

# 承 認 書

## SPECIFICATION FOR APPROVAL

Customer Name: 2144

Description Part No.: \_\_\_\_\_

Customer Part No.: \_\_\_\_\_

Sample No.: \_\_\_\_\_

DDY Part No.: SFE4018A-

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

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### 1. Scope

This specification applies to the SFE4018 Series of wire wound SMD power inductor.

### 2.PRODUCT IDENTIFICATION

SFE 4018 □ - 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)
- (5) Tolerance (误差值)
- (6) .Identification code (标识码)
- (7) .Environmental status (环保状态)

A: dodecagon (十二边形); B: octagon (八边形)                      1R5: 1.5μH    221: 220μH

M: ±20%; N: ±30%

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

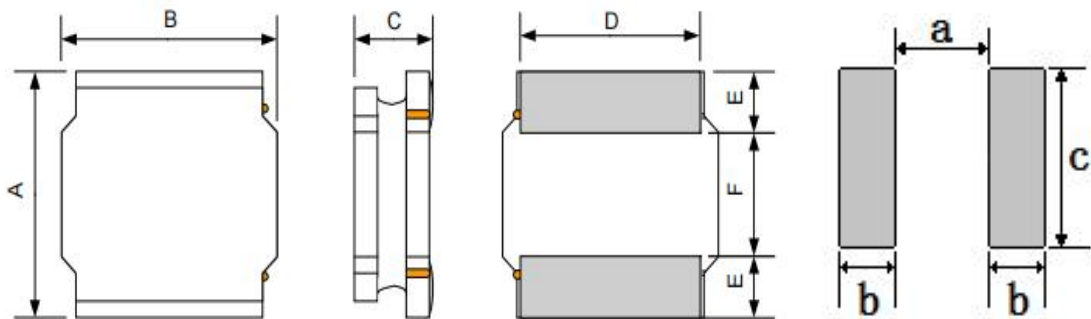
### 3. Electrical Characteristics

Please refer to Item 5.

- 1). Operating temperature range (individual chip without packing): -40°C ~ +125°C .
- 2). Storage temperature range (packaging conditions): -40°C ~ +85°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<sub>0</sub> at Isat.

### 4. Shape and Dimensions (Unit:mm)

shape: A



Recommended Land Pattern

Series	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
SFE4018A	4.0±0.2	4.0±0.2	1.8 Max.	3.3±0.2	1.2 Typ.	1.6 Typ.	1.4	1.4	3.5



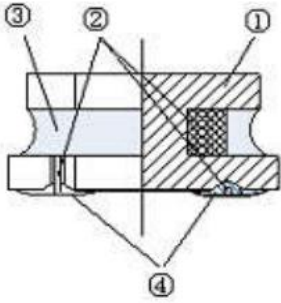
### 5. Electrical Characteristics

NO.	DDY CODE	Part Number	Inductance	DC Resistance		Isat(A)		Irms(A)		Marking
			100KHz/1.0V	Max.	Typ.	Max.	Typ.	Max.	Typ.	
			(uH)	Ω	Ω	A	A	A	A	
1		<input type="checkbox"/> SFE4018A-R24N-F-HF	0.24±30%	0.018	0.011	6.00	6.50	4.50	5.00	R24
2		<input type="checkbox"/> SFE4018A-R47N-F-HF	0.47±30%	0.018	0.014	4.30	5.20	4.00	4.50	R47
3		<input type="checkbox"/> SFE4018A-R68N-F-HF	0.68±30%	0.026	0.022	4.90	5.60	3.30	3.80	R68
4		<input type="checkbox"/> SFE4018A-1R0N-F-HF	1.00±30%	0.035	0.026	4.80	5.20	3.20	3.50	1R0
5		<input type="checkbox"/> SFE4018A-1R2N-F-HF	1.20±30%	0.042	0.037	4.50	4.80	3.10	3.30	1R2
6		<input type="checkbox"/> SFE4018A-1R5N-F-HF	1.50±30%	0.042	0.037	3.35	4.00	3.00	3.20	1R5
7		<input type="checkbox"/> SFE4018A-1R8N-F-HF	1.80±30%	0.044	0.040	3.00	3.50	2.00	2.90	1R8
8		<input type="checkbox"/> SFE4018A-2R2M-F-HF	2.20±20%	0.059	0.048	3.00	3.20	2.70	3.00	2R2
9		<input type="checkbox"/> SFE4018A-3R3M-F-HF	3.30±20%	0.091	0.061	2.45	2.70	2.30	2.50	3R3
10		<input type="checkbox"/> SFE4018A-3R9M-F-HF	3.90±20%	0.105	0.079	2.40	2.70	2.00	2.30	3R9
11		<input type="checkbox"/> SFE4018A-4R7M-F-HF	4.70±20%	0.117	0.096	2.20	2.30	2.00	2.20	4R7
12		<input type="checkbox"/> SFE4018A-6R8M-F-HF	6.80±20%	0.143	0.126	1.60	1.80	1.50	1.70	6R8
13		<input type="checkbox"/> SFE4018A-100M-F-HF	10.0±20%	0.234	0.210	1.30	1.60	1.00	1.20	100
14		<input type="checkbox"/> SFE4018A-150M-F-HF	15.0±20%	0.325	0.250	0.94	1.10	0.94	1.00	150
15		<input type="checkbox"/> SFE4018A-220M-F-HF	22.0±20%	0.468	0.350	0.80	0.88	0.80	0.95	220
16		<input type="checkbox"/> SFE4018A-330M-F-HF	33.0±20%	0.689	0.524	0.56	0.70	0.50	0.70	330
17		<input type="checkbox"/> SFE4018A-470M-F-HF	47.0±20%	0.845	0.596	0.50	0.60	0.40	0.60	470
18		<input type="checkbox"/> SFE4018A-680M-F-HF	68.0±20%	1.300	1.160	0.45	0.55	0.35	0.50	680
19		<input type="checkbox"/> SFE4018A-101M-F-HF	100.0±20%	1.854	1.750	0.35	0.40	0.30	0.40	101
20		<input type="checkbox"/> SFE4018A-151M-F-HF	150.0±20%	3.250	1.850	0.31	0.34	0.22	0.36	151
21		<input type="checkbox"/> SFE4018A-221M-F-HF	220.0±20%	5.200	3.300	0.27	0.30	0.17	0.27	221
22		<input type="checkbox"/> SFE4018A-331M-F-HF	330.0±20%	6.825	5.290	0.20	0.24	0.15	0.24	331

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

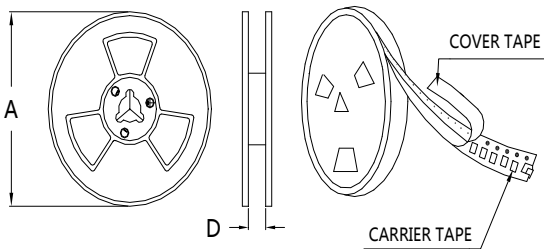
7. PACKAGING(unit: mm)

1.包装类型：编带装

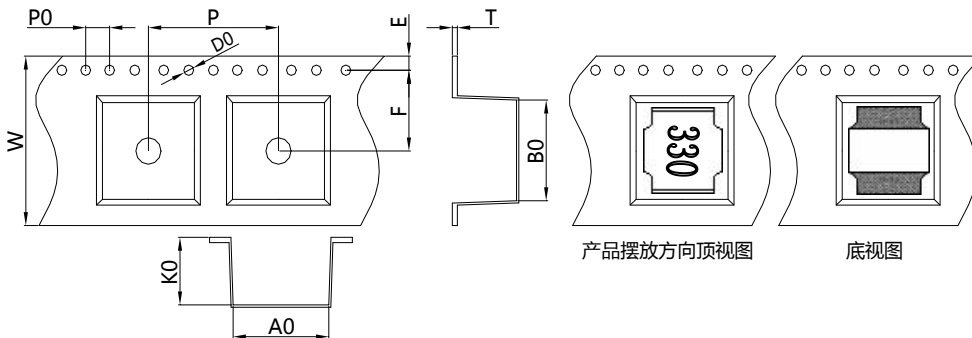
2.包装尺寸：

13" 盘

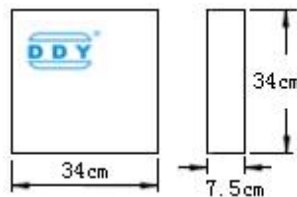
7" 盘



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



Size	Item	W	A0	B0	K0	P	T	E	F	D0	P0
4018	(mm)	12.0±0.3	4.4±0.2	4.4±0.2	2.0±0.2	8.0±0.3	0.3±0.1	1.75±0.1	5.5±0.2	1.5±0.1	4.0±0.2

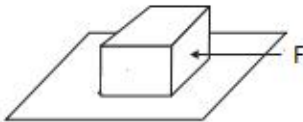


每卷	3000	Pcs
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每盒	4卷,共	12000	Pcs
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每箱	3盒,共	36000	Pcs
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8. RELIABILITY TEST			
No.	TEST ITEM	SPECIFICATION	TEST CONDITION
1	High temperature Storage test	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 : $96 \pm 2$ 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 : $96 \pm 2$ 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 : $96 \pm 2$ 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 : $260 \pm 0/-5^{\circ}\text{C}$
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 $245^{\circ}\text{C}$ reflow, apply a standard force on the side of the test samples for 10 seconds. 



## 9. SOLDERING CONDITIONS

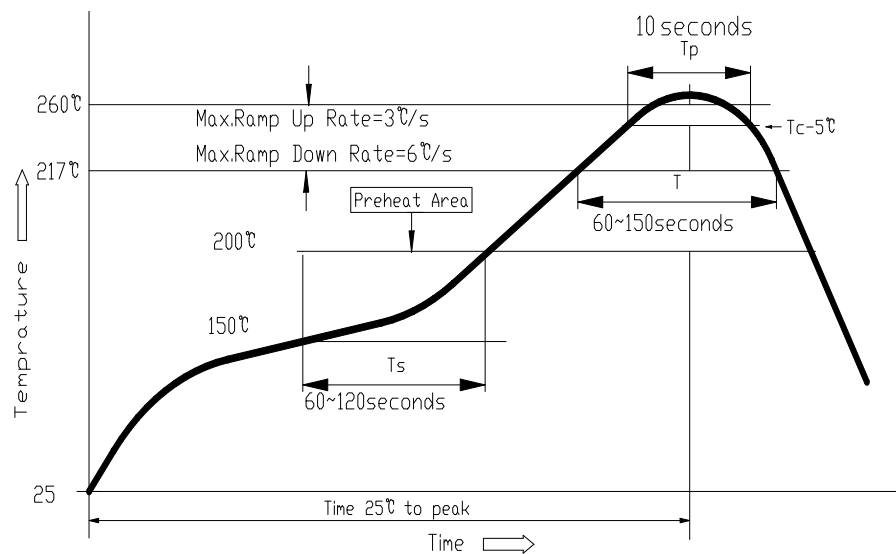
Applicable soldering process to the products is refl.

### 9.1 Soldering Materials

(1) Solder: Sn-3.0Ag-0.5Cu

(2) Flux: Use rosin-based flux, but not strongly acidic flux (with xhlorine 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:  $< 3\text{ s}$



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