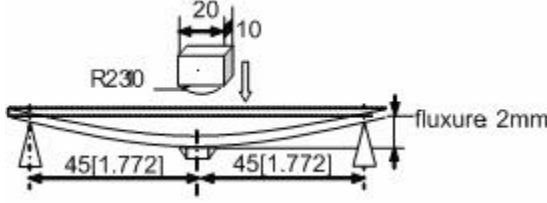
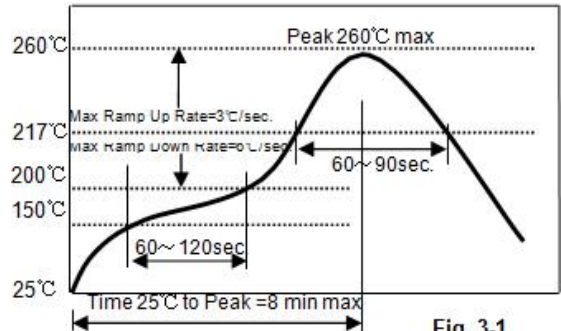
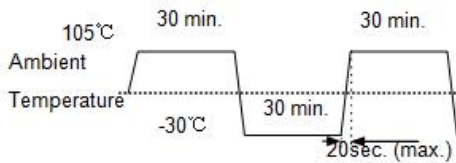


Fig. 2-1

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>	<p>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.</p> <p>② 10N force.</p> <p>③ Keep time: 5s</p>
2.Resistance to Flexure	<p>No visible mechanical damage.</p>  <p>Fig.2-1</p>	<p>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.</p> <p>② Flexure: 2mm</p> <p>③ Pressurizing Speed: 0.5mm/sec</p> <p>④ Keep time: 30±1s</p> <p>⑤ Test board size: 100X40X1.0</p> <p>⑥ Land dimension: Please see</p>
3.Vibration	<p>① No visible mechanical damage.</p> <p>② Inductance change: Within ±10%</p>	<p>① Solder the chip to the testing jig (glass epoxy board shown as the following figure) using eutectic solder.</p> <p>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.</p> <p>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).</p>
4.Temperature coefficient	Inductance change: Within ±20%	<p>① Temperature: -30℃~+105℃</p> <p>② With a reference value of +20℃, change rate shall be calculated</p>
5.Solderability	90% or more of electrode area shall be coated by new solder.	<p>① The test samples shall be dipped in flux, and then immersed in molten solder.</p> <p>② Solder temperature: 245±5℃</p> <p>③ Duration: 5±1 sec.</p> <p>④ Solder: Sn/3.0Ag/0.5Cu</p> <p>⑤ Flux: 25% resin and 75% ethanol in weight</p> <p>⑥ Immersion depth: all sides of mounting terminal shall be immersed</p>
6.Resistance to Soldering Heat	<p>① No visible mechanical damage.</p> <p>② Inductance change: Within ±10%</p>	<p>① Re-flowing Profile: Please refer to Fig. 3-1.</p> <p>② Test board thickness: 1.0mm</p> <p>③ Test board material: glass epoxy resin</p> <p>④ The chip shall be stabilized at normal condition for 1~2 hours before measuring</p>  <p>Fig. 3-1</p>

7.Thermal Shock	① No visible mechanical damage. ② Inductance change: Within $\pm 10\%$  Fig.4-1	① Temperature and time: $-30\pm 3^{\circ}\text{C}$ for 30 ± 3 min→ 105°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
8.Resistance to Low Temperature	① No visible mechanical damage ② Inductance change: Within $\pm 10\%$	① Temperature: $-30\pm 3^{\circ}\text{C}$ ② Duration: $1000^{\pm 24}$ hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring
9.Resistance to High Temperature	① No mechanical damage. ② Inductance change: Within $\pm 10\%$	① Temperature: $105\pm 2^{\circ}\text{C}$ ② Duration: $1000^{\pm 24}$ hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
10.Damp Heat	① No mechanical damage. ② Inductance change: Within $\pm 10\%$	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
11.Loading Under Damp Heat	① No mechanical damage. ② Inductance change: Within $\pm 10\%$	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
12.Loading at High Temperature	① No mechanical damage. ② Inductance change: Within $\pm 10\%$	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

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**.

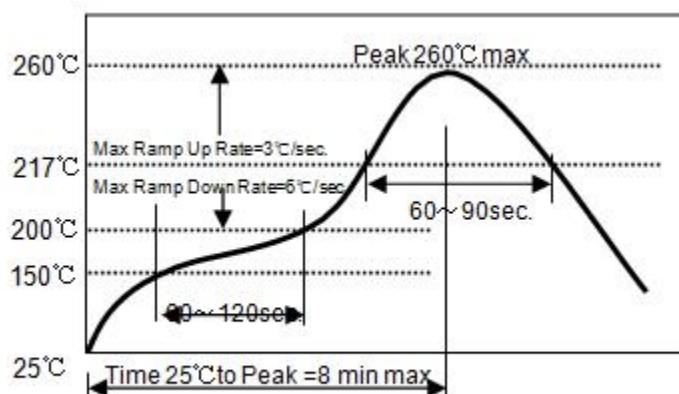


Fig. 1-1

[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.]

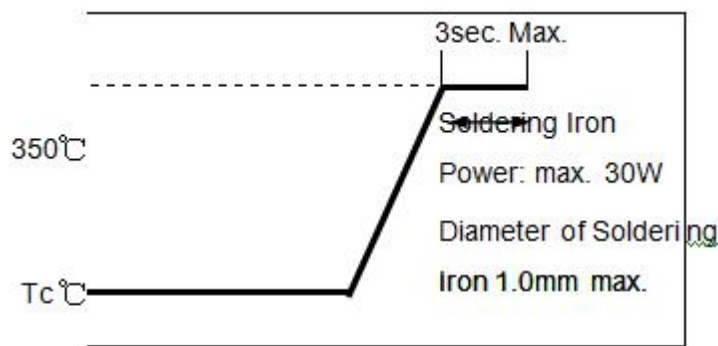


Fig. 2-1

Supplier Information

Supplier:

Shenzhen Volume Source Electronics Co., Ltd.

Manufacturer:

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