# 承 認 書

### SPECIFICATION FOR APPROVAL

Customer Name:	2144	
Description Part No.:		
Customer Part No.:		
Sample No.:		
DDY Part No.:	SFE201610-	

DRAWING							
MADE	CHECKED	APPROVEI					
王海玲	赵万虎	肖中华					
DATE:	2022年8	3月23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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### HUI ZHOU DE LI ELECTRONICS CO., LTD

	Version of Changed Record								
DATE	REV	CHANGED CONTENTS	DRAFT	APPROVED					
2022/8/23	Α	新版发行	王海玲	肖中华					
de C			<u> </u>	1					

## \* Special notes:

This material does not involve the application of automobile or related products, otherwise, we will not bear all the quality and responsibility problems caused by this.



### HUI ZHOU DE LI ELECTRONICS CO., LTD

### 1. Scope

This specification applies to the SFE201610 Series of wire wound SMD power inductor.

### 2.PRODUCT IDENTIFICATION

SFE 201610 - 1R5 □ - □ - □

- **(1)**
- **(2)**
- (3)
- (4)
- (5) (6)
- (1) .Series name (产品品名)
- (3) .Inductance value (电感值)

1R5: 1.5μH 221: 220μH

(5) .Packaging style (包装类型)

T-编带盘装; B-散装

- (2) .Dimensions (产品尺寸)
- (4) .Tolerance (误差值)

M:  $\pm 20\%$ ; N:  $\pm 30\%$ 

(6) .Environmental status (环保状态)

LF- Lead free; HF-Halogen free.

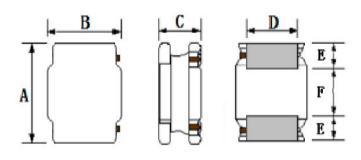
FP-Free red phosphor.

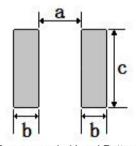
#### 3. Electrical Characteristics

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):  $-40^{\circ}$ C  $\sim +85^{\circ}$ C and RH 70% (Max.).
- 3). Rating DC current: Temperature rise( $\triangle T$ ) 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)





Recommended Land Pattern

NO	Series	A	В	С	D	Е	F	а Тур.	b Тур.	с Тур.
1	SFE201610	2.0±0.3	1.6±0.3	1.05 Max.	1.2±0.2	0.6 Typ.	0.8 Typ.	0.60	0.80	1.40



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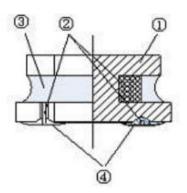
# 5. Electrical Characteristics

3. L	iectricai Character		DCD	• .	_			(1)	
	Part Number	Inductance		sistance		t(A)		s(A)	
NO		100KHz/1.0V		Тур.	Max.	Тур.	Max.	Тур.	Marking
	Units	(uH)	Ω	Ω	A	A	A	A	
1	□ SFE201610-R22N	0.22±30%	0.040	0.033	3.70	4.10	2.80	3.10	N/A
2	☐ SFE201610-R47N	0.47±30%	0.060	0.052	2.30	2.85	2.30	2.60	N/A
3	☐ SFE201610-1R0N	1.0±30%	0.114	0.104	1.65	1.85	1.45	1.60	N/A
4	□ SFE201610-2R2M	2.2±20%	0.265	0.232	1.20	1.45	1.05	1.15	N/A
5	☐ SFE201610-4R7M	4.7±20%	0.480	0.430	0.75	0.90	0.70	0.80	N/A



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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

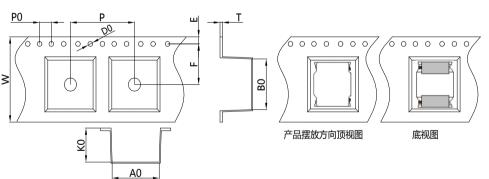
2.包装尺寸:

13" 盘

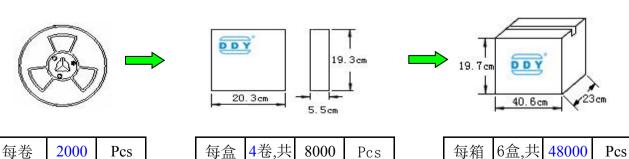
√ 7″ 盘

A D	CARRIER	COVER TAPE
	CARRIER	IAFE

	13" 盘	7" 盘				
Α	Ф330±2.0	Ф178±2.0				
D	8.5					



Size	Item	W	Α0	В0	K0	Р	Т	Е	F	D0	P0
2016	(mm)	8.00±0.3	2.0±0.15	2.4±0.15	1.2±0.1	4.0±0.1	0.25±0.1	1.75±0.1	3.5±0.1	1.5±0.1	4.0±0.1





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8. RI	8. RELIABILITY TEST							
No.	TEST ITEM	SPECIFICATION	TEST CONDITION					
1	High temperature Storage test	1. No significant defects in appearance. 2.ΔL/L ≤ 10% 3.ΔDCR/DCR ≤ 10%	Temperature: 125°C±5°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	<ol> <li>No significant defects in appearance.</li> <li>ΔL/L ≤ 10%</li> <li>ΔDCR/DCR ≤ 10%</li> </ol>	Temperature: -40°C±5°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	Temperature: $40\pm2^{\circ}\text{C}$ , Humidity Time: $96\pm2$ hours Place the samples for one ho temperature and test them wi hours						
4	Solderability test	Terminals must have 95% minimum solder coverage	1.Dip pads in flux then dip in solder pot at 245±5°C for 5 second. 2.Solder: lead free 3.Flux: rosin flux					
5	Heat endurance of flow soldering	<ol> <li>No significant defects in appearance.</li> <li>ΔL/L ≤ 10%</li> <li>ΔDCR/DCR ≤ 10%</li> </ol>	1.Refer to the above reflow curve and go through the reflow for twice. 2.The peak temperature: 260+0/-5°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 through245 °C reflow, apply a standard force on the side of the test samples for 10 seconds.					



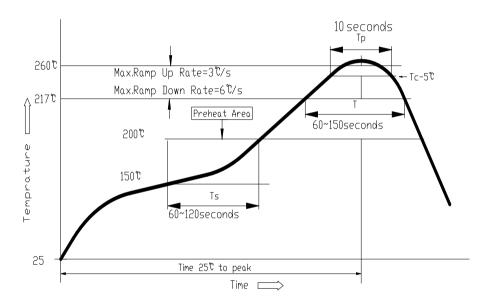
### 9. SOLDERING CONDITIONS

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 solding iron must preheating at  $150^{\circ}$ 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.

- ①Temperature of soldering iron tip:350 $^{\circ}$ C;
- ② Soldering iron power output: ≤30W;
- ③ Diameter of soldering iron end:≤1.0mm;
- **4** Soldering time: ≤3 s

