

# 承 認 書

## SPECIFICATION FOR APPROVAL

Customer Name: 2144

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

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

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

DDY Part No.: SFEK4012A-

DRAWING		
MADE	CHECKED	APPROVED
王海玲	赵万虎	肖中华
DATE: 2023年9月7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 SFEK4012 Series of wire wound SMD power inductor.

### 2.PRODUCT IDENTIFICATION

SFEK 4012 □ - 1R5 □ - □  
(1) (2) (3) (4) (5) (6)

- |  |  |
|--|--|
| (1) .Series name (产品品名)  | (2) .Dimensions (产品尺寸)   |
| (3) .Appearance shape (产品形状)<br>A: dodecagon (十二边形) : B: octagon (八边形) | (4) .Inductance value (电感值)<br>1R5: 1.5μH 221: 220μH   |
| (5) Tolerance (误差值)<br>M: ±20%; N: ±30%                                | (6) .Environmental status (环保状态)<br>LF- Lead free; HF-Halogen free;<br>FP-Free red phosphor. |

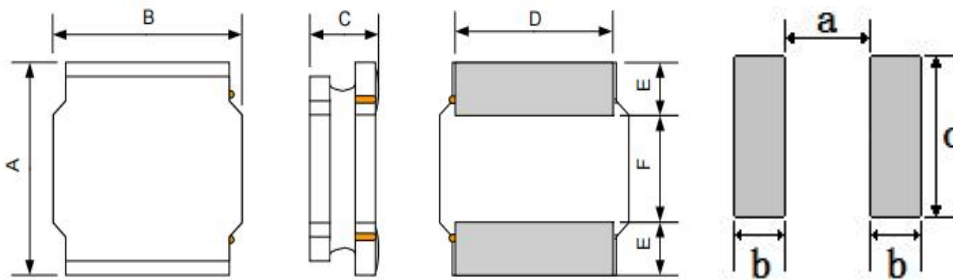
### 3. Electrical Characteristics

Please refer to Item 5.

- Operating temperature range (individual chip without packing): -40°C ~ +125°C ;
- Storage temperature range (packaging conditions): -40°C ~ +85°C and RH 70% (Max.);
- Irms:DC current that causes the temperature rise ( $\Delta T = 40^{\circ}C$ ) from 20°C ambient;
- Isat: DC current at which the inductance drops approximate 30% from its value without current;
- All test data is referenced to 20°C ambient;
- Rated current: Isat or Irms, whichever is smaller;
- Absolute maximum voltage: DC 25V;

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

shape: A



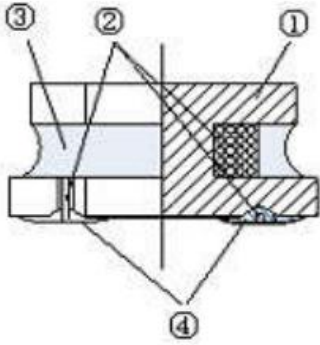
Recommended Land Pattern

Series	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
SFEK4012A	4.0±0.2	4.0±0.2	1.2 Max.	3.4±0.2	1.0 Typ.	2.0 Typ.	1.80	1.20	3.6





## 6. Structure (The structure of product.)



NO	Components	Material
①	Core	soft magnetic metal
②	Wire	Polyurethane system enameled copper wire
③	Magnetic Glue	Epoxy resin and magnetic powder
④	Plating	AgNiSn or FeNiCu + Sn Alloy

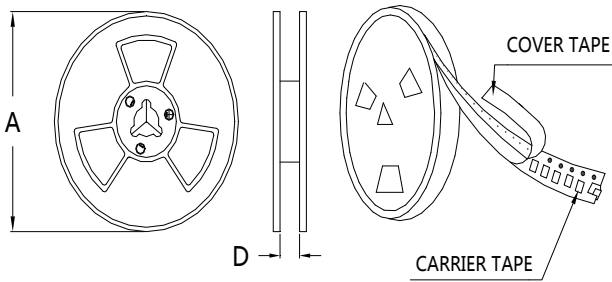
## 7. PACKAGING(unit: mm)

1.包装类型：编带装

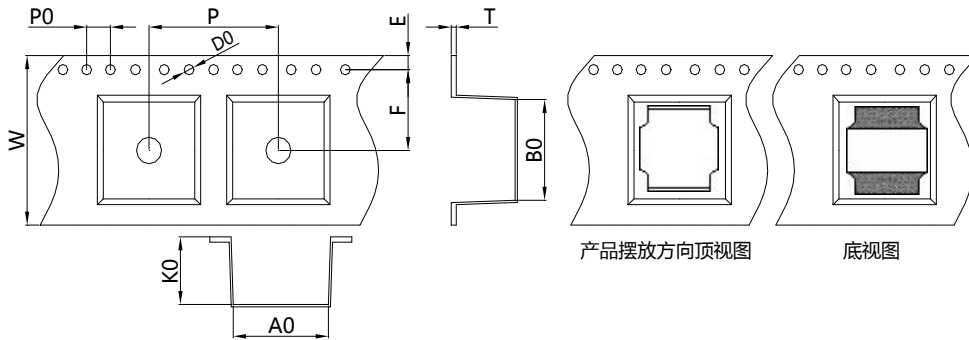
2.包装尺寸：

13" 盘

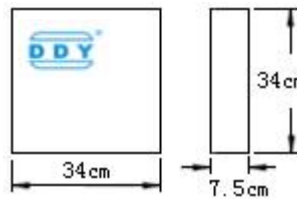
7" 盘



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



Item	W	A0	B0	K0	P	T	E	F	D0	P0
(mm)	$12.0 \pm 0.3$	$4.4 \pm 0.2$	$4.4 \pm 0.2$	$1.4 \pm 0.1$	$8.0 \pm 0.3$	$0.3 \pm 0.1$	$1.75 \pm 0.1$	$5.5 \pm 0.2$	$1.5 \pm 0.1$	$4.0 \pm 0.2$

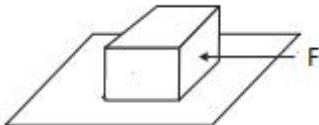


每卷 4500 Pcs

每盒 4卷,共 18000 Pcs

每箱 3盒,共 54000 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 : $96 \pm 2$ 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 : $260 + 0 / - 5^{\circ}\text{C}$
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. 



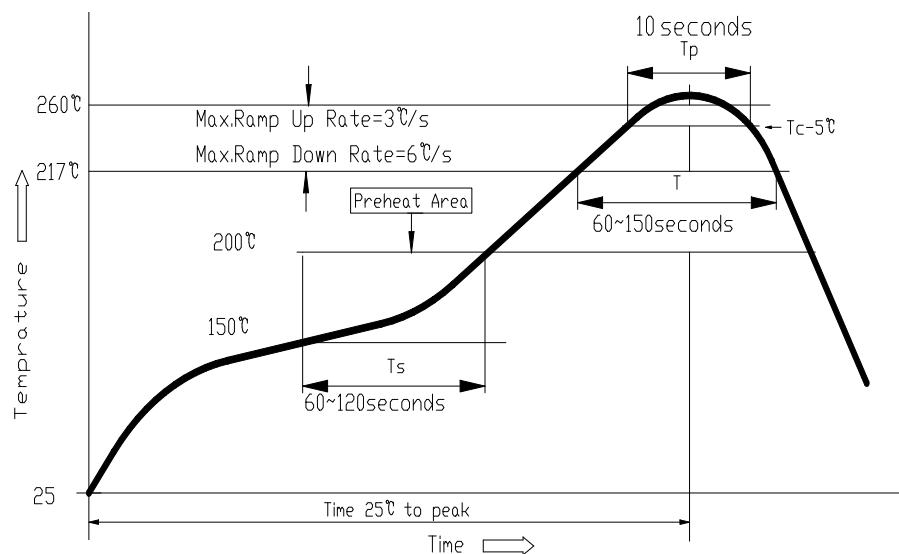
## 9. SOLDERING CONDITIONS

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: ≤30W;
- ③ Diameter of soldering iron end: ≤1.0mm;
- ④ Soldering time: <3 s



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