SPECIFICATIONS

Customer	
Product Name	**UNSHIELDED SMT POWER INDUCTORS**
Volume Part Number	**VEPF3316 Series**
Customer Part Number	

[☒New Released,☐ Revised]

【This SPEC is total 8 pages.】

【ROHS Compliant Parts】

SPEC No: VEPF3316-680M

PART NO: FIA03316-29

Approved By	Checked By	Issued By

ShenZhen Volume Source Electronics Co., Ltd.

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【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:

- ●Portable telephones.
- ●Personable computers.
- ●DC/DC converters, etc.
- ●Other various electronic appliances.

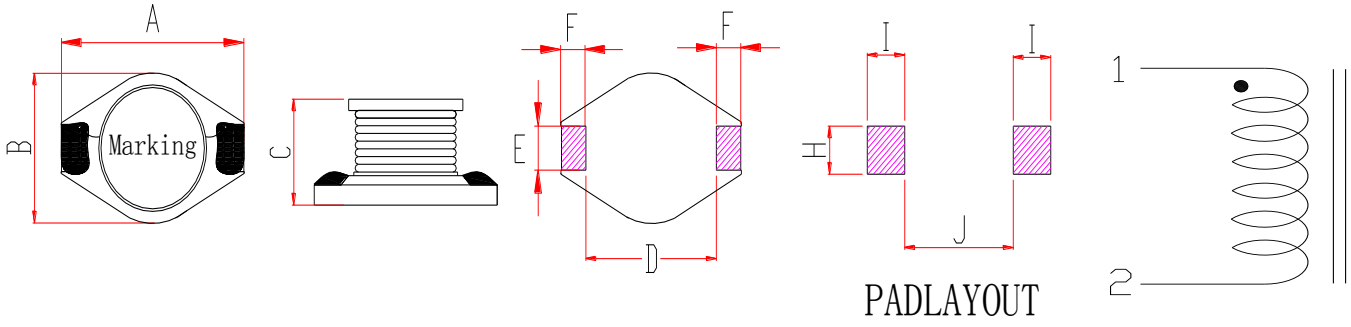
Features :

- ●High power, High saturation ,Low resistance.
- ●Ideal inductors for DC-DC conversion in notebook Computer, PDAs, Step-up or Step-down converters , Flash memory programmers, etc.
- ●the others used LCP plastic base.

1. Product physical map

2. Dimensions in (mm)

3. Schematic



A	B	C	D	E	F	H	I	J
12.95Max	9.40Max	5.21Max	7.62	2.54	2.54	2.79	2.92	7.37

Characteristics :

- ●Saturation Current(Isat):The current when the inductance Becomes 30% lower than is initial value.(Ta=20℃).
- ●Temperature Rise Current(Irms):The current when the temperature of coil increases up to max.Δ T=40℃.(Ta=20℃)
- ●Operating temperature : -40℃～+125℃.
- ●Storage temperature range (packaging conditions): -5℃～+30℃ and RH 70% (Max.)

Test equipments :

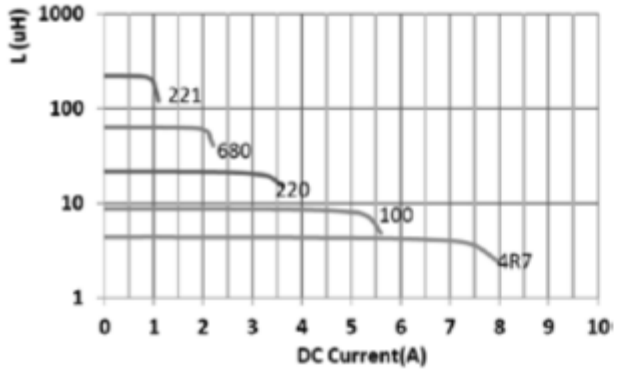
- ●Inductance measured at 0Adc on HP 4284A LCR meter or equivalent, VR116/VR7210.
- ●DCR measured on Chroma 16502 micro-ohmmete or equivalent, VE131.
- ●Electrical specifications at 25℃.

Electrical Characteristics

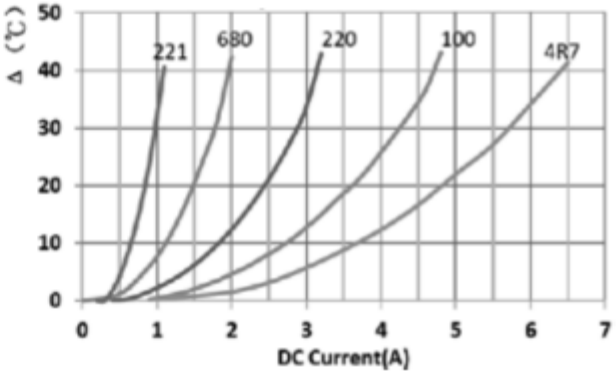
Part No.	L(uH)	Test Frequency	DCR(Ω)		Isat(A)		Irms(A)		Marking
			Max.	Typ.	Max.	Typ.	Max.	Typ.	
VEPF3316-1R0M	1.0±20%	100kHz/0.25V	9m	4.5m	12.0	15.0	8.80	10.5	1R0
VEPF3316-1R5M	1.5±20%	100kHz/0.25V	10m	5.1m	9.76	12.2	8.00	9.50	1R5
VEPF3316-2R2M	2.2±20%	100kHz/0.25V	12m	7.7m	8.08	10.1	7.20	8.90	2R2
VEPF3316-3R3M	3.3±20%	100kHz/0.25V	15m	8.8m	6.98	8.70	6.60	8.20	3R3
VEPF3316-4R7M	4.7±20%	100kHz/0.25V	18m	13m	5.68	7.10	5.30	6.40	4R7
VEPF3316-6R8M	6.8±20%	100kHz/0.25V	27m	19m	5.12	6.40	4.57	5.60	6R8
VEPF3316-100M	10±20%	100kHz/0.25V	38m	25m	4.08	5.10	4.00	4.70	100
VEPF3316-150M	15±20%	100kHz/0.25V	46m	37m	3.12	3.90	3.20	3.90	150
VEPF3316-220M	22±20%	100kHz/0.25V	85m	55m	2.56	3.20	2.70	3.10	220
VEPF3316-330M	33±20%	100kHz/0.25V	100m	83m	2.32	2.90	2.30	2.80	330
VEPF3316-470M	47±20%	100kHz/0.25V	0.14	0.11	1.68	2.10	2.10	2.40	470
VEPF3316-680M	68±20%	100kHz/0.25V	0.20	0.17	1.62	2.02	1.62	1.98	680
VEPF3316-101M	100±20%	100kHz/0.25V	0.28	0.25	1.13	1.41	1.30	1.58	101
VEPF3316-151M	150±20%	100kHz/0.25V	0.40	0.37	0.98	1.22	1.07	1.28	151
VEPF3316-221M	220±20%	100kHz/0.25V	0.61	0.55	0.78	0.97	0.92	1.10	221
VEPF3316-331M	330±20%	100kHz/0.25V	1.02	0.83	0.70	0.87	0.75	0.90	331
VEPF3316-471M	470±20%	100kHz/0.25V	1.27	1.09	0.56	0.70	0.62	0.73	471
VEPF3316-681M	680±20%	100kHz/0.25V	2.02	1.64	0.48	0.60	0.48	0.57	681
VEPF3316-102M	1000±20%	100kHz/0.25V	3.00	2.50	0.38	0.48	0.45	0.55	102

Typical Performance curves:

VEPF3316 Inductauce vs DC Current Curve



VEPF3316 Temperature rise vs DC Current Curve



Packing method

1. Packing quantity of each reel: 750PCS/R (15-20PCS 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

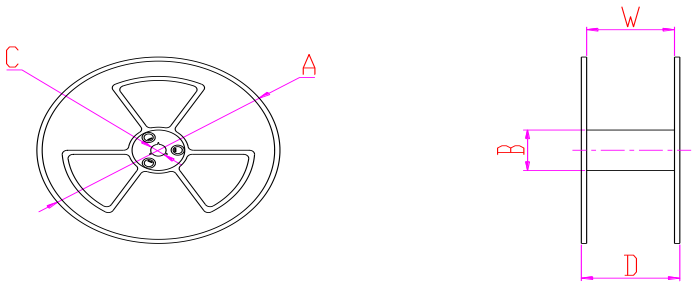
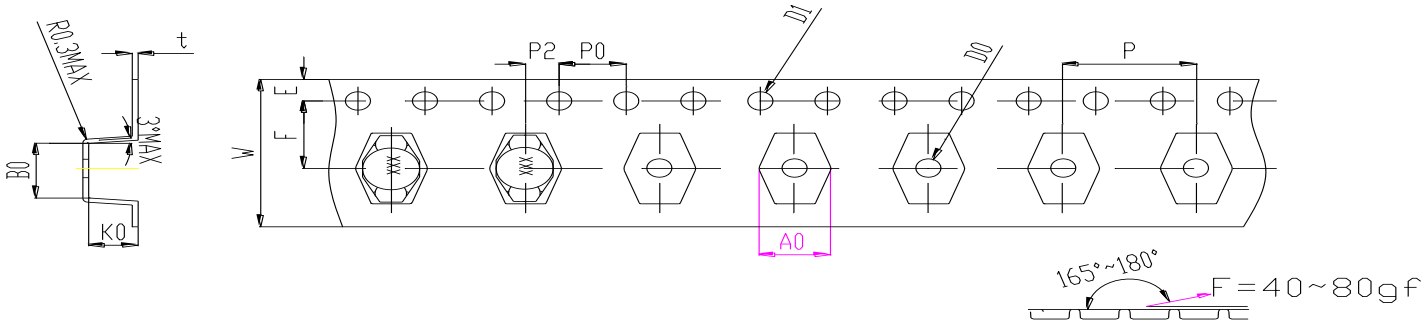


Fig .1-1

Reel dimensions , general tolerance (±0.5mm)

A	B	C	W	D
Φ 330	Φ 100	Φ 13.5	24.5	30.5



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

W	A0	B0	K0	P	F	E	D	D1	P0	P2	t
24.00	9.60	14.00	5.40	16.00	11.50	1.75	1.50	1.50	4.00	2.00	0.40

2. 1500PCS(2volumes) per beer carton.(Beer carton size:338x338x78mm)
3. Each case is packed with 4500PCS(3boxes), sealed, labeled, and the shape and size of cartons. Fig. 2-1

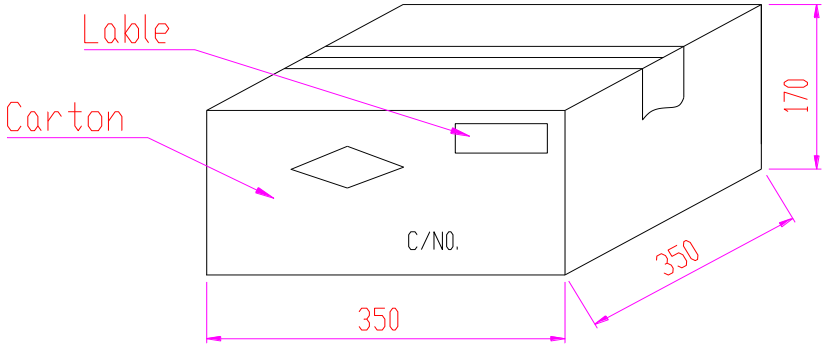
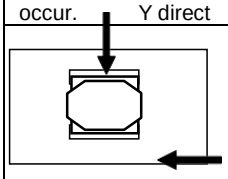
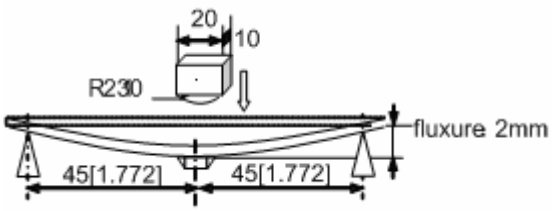
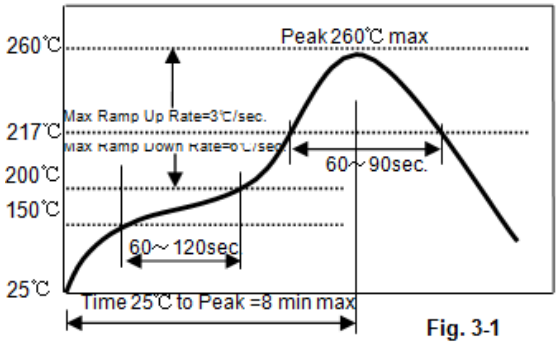
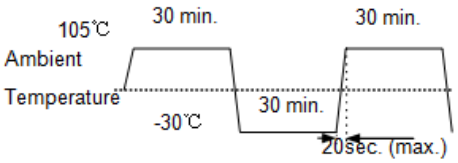


Fig. 2-1

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: -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.	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: -40±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: 125±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**.

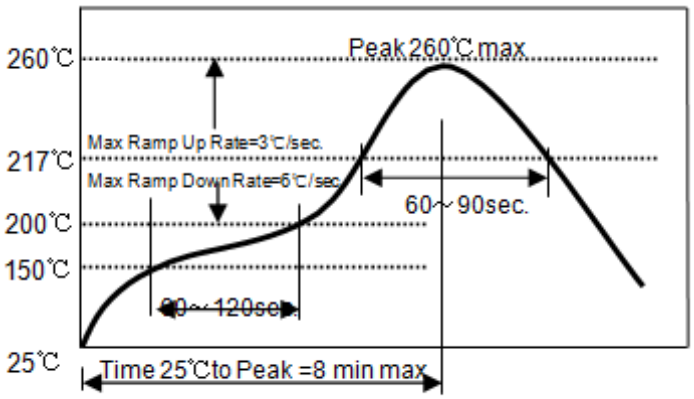


Fig. 1-1

[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.]

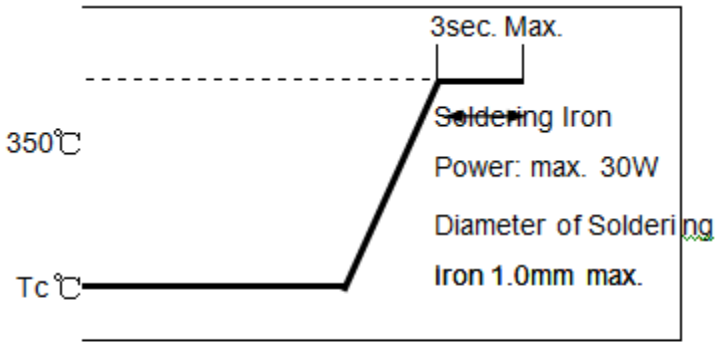


Fig. 2-1

Supplier Information

Supplier:

Shenzhen Volume Source Electronics Co., Ltd.

Manufacturer:

ShenzhenVolume Source Electronics Co., Ltd.

Manufacturing Address:

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