

承 認 書

SPECIFICATION FOR APPROVAL

Customer's Part No: 2144

Customer's Part Name: _____

Customer's Part No: _____

Customer's Part Name: _____

Customer's Part No: UHG6242C/

| DRAWING | | |
|------------------|---------|----------|
| MADE | CHECKED | APPROVED |
| 王海玲 | 赵万虎 | 肖中华 |
| DATE: 2023年4月27日 | | |

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



惠州市德立电子有限公司

HUI ZHOU DE LI ELECTRONICS CO., LTD

廣東省博羅縣洲際工業園梅園三路

NO.3 MEI YUAN ROAD,ZHOU JI INDUSTRIAL AREA,BOLUO COUNTY GUANGDONG

電話：15970768093 13640935893

傳真：0752-6207969

郵編：516100

Http: www.ddycoils.com



1. Scope

This specification applies to the SFE4020 Series of wire wound SMD power inductor.

2.PRODUCT IDENTIFICATION

SFE 4020 □ - 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)

A: dodecagon (十二边形) ; B: octagon (八边形) 1R5: 1.5μH 221: 220μH

- (5) Tolerance (误差值)
- (6) .Identification code (标识码)

M: ±20%; N: ±30%

- (7) .Environmental status (环保状态)

LF- Lead free; HF-Halogen free; FP-Free red phosphor.

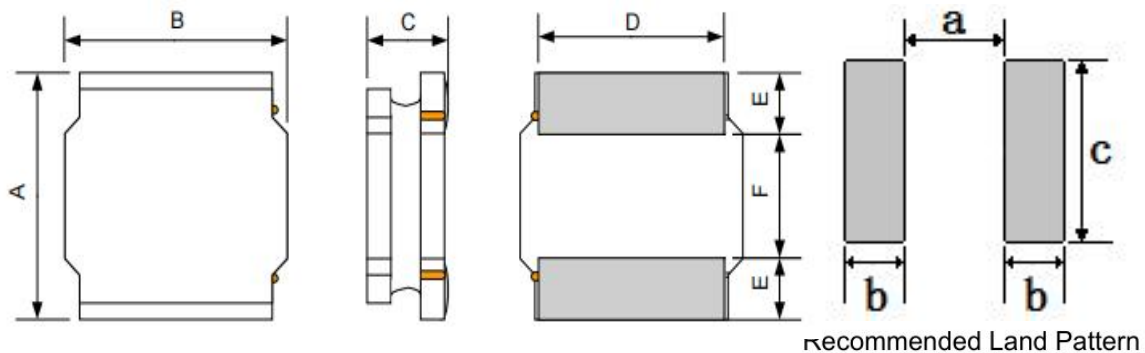
3. Electrical Characteristics

Please refer to Item 5.

- 1). Operating temperature range (individual chip without packing): -40°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



| Series | A | B | C | D | E | F | a Typ. | b Typ. | c Typ. |
|----------|---------|---------|----------|---------|----------|----------|--------|--------|--------|
| SFE4020A | 4.0±0.2 | 4.0±0.2 | 2.0 Max. | 3.3±0.2 | 1.2 Typ. | 1.6 Typ. | 1.4 | 1.4 | 3.5 |



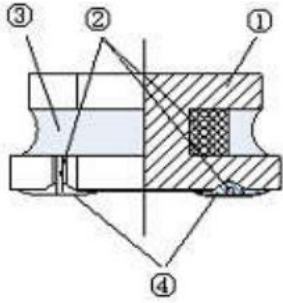
5. Electrical Characteristics

| NO. | DDY CODE | Part Number | Inductance | DC Resistance | | Isat(A) | | Irms(A) | | Marking |
|-----|----------|---|-----------------|---------------|----------|---------|-------|---------|------|---------|
| | | | 100KHz/1.0V | Max. | Typ. | Max. | Typ. | Max. | Typ. | |
| | | Units | (μ H) | Ω | Ω | A | A | A | A | |
| 1 | | <input type="checkbox"/> SFE4020A-R24N-F-HF | 0.24 \pm 30% | 0.014 | 0.010 | 10.50 | 12.50 | 4.50 | 5.20 | R24 |
| 2 | | <input type="checkbox"/> SFE4020A-R47N-F-HF | 0.47 \pm 30% | 0.018 | 0.012 | 7.00 | 7.50 | 4.00 | 4.50 | R47 |
| 3 | | <input type="checkbox"/> SFE4020A-R68N-F-HF | 0.68 \pm 30% | 0.022 | 0.017 | 6.40 | 6.80 | 2.80 | 3.30 | R68 |
| 4 | | <input type="checkbox"/> SFE4020A-1R0N-F-HF | 1.00 \pm 30% | 0.038 | 0.029 | 4.80 | 5.20 | 2.50 | 3.20 | 1R0 |
| 5 | | <input type="checkbox"/> SFE4020A-1R2N-F-HF | 1.20 \pm 30% | 0.042 | 0.032 | 4.80 | 5.10 | 2.15 | 3.00 | 1R2 |
| 6 | | <input type="checkbox"/> SFE4020A-1R5M-F-HF | 1.50 \pm 30% | 0.046 | 0.035 | 4.45 | 4.90 | 2.20 | 3.00 | 1R5 |
| 7 | | <input type="checkbox"/> SFE4020A-2R2M-F-HF | 2.20 \pm 20% | 0.052 | 0.045 | 3.40 | 3.50 | 2.00 | 2.80 | 2R2 |
| 8 | | <input type="checkbox"/> SFE4020A-3R3M-F-HF | 3.30 \pm 20% | 0.091 | 0.075 | 3.20 | 3.50 | 1.80 | 2.50 | 3R3 |
| 9 | | <input type="checkbox"/> SFE4020A-3R6M-F-HF | 3.60 \pm 20% | 0.098 | 0.084 | 2.80 | 3.00 | 1.54 | 2.30 | 3R6 |
| 10 | | <input type="checkbox"/> SFE4020A-4R7M-F-HF | 4.70 \pm 20% | 0.098 | 0.084 | 2.35 | 2.50 | 1.50 | 2.00 | 4R7 |
| 11 | | <input type="checkbox"/> SFE4020A-5R6M-F-HF | 5.60 \pm 20% | 0.117 | 0.102 | 2.20 | 2.40 | 1.22 | 1.80 | 5R6 |
| 12 | | <input type="checkbox"/> SFE4020A-6R2M-F-HF | 6.20 \pm 20% | 0.150 | 0.129 | 2.15 | 2.30 | 1.08 | 1.60 | 6R2 |
| 13 | | <input type="checkbox"/> SFE4020A-6R8M-F-HF | 6.80 \pm 20% | 0.163 | 0.141 | 2.20 | 2.40 | 1.10 | 1.60 | 6R8 |
| 14 | | <input type="checkbox"/> SFE4020A-8R2M-F-HF | 8.20 \pm 20% | 0.189 | 0.168 | 1.75 | 1.90 | 0.95 | 1.35 | 8R2 |
| 15 | | <input type="checkbox"/> SFE4020A-100M-F-HF | 10.0 \pm 20% | 0.215 | 0.184 | 1.60 | 1.70 | 0.90 | 1.20 | 100 |
| 16 | | <input type="checkbox"/> SFE4020A-120M-F-HF | 12.0 \pm 20% | 0.228 | 0.197 | 1.50 | 1.60 | 0.88 | 1.20 | 120 |
| 17 | | <input type="checkbox"/> SFE4020A-150M-F-HF | 15.0 \pm 20% | 0.299 | 0.240 | 1.35 | 1.50 | 0.77 | 1.10 | 150 |
| 18 | | <input type="checkbox"/> SFE4020A-220M-F-HF | 22.0 \pm 20% | 0.455 | 0.360 | 1.05 | 1.10 | 0.62 | 0.87 | 220 |
| 19 | | <input type="checkbox"/> SFE4020A-270M-F-HF | 27.0 \pm 20% | 0.709 | 0.545 | 1.02 | 1.10 | 0.50 | 0.70 | 270 |
| 20 | | <input type="checkbox"/> SFE4020A-330M-F-HF | 33.0 \pm 20% | 0.715 | 0.490 | 0.85 | 1.00 | 0.50 | 0.60 | 330 |
| 21 | | <input type="checkbox"/> SFE4020A-470M-F-HF | 47.0 \pm 20% | 0.923 | 0.795 | 0.70 | 0.75 | 0.44 | 0.60 | 470 |
| 22 | | <input type="checkbox"/> SFE4020A-560M-F-HF | 56.0 \pm 20% | 1.152 | 0.988 | 0.66 | 0.72 | 0.41 | 0.57 | 560 |
| 23 | | <input type="checkbox"/> SFE4020A-680M-F-HF | 68.0 \pm 20% | 1.380 | 1.130 | 0.61 | 0.67 | 0.36 | 0.50 | 680 |
| 24 | | <input type="checkbox"/> SFE4020A-750M-F-HF | 75.0 \pm 20% | 1.510 | 1.310 | 0.70 | 0.77 | 0.35 | 0.49 | 750 |
| 25 | | <input type="checkbox"/> SFE4020A-820M-F-HF | 82.0 \pm 20% | 1.520 | 1.410 | 0.50 | 0.55 | 0.34 | 0.47 | 820 |
| 26 | | <input type="checkbox"/> SFE4020A-101M-F-HF | 100.0 \pm 20% | 2.020 | 1.810 | 0.48 | 0.53 | 0.31 | 0.43 | 101 |
| | | | | | | | | | | |

※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 |

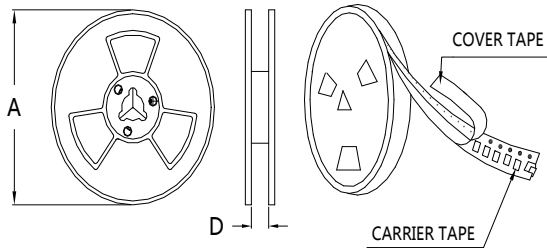
7. PACKAGING(unit: mm)

1.包装类型：编带装

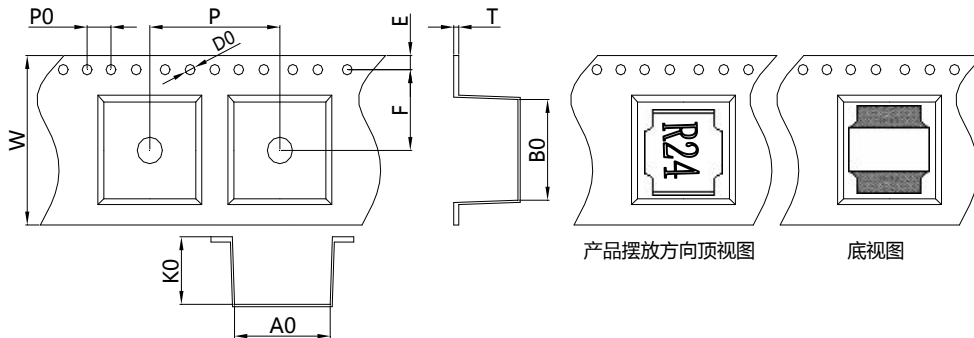
2.包装尺寸：

13" 盘

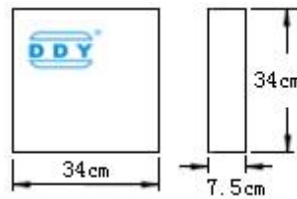
7" 盘



| | 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 |
|------|------|----------|---------|---------|---------|---------|---------|----------|---------|---------|---------|
| 4020 | (mm) | 12.0±0.3 | 4.4±0.2 | 4.4±0.2 | 2.1±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 |



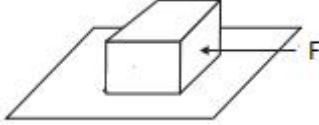
| | | |
|----|------|-----|
| 每卷 | 3000 | Pcs |
|----|------|-----|

| | | | |
|----|------|-------|-----|
| 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 : $260 \pm 0/-5^{\circ}\text{C}$ |
| 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

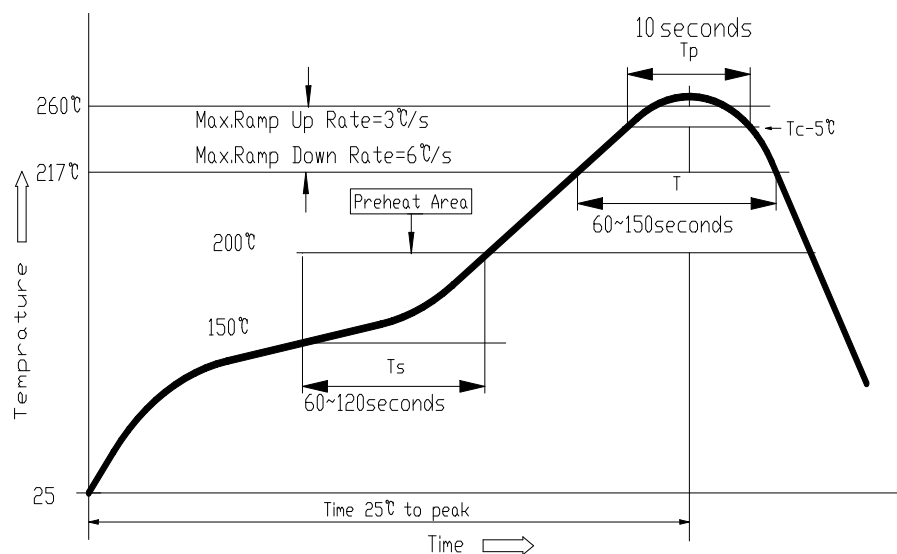
Applicable soldering process to the products is refl.

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



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Fixed Inductors](#) category:

Click to view products by [DDY](#) manufacturer:

Other Similar products are found below :

[CR32NP-100KC](#) [70F224AI](#) [MHQ1005P10NJ](#) [MHQ1005P1N0S](#) [MHQ1005P2N4S](#) [MHQ1005P3N6S](#) [MHQ1005P5N1S](#) [MHQ1005P8N2J](#)
[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](#)