

承認書

SPECIFICATION FOR APPROVAL

Customer Name: 2144

Description Part No.:

Customer Part No.:

Sample No.:

DDY Part No.: DSE322515-系列

DRAWING		
MADE	CHECKED	APPROVED
黃春笑	趙萬虎	肖中華
DATE: 2024年3月5日		

CUSTOMER APPROVE



惠州市德立电子有限公司

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1. Scope

This specification applies to the DSE322515 Series of wire wound SMD power inductor.

2.PRODUCT IDENTIFICATION

DSE 322515 - 1R5 □ - □
(1) (2) (3) (4) (5)

(1) .Series name (产品品名)

(2) .Dimensions (产品尺寸)

(3) .Inductance value (电感值)

(4) .Tolerance (误差值)

1R5: 1.5 μ H 221: 220 μ H

K:±10%; M: ±20%; N: ±30%

(5).Environmental status (环保状态)

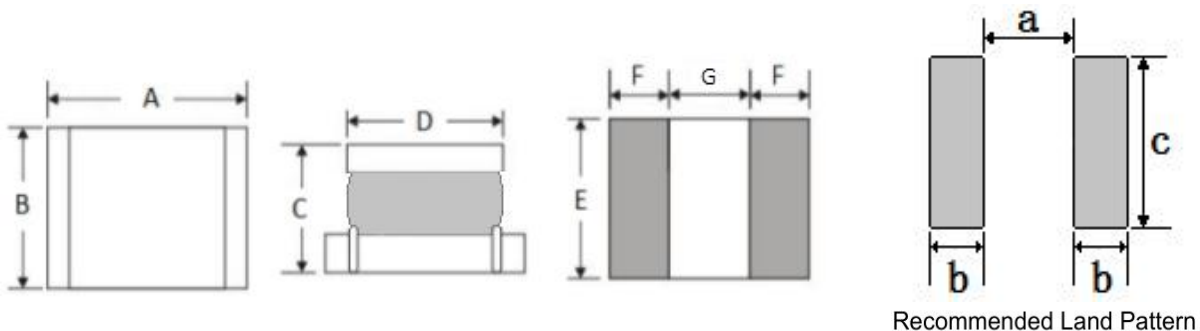
LF- Lead free; HF-Halogen free; FP-Free red phosphor.

3. Electrical Characteristics

Please refer to Item 5.

- 1). Operating temperature range (individual chip without packing): -40℃ ~ +125℃ .
- 2). Storage temperature range (packaging conditions): -40℃ ~ +85℃ and RH 70% (Max.).
- 3). Rating DC current: Temperature rise(ΔT) is 40℃ approximately at Irms.
- 4). Saturation DC current: Inductance drop approximately 30% of L_0 at Isat.

4. Shape and Dimensions (Unit:mm)



Series	A	B	C	D	E	F	G	a Typ.	b Typ.	c Typ.
DSE322515	3.2±0.2	2.5±0.2	1.55±0.2	2.5±0.2	2.5±0.2	1.15±0.3	0.9±0.3	0.85	1.3	2.80



Version of Changed Record				
DATE	REV	CHANGED CONTENTS	DRAFT	APPROVED
2024/3/5	A	新版发行	黄春笑	肖中华
* Special notes: This product is non-vehicle certified.				



5. Electrical Characteristics

NO.	DDY CODE	Part Number	Inductance	SRF	DC Resistance	Isat(A)	Irms(A)	Marking
			1MHz/1.0V		Max.	Max.	Typ.	
		Units	(uH)	MHz Min.	Ω	A	A	
1		☐ DSE322515-R47N-HF	0.47 $\pm$ 30%	100	0.036	3.40	2.55	N/A
2		☐ DSE322515-1R0N-HF	1.0 $\pm$ 30%	100	0.054	2.30	2.05	N/A
3		☐ DSE322515-1R5N-HF	1.5 $\pm$ 30%	70	0.068	1.75	1.75	N/A
4		☐ DSE322515-2R2M-HF	2.2 $\pm$ 20%	70	0.091	1.55	1.60	N/A
5		☐ DSE322515-3R3M-HF	3.3 $\pm$ 20%	50	0.144	1.25	1.20	N/A
6		☐ DSE322515-4R7M-HF	4.7 $\pm$ 20%	40	0.216	1.00	1.00	N/A
7		☐ DSE322515-6R8M-HF	6.8 $\pm$ 20%	40	0.288	0.85	0.85	N/A
8		☐ DSE322515-100M-HF	10.0 $\pm$ 20%	30	0.456	0.75	0.70	N/A
9		☐ DSE322515-150M-HF	15.0 $\pm$ 20%	20	0.684	0.60	0.52	N/A
10		☐ DSE322515-220M-HF	22.0 $\pm$ 20%	20	0.972	0.50	0.45	N/A
11		☐ DSE322515-330M-HF	33.0 $\pm$ 20%	10	1.380	0.39	0.39	N/A
12		☐ DSE322515-470M-HF	47.0 $\pm$ 20%	10	2.136	0.33	0.33	N/A

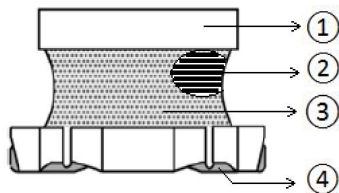
※Design as Customer's Requested Specifications. (可按顾客的特殊需求设计)



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6. Structure (The structure of product.)



NO	Components	Material
①	Core	Ni-Zn Ferrite
②	Wire	Polyurethane system enameled copper wire
③	Plating	AgNiSn or FeNiCu + Sn Alloy
④	Epoxy	Epoxy resin

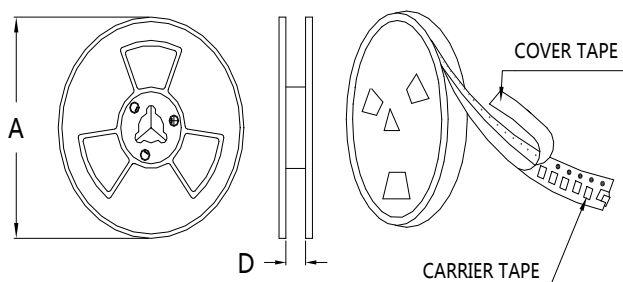
7. PACKAGING(unit: mm)

1.包装类型：编带装

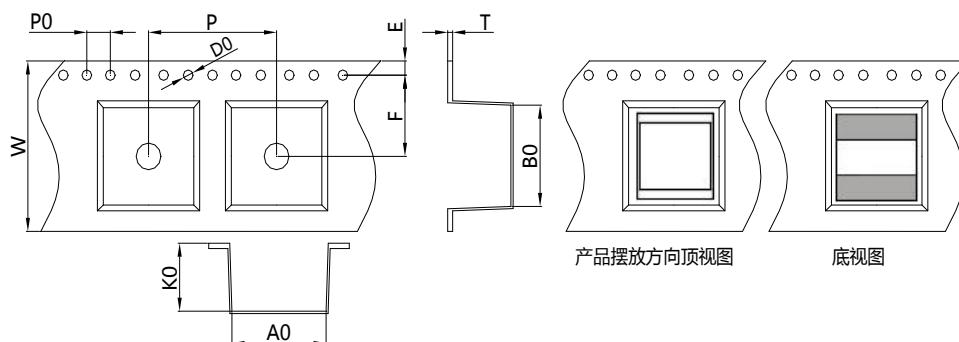
2.包装尺寸：

☐ 13" 盘

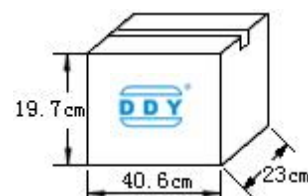
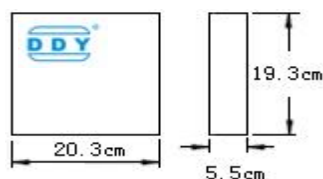
☒ 7" 盘



	13" 盘	7" 盘
A	$\Phi 330 \pm 2.0$	$\Phi 178 \pm 2.0$
D	12.5	



Item	W	A0	B0	K0	P	T	E	F	D0	P0
(mm)	12.0±0.3	2.9±0.2	3.6±0.2	1.7±0.2	4.0±0.1	0.2±0.1	1.75±0.1	5.50±0.1	1.50±0.1	4.00±0.2



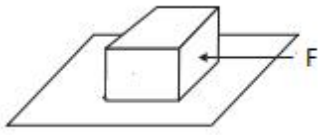
每卷 2000 Pcs

每盒 4卷,共 8000 Pcs

每箱 6盒,共 48000 Pcs



8. RELIABILITY TEST

No.	TEST ITEM	SPECIFICATION	TEST CONDITION
1	High temperature Storage test	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	Temperature: $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (N: Follow the product specification for the setting.) Time : 96 ± 2 hours Place the samples for one hour at room temperature and test them within two hours
2	Low temperature Storage test	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	Temperature: $-40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (M: Follow the product specification for the setting) Time : 96 ± 2 hours Place the samples for one hour at room temperature and test them within two hours.
3	Humidity test	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	Temperature: $40 \pm 2^{\circ}\text{C}$, Humidity: $93 \pm 3\% \text{RH}$ Time : 96 ± 2 hours Place the samples for one hour at room temperature and test them within two hours
4	Solderability test	Terminals must have 95% minimum solder coverage	1. Dip pads in flux then dip in solder pot at $245 \pm 5^{\circ}\text{C}$ for 5 second. 2. Solder: lead free 3. Flux: rosin flux
5	Heat endurance of flow soldering	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	1. Refer to the above reflow curve and go through the reflow for twice. 2. The peak temperature : $260 + 0/-5^{\circ}\text{C}$
6	Vibration test	1. No significant defects in appearance. 2. No short and no open.	Apply frequency 10~55~10Hz and amplitude 1.5mm, 1 min/cycle in X Y and Z direction for 2 hours each. (total 6 hours)
7	Terminal strength push test	1. Applied force: 10N Duration: 10sec 2. Solder paste thickness: 0.12mm 3. Meet the above requirements without any loose termina	Solder the test samples to the PCB through 245°C reflow, apply a standard force on the side of the test samples for 10 seconds. 



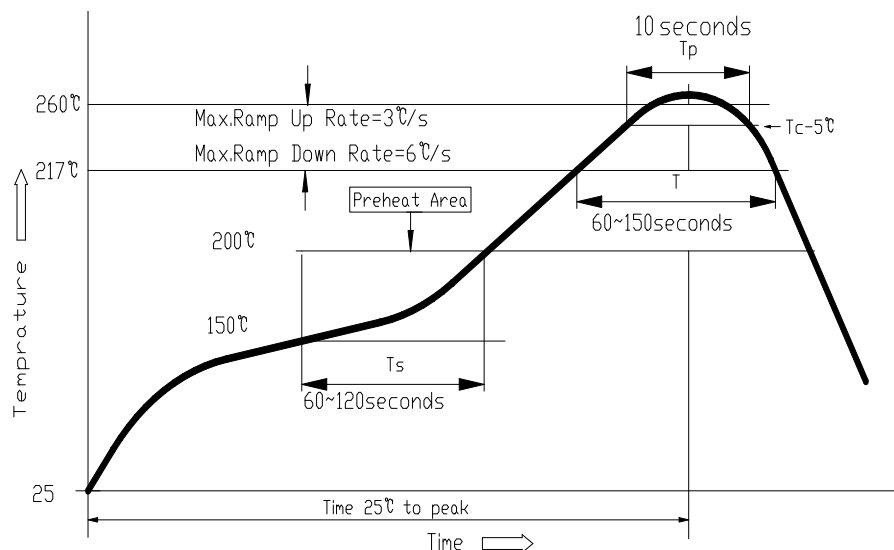
9. SOLDERING CONDITIONS

Applicable soldering process to the products is refl.

9.1 Soldering Materials

- (1) Solder: Sn-3.0Ag-0.5Cu
- (2) Flux: Use rosin-based flux, but not strongly acidic flux (with chlorine exceeding 0.2wt%). Do not use water-soluble flux.

9.2 Reflow Soldering Profile



9.3 Soldering Iron

Reworking with electric soldering iron must preheating at 150°C for 1 minute is required, and do not directly touch the core with the tip of the soldering iron. The reworking soldering conditions are as follows.

- ① Temperature of soldering iron tip: 350°C;
- ② Soldering iron power output: $\leq 30W$;
- ③ Diameter of soldering iron end: $\leq 1.0mm$;
- ④ Soldering time: $< 3s$



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