

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

HUI ZHOU DE LI ELECTRONICS CO., LTD

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傳真：0752-6207969

郵編：516100

Http: www.ddycoils.com



Version of Changed Record

| DATE | REV | CHANGED CONTENTS | DRAFT | APPROVED |
|----------|-----|------------------|-------|----------|
| 2023/8/8 | 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 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.

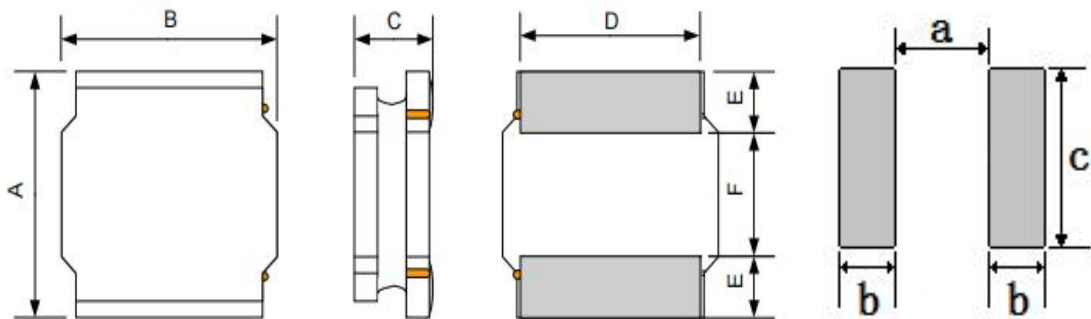
3. Electrical Characteristics

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 L₀ 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 |



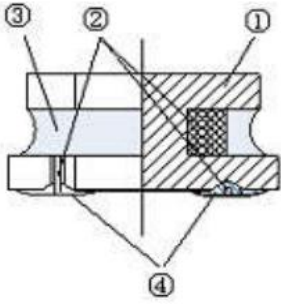
5. Electrical Characteristics

| 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 |

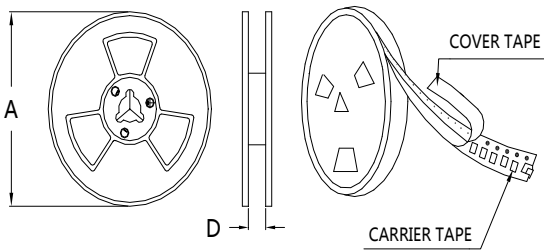
7. PACKAGING(unit: mm)

1.包装类型：编带装

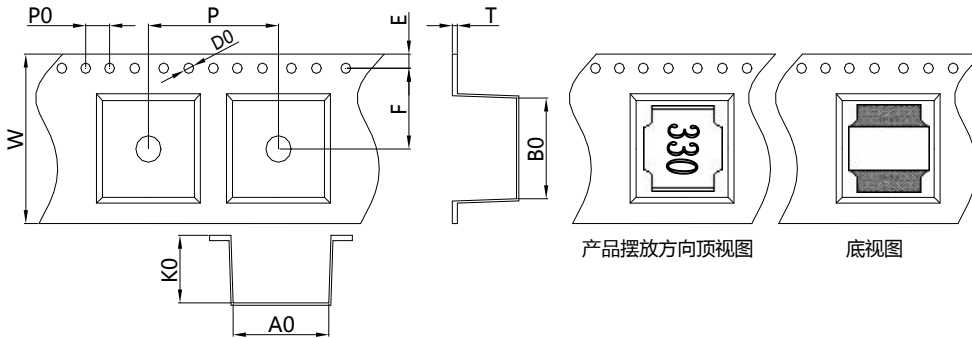
2.包装尺寸：

13" 盘

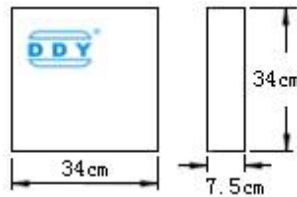
7" 盘



| | 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 |

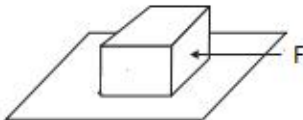


| | | |
|----|------|-----|
| 每卷 | 3000 | Pcs |
|----|------|-----|

| | | | |
|----|------|-------|-----|
| 每盒 | 4卷,共 | 12000 | Pcs |
|----|------|-------|-----|

| | | | |
|----|------|-------|-----|
| 每箱 | 3盒,共 | 36000 | 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

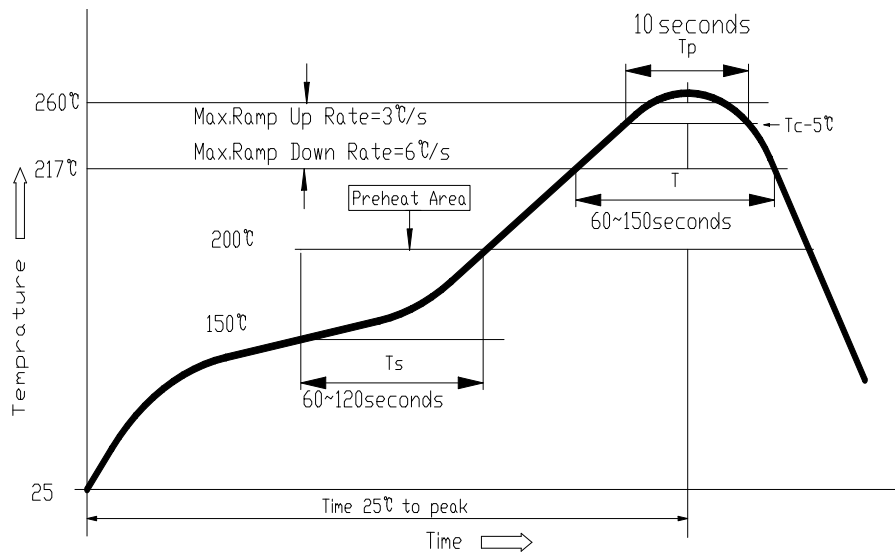
Applicable soldering process to the products is refl.

9.1 Soldering Materials

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

(2) Flux: Use rosin-based flux, but not strongly acidic flux (with 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: $\leq 30W$;
- ③ Diameter of soldering iron end: $\leq 1.0mm$;
- ④ Soldering time: $< 3 s$



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[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](#)