

承 認 書

SPECIFICATION FOR APPROVAL

Customer Name: 2144

Description Part No.: _____

Customer Part No.: _____

Sample No.: _____

DDY Part No.: SFEK252012S-

| DRAWING | | |
|------------------|---------|----------|
| MADE | CHECKED | APPROVED |
| 王海玲 | 赵万虎 | 肖中华 |
| DATE: 2023年8月24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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惠州市德立电子有限公司
 HUI ZHOU DE LI ELECTRONICS CO., LTD

| Version of Changed Record | | | | |
|--|-----|------------------|-------|----------|
| DATE | REV | CHANGED CONTENTS | DRAFT | APPROVED |
| 2023/8/24 | A | 新版发行 | 王海玲 | 肖中华 |
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| * Special notes: This product is non-vehicle certified. | | | | |



1. Scope

This specification applies to the SFEK252012 Series of wire wound SMD power inductor.

2.PRODUCT IDENTIFICATION

SFEK 252012 - 1R5 □ - □
(1) (2) (3) (4) (5)

(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) .Environmental status (环保状态)

LF- Lead free; HF-Halogen free;

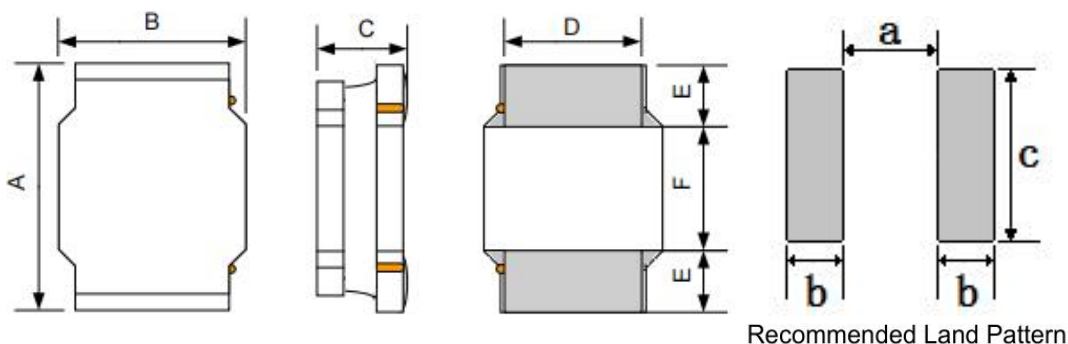
FP-Free red phosphor.

3. Electrical Characteristics

Please refer to Item 5.

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

4. Shape and Dimensions (Unit:mm)



| NO | Series | A | B | C | D | E | F | a Typ. | b Typ. | c Typ. |
|----|------------|---------------|---------------|----------|---------------|----------|----------|--------|--------|--------|
| 1 | SFEK252012 | 2.5 \pm 0.3 | 2.0 \pm 0.3 | 1.2 Max. | 2.0 \pm 0.2 | 0.8 Typ. | 0.9 Typ. | 0.70 | 1.00 | 2.2 |



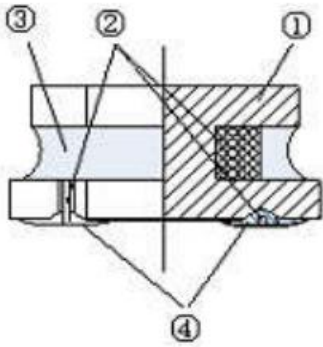
5. Electrical Characteristics

| NO | Part Number | Inductance | DC Resistance | | Isat(A) | | Irms(A) | | Marking |
|----|--|----------------|---------------|----------|---------|------|---------|------|---------|
| | | 1MHz/0.1V | Max. | Typ. | Max. | Typ. | Max. | Typ. | |
| | Units | (μ H) | Ω | Ω | A | A | A | A | |
| 1 | <input type="checkbox"/> SFEK252012S-R24N-HF | 0.24 \pm 30% | 0.023 | 0.019 | 6.50 | 7.80 | 4.05 | 4.70 | N/A |
| 2 | <input type="checkbox"/> SFEK252012S-R33N-HF | 0.33 \pm 30% | 0.035 | 0.028 | 5.35 | 6.30 | 3.70 | 4.30 | N/A |
| 3 | <input type="checkbox"/> SFEK252012S-R47N-HF | 0.47 \pm 30% | 0.035 | 0.029 | 4.90 | 5.60 | 3.45 | 4.00 | N/A |
| 4 | <input type="checkbox"/> SFEK252012S-R68N-HF | 0.68 \pm 30% | 0.045 | 0.039 | 3.80 | 4.50 | 3.10 | 3.60 | N/A |
| 5 | <input type="checkbox"/> SFEK252012S-1R0N-HF | 1.0 \pm 30% | 0.054 | 0.048 | 3.60 | 4.00 | 3.00 | 3.40 | N/A |
| 6 | <input type="checkbox"/> SFEK252012S-1R5N-HF | 1.5 \pm 30% | 0.100 | 0.090 | 2.90 | 3.50 | 2.40 | 2.80 | N/A |
| 7 | <input type="checkbox"/> SFEK252012S-2R2M-HF | 2.2 \pm 20% | 0.120 | 0.100 | 2.60 | 3.00 | 1.90 | 2.15 | N/A |
| 8 | <input type="checkbox"/> SFEK252012S-3R3M-HF | 3.3 \pm 20% | 0.215 | 0.175 | 1.70 | 2.10 | 1.50 | 1.80 | N/A |
| 9 | <input type="checkbox"/> SFEK252012S-4R7M-HF | 4.7 \pm 20% | 0.260 | 0.240 | 1.60 | 1.90 | 1.25 | 1.45 | N/A |
| 10 | <input type="checkbox"/> SFEK252012S-5R6M-HF | 5.6 \pm 20% | 0.336 | 0.313 | 1.30 | 1.40 | 1.10 | 1.20 | N/A |
| 11 | <input type="checkbox"/> SFEK252012S-6R8M-HF | 6.8 \pm 20% | 0.366 | 0.335 | 1.20 | 1.40 | 0.95 | 1.10 | N/A |
| 12 | <input type="checkbox"/> SFEK252012S-8R2M-HF | 8.2 \pm 21% | 0.460 | 0.405 | 1.15 | 1.36 | 0.88 | 1.06 | N/A |
| 13 | <input type="checkbox"/> SFEK252012S-100M-HF | 10 \pm 20% | 0.480 | 0.465 | 1.10 | 1.35 | 0.85 | 1.00 | N/A |
| 14 | <input type="checkbox"/> SFEK252012S-150M-HF | 15.0 \pm 20% | 1.000 | 0.820 | 0.77 | 0.90 | 0.60 | 0.70 | N/A |
| 15 | <input type="checkbox"/> SFEK252012S-220M-HF | 22.0 \pm 20% | 1.090 | 0.955 | 0.60 | 0.75 | 0.55 | 0.65 | N/A |
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※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 | 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 |

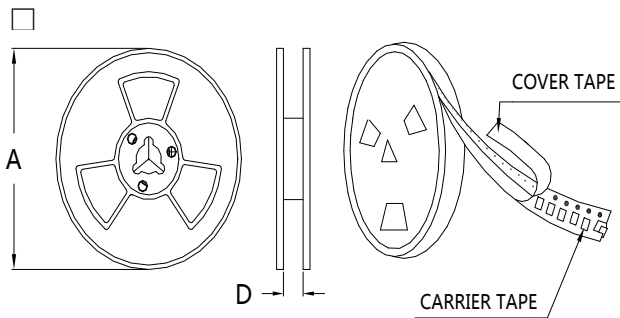
7. PACKAGING(unit: mm)

1.包装类型：编带装

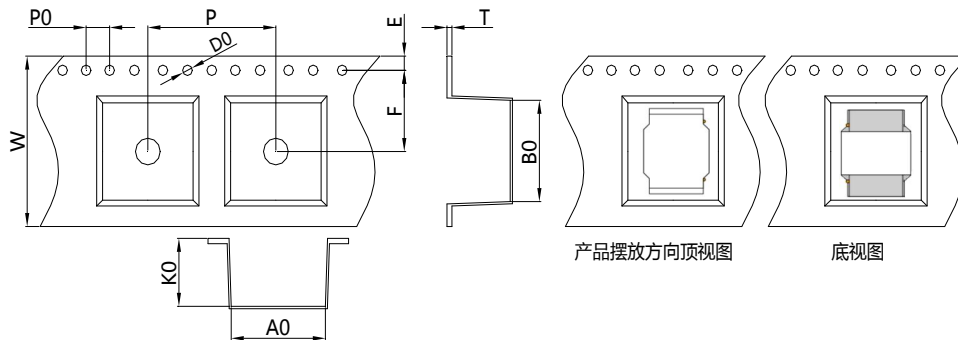
2.包装尺寸：

13" 盘

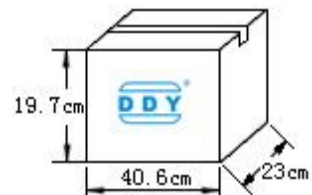
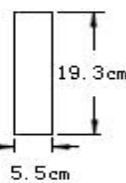
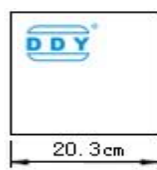
7" 盘



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



| Size | Item | W | A0 | B0 | K0 | P | T | E | F | D0 | P0 |
|--------|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 252012 | (mm) | 8.00 ± 0.3 | 2.35 ± 0.2 | 2.65 ± 0.2 | 1.40 ± 0.1 | 4.00 ± 0.1 | 0.25 ± 0.1 | 1.75 ± 0.1 | 3.50 ± 0.1 | 1.50 ± 0.1 | 4.00 ± 0.2 |



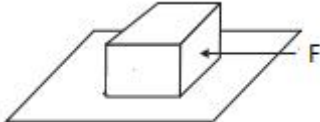
每卷 2000 Pcs

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 : $260 \pm 0/-5^{\circ}\text{C}$ |
| 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°C reflow, apply a standard force on the side of the test samples for 10 seconds.  |



9. SOLDERING CONDITIONS

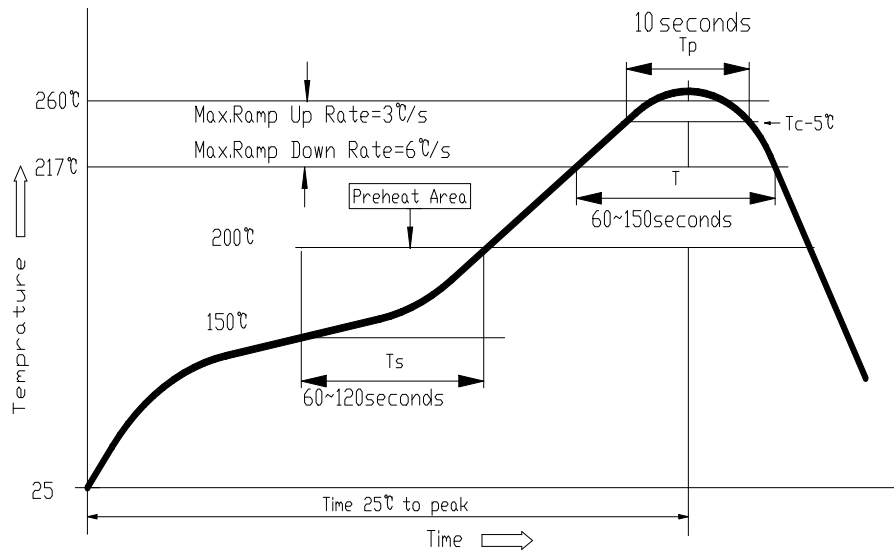
Applicable soldering process to the products is refl.

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



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[PE-53601NL](#) [PE-53602NL](#) [PG0936.113NLT](#) [9220-20](#) [9310-16](#) [PM06-2N7](#) [PM06-39NJ](#) [A01TK](#) [1206CS-471XJ](#) [HC2-R47-R](#) [HC8-1R2-R](#)
[HCF1305-3R3-R](#) [1206CS-151XG](#) [RCH664NP-4R7M](#) [RCP1317NP-391L](#) [DH2280-4R7M](#) [DS1608C-106](#) [B10TJ](#) [B82498B3101J000](#) [ELJ-](#)
[RE27NJF2](#) [1812CS-153XJ](#) [1812CS-183XJ](#) [1812CS-223XJ](#) [1812LS-104XJ](#) [1812LS-105XJ](#) [1812LS-124XJ](#) [1812LS-154XJ](#) [1812LS-223XJ](#)
[1812LS-224XJ](#) [1812LS-563XJ](#) [1812LS-683XJ](#) [1812LS-824XJ](#) [NIN-FB101JTR110F](#) [NIN-FB471JTR62F](#) [NIN-FC1R5JTR220F](#) [NIN-](#)
[HCR15JTRF](#) [NIN-HCR33JTRF](#) [NIN-HDR22JTRF](#) [NIN-HDR82JTRF](#) [NIN-HK2N7STRF](#) [NIN-PA150KTR370F](#) [NIN-PB100KTR550F](#)