

承認書

SPECIFICATION FOR APPROVAL

Customer Name: 2144

Description Part No.:

Customer Part No.:

Sample No.:

DDY Part No.: SFE3012A-

DRAWING		
MADE	CHECKED	APPROVED
王海玲	赵万虎	肖中华
DATE: 2023年8月8日		

CUSTOMER APPROVE



惠州市德立电子有限公司
HUI ZHOU DE LI ELECTRONICS CO., LTD

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Version of Changed Record				
DATE	REV	CHANGED CONTENTS	DRAFT	APPROVED
2023/8/8	A	新版发行	王海玲	肖中华

* Special notes:
This product is non-vehicle certified.



1. Scope

This specification applies to the SFE3012 Series of wire wound SMD power inductor.

2.PRODUCT IDENTIFICATION

SFE 3012 □ - 1R5 □ - □

(1) (2) (3) (4) (5) (6) (7)

(1) .Series name (产品品名)

(2) .Dimensions (产品尺寸)

(3) .Appearance shape (产品形状)

(4) .Inductance value (电感值)

A: dodecagon (十二边形) : B: octagon (八边形)

1R5: 1.5μH 221: 220μH

(5) Tolerance (误差值)

(6) .Identification code (标识码)

M: ±20%; N: ±30%

(7) .Environmental status (环保状态)

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

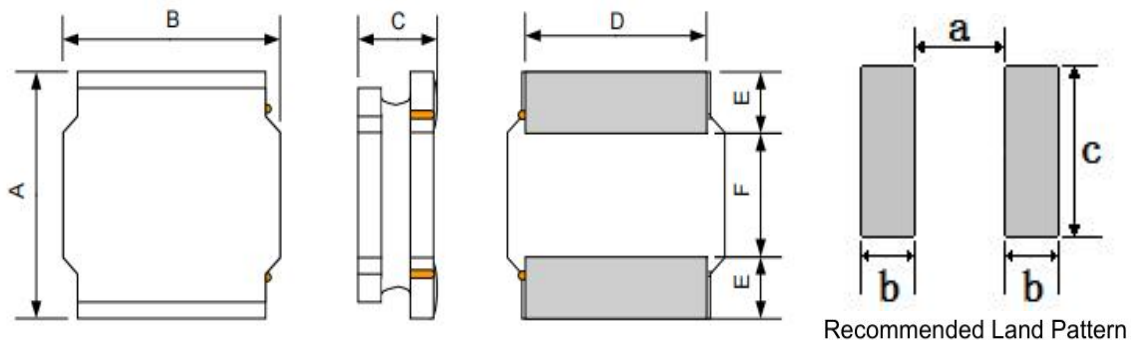
3. Electrical Characteristics

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)

shape: A



Series	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
SFE3012A	3.0±0.2	3.0±0.2	1.2 Max.	2.6±0.3	0.9 Typ.	1.2 Typ.	1.00	1.10	2.7



5. Electrical Characteristics

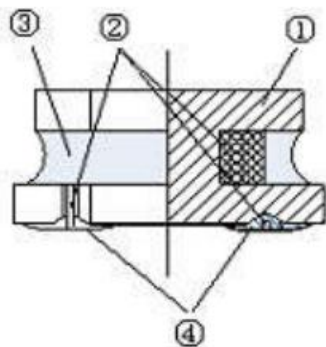
NO.	DDY CODE	Part Number	Inductance	DC Resistance		Isat(A)		Irms(A)		Marking
			100KHz/1.0V	Max.	Typ.	Max.	Typ.	Max.	Typ.	
		Units	(uH)	Ω	Ω	A	A	A	A	
1		☐ SFE3012A-R22N-F-HF	0.22±30%	0.022	0.015	4.60	5.00	3.50	4.50	R22
2		☐ SFE3012A-R47N-F-HF	0.47±30%	0.039	0.030	2.80	3.10	2.80	3.10	R47
3		☐ SFE3012A-R68N-F-HF	0.68±30%	0.039	0.030	2.40	2.70	2.40	2.70	R68
4		☐ SFE3012A-1R0N-F-HF	1.0±30%	0.052	0.043	2.20	2.80	2.20	2.70	1R0
5		☐ SFE3012A-1R5N-F-HF	1.5±30%	0.078	0.059	1.62	1.90	1.80	2.00	1R5
6		☐ SFE3012A-2R2M-F-HF	2.2±20%	0.098	0.088	1.20	1.60	1.55	1.70	2R2
7		☐ SFE3012A-3R3M-F-HF	3.3±20%	0.13	0.118	1.05	1.20	1.36	1.45	3R3
8		☐ SFE3012A-4R7M-F-HF	4.7±20%	0.156	0.135	0.90	1.00	1.24	1.30	4R7
9		☐ SFE3012A-6R8M-F-HF	6.8±20%	0.247	0.218	0.75	0.90	0.98	1.10	6R8
10		☐ SFE3012A-100M-F-HF	10.0±20%	0.345	0.314	0.60	0.75	0.80	0.85	100
11		☐ SFE3012A-150M-F-HF	15.0±20%	0.468	0.425	0.45	0.62	0.70	0.75	150
12		☐ SFE3012A-220M-F-HF	22.0±20%	0.839	0.726	0.42	0.52	0.53	0.59	220
13		☐ SFE3012A-270M-F-HF	27.0±20%	1.131	0.958	0.38	0.48	0.47	0.51	270
14		☐ SFE3012A-330M-F-HF	33.0±20%	1.138	0.860	0.36	0.46	0.46	0.50	330
15		☐ SFE3012A-470M-F-HF	47.0±20%	1.625	1.445	0.27	0.35	0.35	0.40	470



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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	Magnetic Glue	Epoxy resin and magnetic powder
④	Plating	AgNiSn or FeNiCu + Sn Alloy

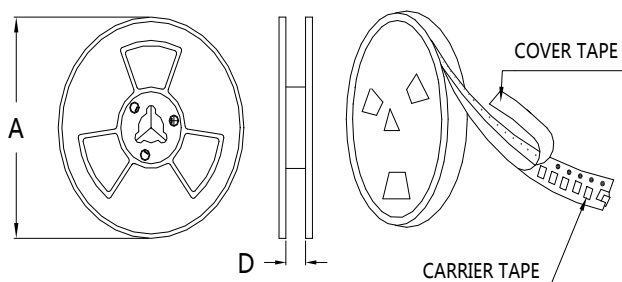
7. PACKAGING(unit: mm)

1.包装类型：编带装

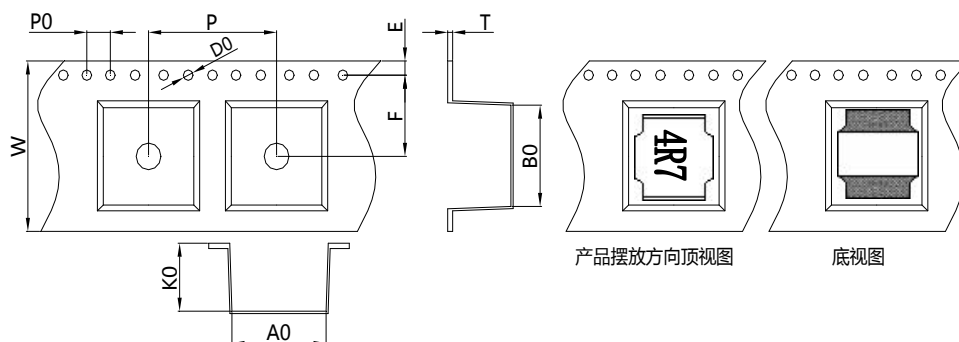
2.包装尺寸：

☐ 13" 盘

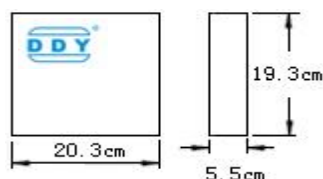
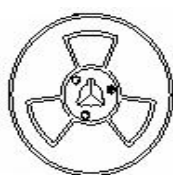
☒ 7" 盘



	13" 盘	7" 盘
A	$\Phi 330 \pm 2.0$	$\Phi 178 \pm 2.0$
D	8.5	



Item	W	A0	B0	K0	P	T	E	F	D0	P0
(mm)	8.0 ± 0.3	3.3 ± 0.15	3.3 ± 0.15	2.0 ± 0.1	4.0 ± 0.1	0.3 ± 0.1	1.75 ± 0.1	3.5 ± 0.1	1.5 ± 0.1	4.0 ± 0.1



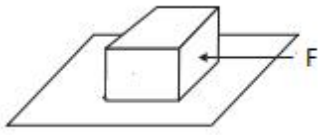
每卷	2000	Pcs
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每盒	4卷,共	8000	Pcs
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每箱	6盒,共	48000	Pcs
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8. RELIABILITY TEST

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. 

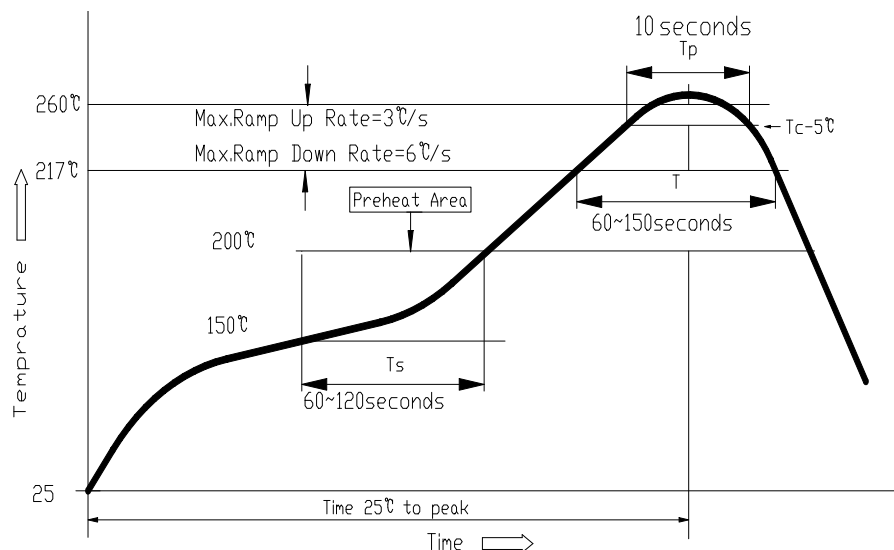
9. SOLDERING CONDITIONS

Applicable soldering process to the products is refl.

9.1 Soldering Materials

- (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: $\leq 30\text{W}$;
- ③ Diameter of soldering iron end: $\leq 1.0\text{mm}$;
- ④ Soldering time: $< 3\text{ s}$

