SPECIFICATIONS

Customer	
Product Name	**Wire Wound SMD Power Inductors**
Volume Part Number	**VE3521 Series**
Customer Part Number	

[☒New Released,☐ Revised]

【This SPEC is total 8 pages.】

【ROHS Compliant Parts】

SPEC No: VE3521-3R3M

PART NO: FIA03521-21

Approved By	Checked By	Issued By

ShenZhen Volume Source Electronics Co., Ltd.

Address: 16th Floor, Building T5-N4, Tian'an Digital City, Fenggang, Dongguan

Tel: 0769-89891993 Fax: 0769-89891993-806

【For Customer approval Only】 Date:_____

Qualification Status: ☐Full ☐Restricted ☐Rejected

Approved By	Verified By	Re-checked By	Checked By

Comments:_____

RoHS Halogen Free Lead Free

【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

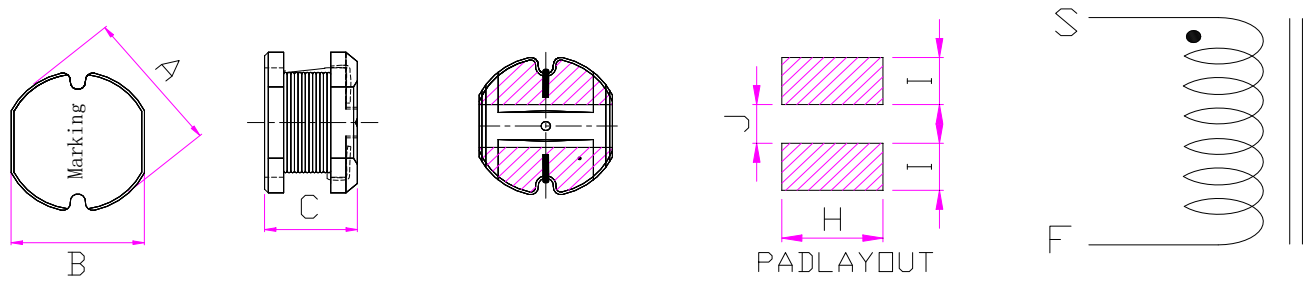
Features :

●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
3.5±0.3	3.0±0.3	2.1±0.3	3.5	1.6	0.8

Characteristics :

●Saturation Current(Isat):The current when the inductance Becomes 20% lower than is initial value.(Ta=20℃).
●Temperature Rise Current(Irms):The current when the temperature of coil increases up to max. ΔT=40℃.(Ta=20℃)
●Operating temperature : -30℃～+105℃.
●Storage temperature range (packaging conditions): -5℃～+30℃ and RH 70% (Max.)

Test equipments :

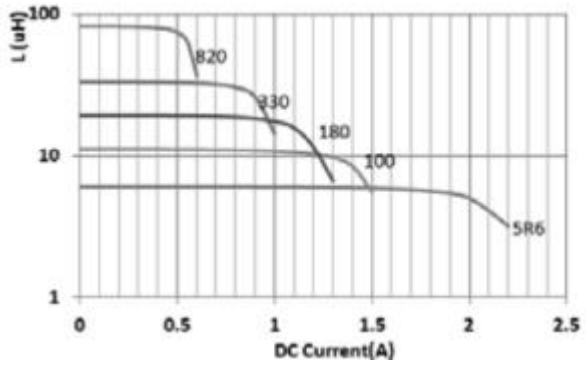
●L&Q: HP 4285A or HP 4284A, VR116/VR7210.
●DCR: Milli-ohm meter, VR131.
●Electrical specifications at 25℃.

Electrical Characteristics

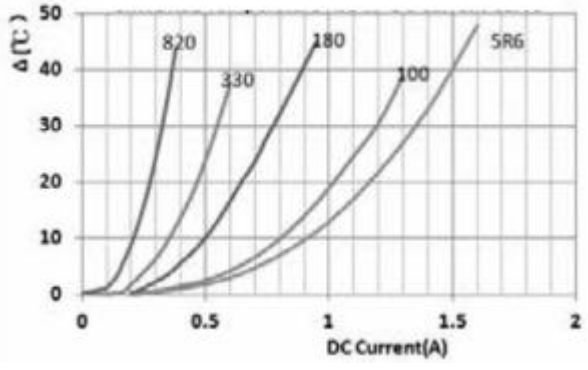
Part No.	L(uH)	Test Frequency	DCR(Ω)		I sat (A)		I rms (A)		Marking
			Max.	Typ.	Max.	Typ.	Max.	Typ.	
VE3521-1R0M	1.0±20%	100KHz/0.25V	45m	30m	3.30	4.10	2.60	3.10	1R0
VE3521-1R2M	1.2±20%	100KHz/0.25V	50m	32m	3.00	3.70	2.50	3.00	1R2
VE3521-1R5M	1.5±20%	100KHz/0.25V	55m	44m	2.70	3.40	2.15	2.60	1R5
VE3521-1R8M	1.8±20%	100KHz/0.25V	70m	49m	2.50	3.20	2.00	2.50	1R8
VE3521-2R2M	2.2±20%	100KHz/0.25V	85m	59m	2.30	2.80	1.80	2.20	2R2
VE3521-2R7M	2.7±20%	100KHz/0.25V	100m	65m	2.20	2.70	1.55	1.90	2R7
VE3521-3R3M	3.3±20%	100KHz/0.25V	120m	96m	1.95	2.40	1.45	1.80	3R3
VE3521-3R9M	3.9±20%	100KHz/0.25V	125m	110m	1.85	2.30	1.40	1.60	3R9
VE3521-4R7M	4.7±20%	100KHz/0.25V	135m	120m	1.60	2.00	1.30	1.50	4R7
VE3521-5R6M	5.6±20%	100KHz/0.25V	165m	140m	1.55	1.90	1.25	1.40	5R6
VE3521-6R8M	6.8±20%	100KHz/0.25V	0.20	0.17	1.40	1.75	1.20	1.38	6R8
VE3521-8R2M	8.2±20%	100KHz/0.25V	0.25	0.19	1.20	1.45	1.15	1.35	8R2
VE3521-100M	10±20%	1KHz/0.25V	0.32	0.24	1.05	1.30	1.10	1.30	100
VE3521-120M	12±20%	1KHz/0.25V	0.35	0.27	1.00	1.25	0.90	1.05	120
VE3521-150M	15±20%	1KHz/0.25V	0.46	0.37	0.90	1.15	0.75	0.90	150
VE3521-180M	18±20%	1KHz/0.25V	0.52	0.40	0.80	1.00	0.70	0.85	180
VE3521-220K	22±10%	1KHz/0.25V	0.65	0.57	0.75	0.95	0.56	0.66	220
VE3521-270K	27±10%	1KHz/0.25V	0.75	0.66	0.70	0.85	0.53	0.63	270
VE3521-330K	33±10%	1KHz/0.25V	0.92	0.76	0.60	0.75	0.52	0.62	330
VE3521-390K	39±10%	1KHz/0.25V	1.12	0.97	0.55	0.72	0.43	0.52	390
VE3521-470K	47±10%	1KHz/0.25V	1.27	1.10	0.50	0.65	0.40	0.47	470
VE3521-560K	56±10%	1KHz/0.25V	1.50	1.30	0.45	0.58	0.35	0.43	560
VE3521-680K	68±10%	1KHz/0.25V	2.00	1.52	0.40	0.50	0.33	0.40	680
VE3521-820K	82±10%	1KHz/0.25V	2.15	1.83	0.35	0.47	0.30	0.37	820
VE3521-101K	100±10%	1KHz/0.25V	2.80	2.46	0.34	0.42	0.28	0.33	101
VE3521-121K	120±10%	1KHz/0.25V	3.40	2.74	0.33	0.41	0.26	0.31	121
VE3521-151K	150±10%	1KHz/0.25V	4.20	3.12	0.28	0.35	0.23	0.28	151
VE3521-181K	180±10%	1KHz/0.25V	4.50	3.58	0.27	0.34	0.21	0.25	181
VE3521-221K	220±10%	1KHz/0.25V	5.70	5.05	0.25	0.31	0.19	0.23	221
VE3521-271K	270±10%	1KHz/0.25V	8.50	5.92	0.22	0.27	0.17	0.20	271
VE3521-391K	390±10%	1KHz/0.25V	11.50	9.85	0.20	0.24	0.15	0.18	391

Typical Performance curves:

VE3521 Inductauce vs DC Current Curve



VE3521 Temperature rise vs DC Current Curve



Packing method

1. Packing quantity of each reel: 3000PCS/R (30-40PCS 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

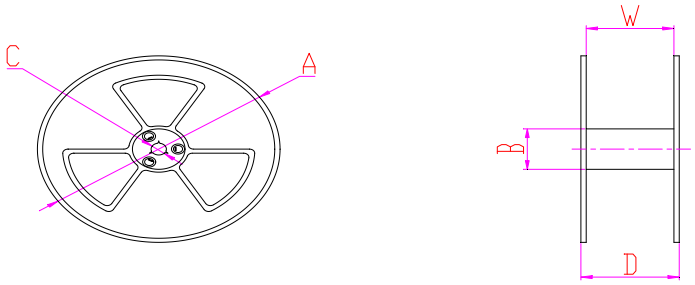
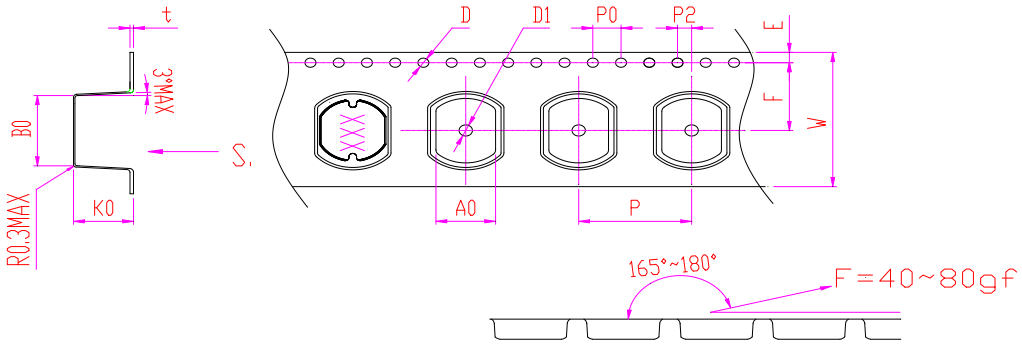


Fig .1-1

Reel dimensions , general tolerance (±0.5mm)

A	B	C	W	D
Φ330	Φ100	Φ13.5	12.5	18.5



The general tolerance, of carrier size is ±<0.2mm.

W	A0	B0	K0	P	F	E	D	D1	P0	P2	t
12.00	3.35	3.85	2.45	8.00	5.50	1.75	1.50	1.50	4.00	2.00	0.30

2. 12000PCS(4volumes) per beer carton.(Beer carton size:338x338x78mm)
3. Each case is packed with 36000PCS(3boxes), sealed, labeled, and the shape and size of cartons. Fig. 2-1

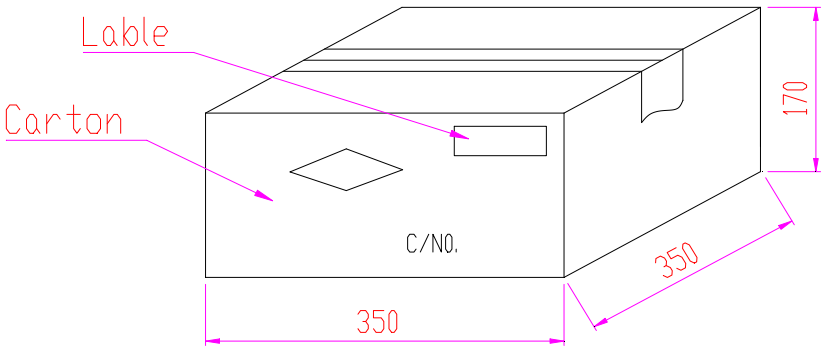
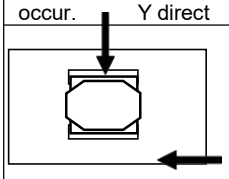
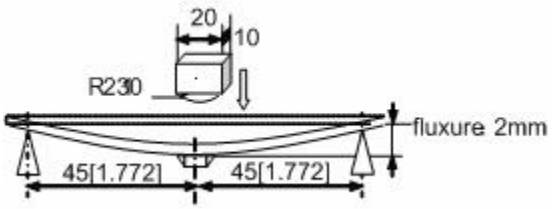
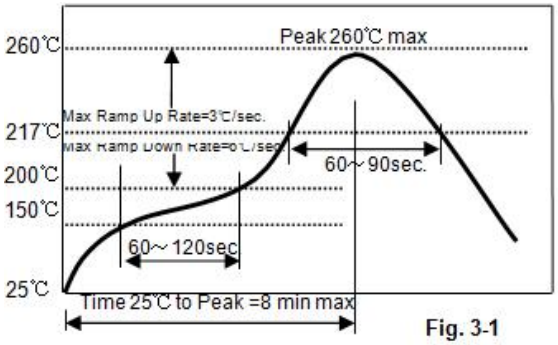
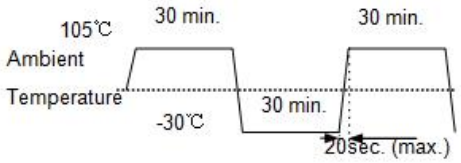


Fig. 2-1

Reliability Test:

Items	Requirements	Test Methods and Remarks
1.Terminal Strength	No removal or split of the termination or other defects shall occur. Y direct  X direct Fig.1-1	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	No visible mechanical damage.  **Fig.2-1**	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	① No visible mechanical damage. ② Inductance change: Within ±10%	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%	① Temperature: -30℃~+105℃ 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.	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	① No visible mechanical damage. ② Inductance change: Within ±10%	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  **Fig. 3-1**

7.Thermal Shock	① No visible mechanical damage. ② Inductance change: Within ±10%  **Fig.4-1**	① Temperature and time: -30±3℃ for 30±3 min→105℃ for 30±3min, 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 ±10%	① Temperature: -30±3℃ 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 ±10%	① Temperature: 105±2℃ 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 ±10%	① Temperature: 60±2℃ 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 ±10%	① Temperature: 60±2℃ 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 ±10%	① Temperature: 85±2℃ 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℃/60~120sec.
△ Allowed time above 217℃: 60~90sec.
△ Max temp: 260℃
△ Max time at max temp: 5sec.
Solder paste: Sn/3.0Ag/0.5Cu
△ Allowed Reflow time: 2x max
Please refer to **Fig.1-1**.

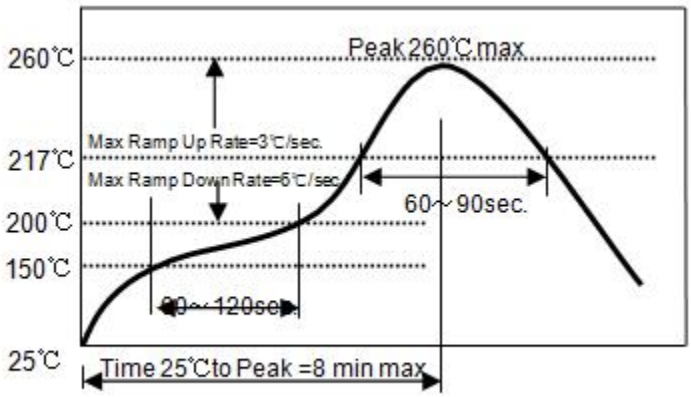


Fig. 1-1

[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℃/60sec.
△ Soldering Tip temperature: 350℃ 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.]

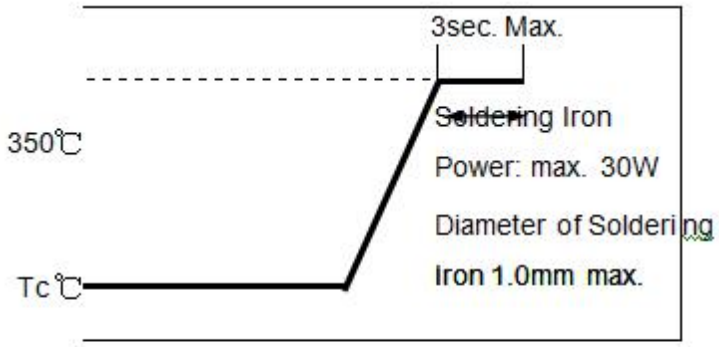


Fig. 2-1

Supplier Information

Supplier:

Shenzhen Volume Source Electronics Co., Ltd.

Manufacturer:

ShenzhenVolume Source Electronics Co., Ltd.

Manufacturing Address:

Address: 16th Floor, Building T5-N4, Tian'an Digital City, Fenggang, Dongguan

Tel: 0769-89891993 Fax: 0769-89891993-806
E-mail:yhp@volumesz.com.cn Http://www.volumesz.com.cn
M.P:13316585579 Mr.Yu