

承認書

SPECIFICATION FOR APPROVAL

Customer Name: 2144

Description Part No.:

Customer Part No.:

Sample No.:

DDY Part No.: DSE453226-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 DSE453226 Series of wire wound SMD power inductor.

2.PRODUCT IDENTIFICATION

DSE 453226 - 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: $\pm 10\%$; M: $\pm 20\%$; N: $\pm 30\%$

(5).Environmental status (环保状态)

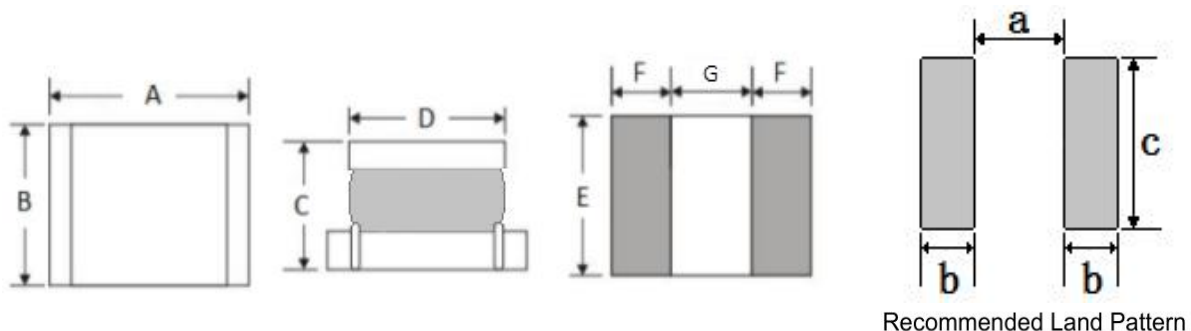
LF- Lead free; HF-Halogen free; FP-Free red phosphor.

3. Electrical Characteristics

Please refer to Item 5.

- 1). Operating temperature range (individual chip without packing): $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$.
- 2). Storage temperature range (packaging conditions): $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ and RH 70% (Max.).
- 3). Rating DC current: Temperature rise(ΔT) is 40°C 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.
DSE453226	4.5 ± 0.3	3.2 ± 0.3	2.6 ± 0.3	3.7 ± 0.3	3.2 Typ.	1.6 Typ.	1.0 Typ.	0.90	1.75	3.40

[illegible]



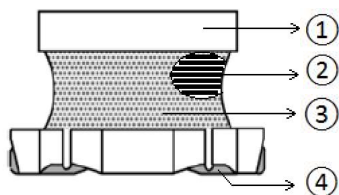
5. Electrical Characteristics

NO.	DDY CODE	Part Number	Inductance	SRF	DC Resistance	Isat(A)	Irms(A)	Marking
			100KHz/1.0V		Max.	Max.	Max.	
		Units	(uH)	MHz Min.	Ω	A	A	
1		☐ DSE453226-1R0N-HF	1.0±30%	100	0.045	2.50	2.10	N/A
2		☐ DSE453226-1R5N-HF	1.5±30%	85	0.053	2.40	2.00	N/A
3		☐ DSE453226-2R2M-HF	2.2±20%	60	0.068	2.40	1.80	N/A
4		☐ DSE453226-3R3M-HF	3.3±20%	47	0.090	2.10	1.80	N/A
5		☐ DSE453226-4R7M-HF	4.7±20%	35	0.126	1.80	1.50	N/A
6		☐ DSE453226-6R8M-HF	6.8±20%	30	0.155	1.50	1.20	N/A
7		☐ DSE453226-100K-HF	10.0±10%	23	0.270	1.20	1.10	N/A
8		☐ DSE453226-150K-HF	15.0±10%	20	0.320	0.90	0.90	N/A
9		☐ DSE453226-220K-HF	22.0±10%	15	0.475	0.80	0.70	N/A
10		☐ DSE453226-330K-HF	33.0±10%	12	0.686	0.60	0.60	N/A
11		☐ DSE453226-470K-HF	47.0±10%	10	0.996	0.50	0.50	N/A
12		☐ DSE453226-680K-HF	68.0±10%	8.4	1.260	0.40	0.30	N/A
13		☐ DSE453226-101K-HF	100±10%	6.8	1.920	0.40	0.30	N/A
14		☐ DSE453226-151K-HF	150±10%	5.5	2.860	0.35	0.30	N/A
15		☐ DSE453226-221K-HF	220±10%	4.5	4.000	0.25	0.25	N/A
16		☐ DSE453226-331K-HF	330±10%	3.6	6.800	0.20	0.20	N/A
17		☐ DSE453226-471K-HF	470±10%	3.0	8.500	0.20	0.20	N/A

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



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

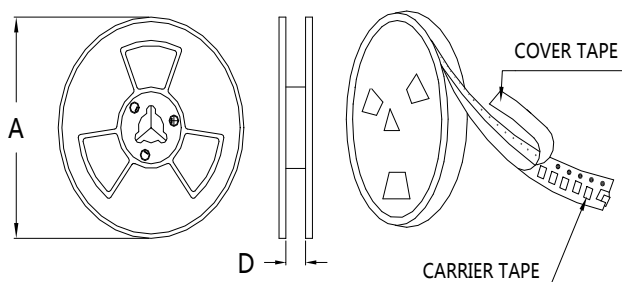
2.包装尺寸：



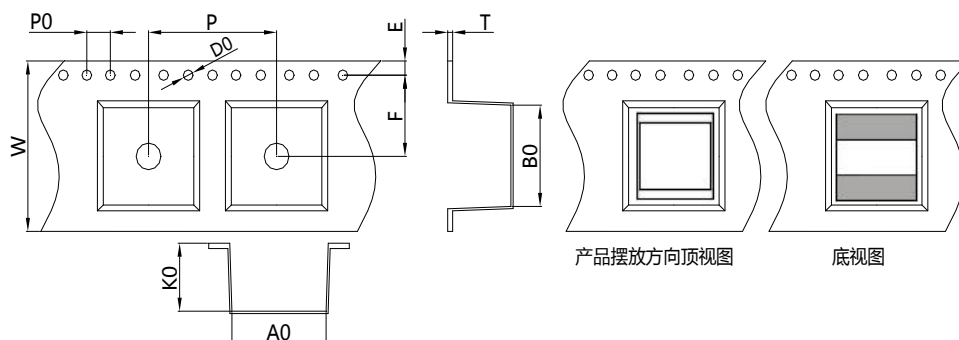
13" 盘



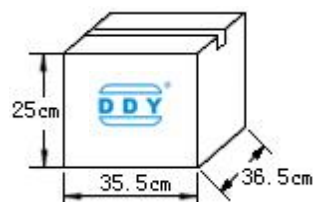
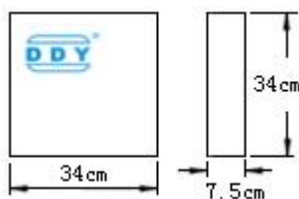
7" 盘



	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	4.50 ± 0.3	4.50 ± 0.3	3.10 ± 0.2	8.00 ± 0.3	3.50 ± 0.1	1.75 ± 0.1	5.50 ± 0.2	1.50 ± 0.1	4.00 ± 0.2



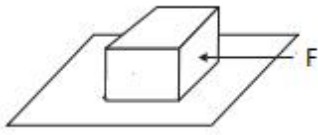
每卷	2000	Pcs
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每盒	4卷,共	8000	Pcs
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每箱	6盒,共	48000	Pcs
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8. RELIABILITY TEST

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. 



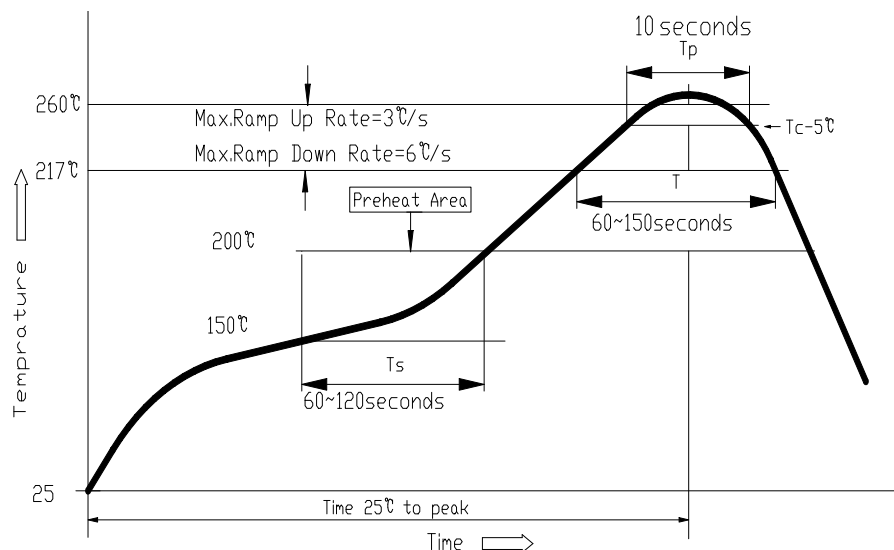
9. SOLDERING CONDITIONS

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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[HCR15JTRF](#) [NIN-HCR33JTRF](#) [NIN-HDR22JTRF](#) [NIN-HDR82JTRF](#) [NIN-HK2N7STRF](#) [NIN-PA150KTR370F](#) [NIN-PB100KTR550F](#)