

承 認 書

SPECIFICATION FOR APPROVAL

Customer Name: 2144

Description Part No.: _____

Customer Part No.: _____

Sample No.: _____

DDY Part No.: SFE201610-

| DRAWING | | |
|------------------|---------|----------|
| MADE | CHECKED | APPROVED |
| 王海玲 | 赵万虎 | 肖中华 |
| DATE: 2022年8月23日 | | |

| CUSTOMER APPROVE |
|------------------|
| |



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HUI ZHOU DE LI ELECTRONICS CO., LTD

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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)

(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

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

(5) .Packaging style (包装类型)

(6) .Environmental status (环保状态)

T-编带盘装; B-散装

LF- Lead free; HF-Halogen free.

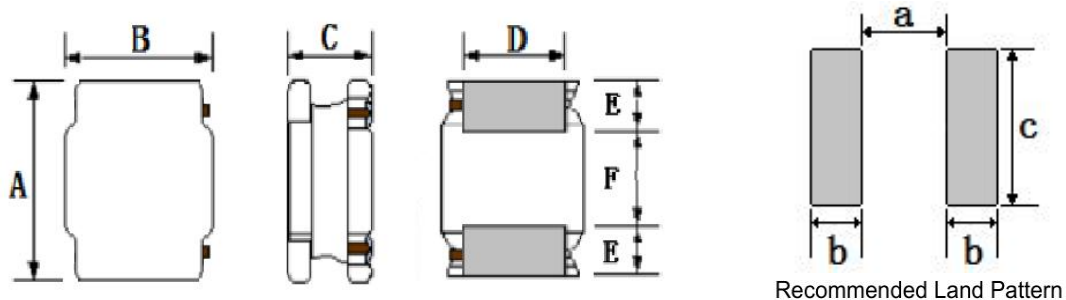
FP-Free red phosphor.

3. Electrical Characteristics

Please refer to Item 5.

- 1). Operating temperature range (individual chip without packing): -40 $^{\circ}$ C ~ +125 $^{\circ}$ C .
- 2). Storage temperature range (packaging conditions): -40 $^{\circ}$ C ~ +85 $^{\circ}$ C and RH 70% (Max.).
- 3). Rating DC current: Temperature rise(Δ T) is 40 $^{\circ}$ C approximately at Irms.
- 4). Saturation DC current: Inductance drop approximately 30% of L₀ at Isat.

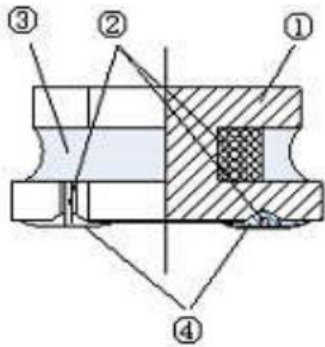
4. Shape and Dimensions (Unit:mm)



| NO | Series | A | B | C | D | E | F | a Typ. | b Typ. | c Typ. |
|----|-----------|---------------|---------------|----------|---------------|----------|----------|--------|--------|--------|
| 1 | SFE201610 | 2.0 \pm 0.3 | 1.6 \pm 0.3 | 1.05 Max | 1.2 \pm 0.2 | 0.6 Typ. | 0.8 Typ. | 0.60 | 0.80 | 1.40 |



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

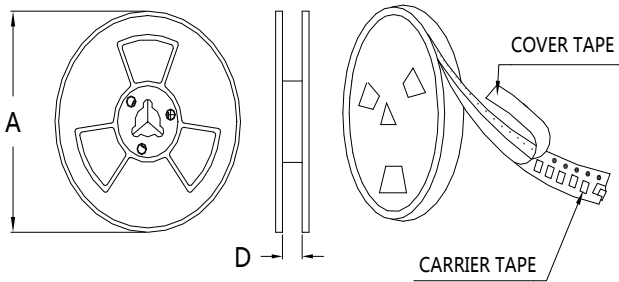
2.包装尺寸：



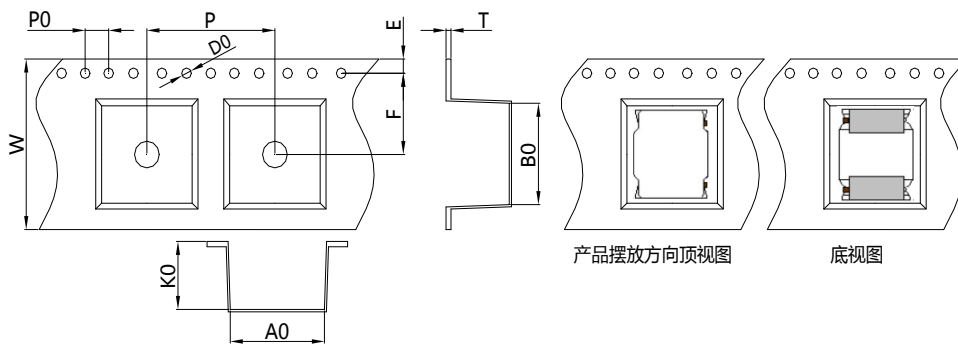
13" 盘



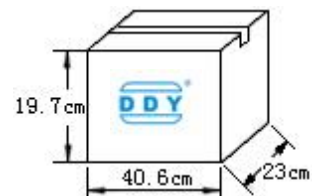
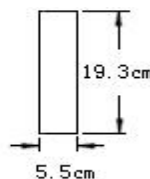
7" 盘



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



| Size | Item | W | A0 | B0 | K0 | P | T | E | 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 |



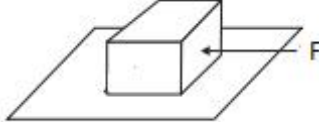
| | | |
|----|------|-----|
| 每卷 | 2000 | Pcs |
|----|------|-----|

| | | | |
|----|------|------|-----|
| 每盒 | 4卷,共 | 8000 | Pcs |
|----|------|------|-----|

| | | | |
|----|------|-------|-----|
| 每箱 | 6盒,共 | 48000 | 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 ± 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

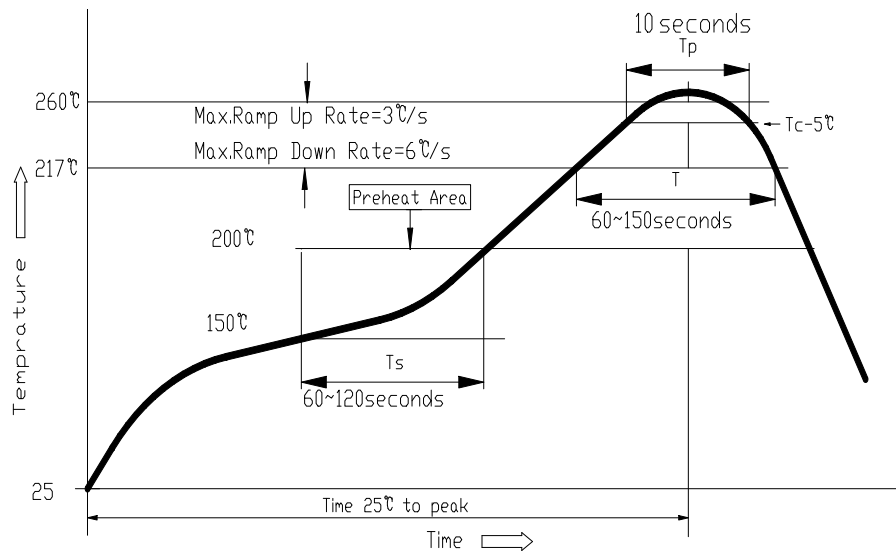
Applicable soldering process to the products is refl.

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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