

# 承 認 書

## SPECIFICATION FOR APPROVAL

Customer Name: 2144

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

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

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

DDY Part No.: SFE8040A-

DRAWING		
MADE	CHECKED	APPROVED
王海玲	赵万虎	肖中华
DATE: 2023年3月30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 SFE8040 Series of wire wound SMD power inductor.

## 2. PRODUCT IDENTIFICATION

SFE 8040 □ - 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: 1.5 $\mu$ H 221: 220 $\mu$ H

(5) Tolerance (误差值)

(6) .Identification code (标识码)

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

(7) .Environmental status (环保状态)

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

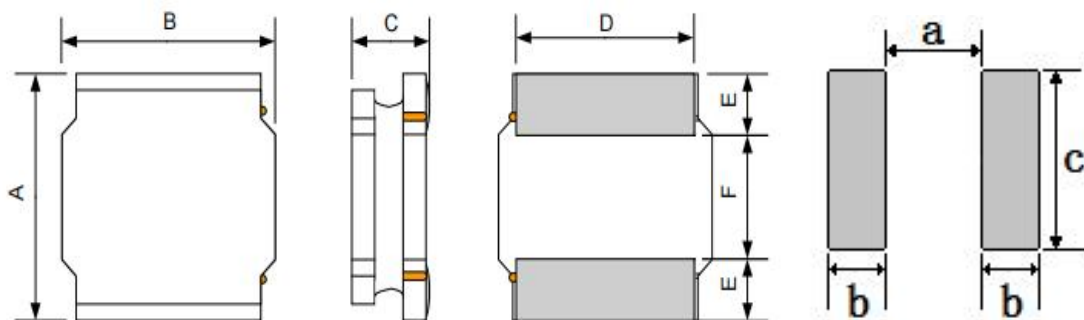
## 3. Electrical Characteristics

Please refer to Item 5.

- 1). Operating temperature range (individual chip without packing):  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$  .
- 2). Storage temperature range (packaging conditions):  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$  and RH 70% (Max.).
- 3). Rating DC current: Temperature rise( $\Delta T$ ) is  $40^{\circ}\text{C}$  approximately at Irms.
- 4). Saturation DC current: Inductance drop approximately 30% of  $L_0$  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.
SFE8040A	8.0 $\pm$ 0.3	8.0 $\pm$ 0.3	4.2 Max.	6.3 $\pm$ 0.3	2.0 Typ.	4.0 Typ.	3.8	2.2	6.5



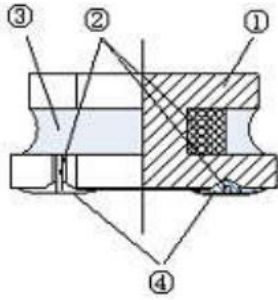
## 5. Electrical Characteristics

NO.	Part Number	Inductance	DC Resistance		Isat(A)		Irms(A)		Marking
		100KHz/1.0V	Max.	Typ.	Max.	Typ.	Max.	Typ.	
	Units	( $\mu$ H)	$\Omega$	$\Omega$	A	A	A	A	
1	□ SFE8040A-R47N-F-HF	0.47±30%	0.008	0.006	14.00	16.00	8.00	10.00	R47
2	□ SFE8040A-1R0N-F-HF	1.0±30%	0.010	0.008	9.85	14.00	6.30	6.90	1R0
3	□ SFE8040A-1R5N-F-HF	1.5±30%	0.013	0.010	8.15	11.00	5.65	6.20	1R5
4	□ SFE8040A-1R8N-F-HF	1.8±30%	0.013	0.010	8.15	11.00	5.65	6.20	1R8
5	□ SFE8040A-2R2M-F-HF	2.2±20%	0.016	0.013	7.10	8.00	5.15	5.60	2R2
6	□ SFE8040A-3R3M-F-HF	3.3±20%	0.022	0.015	6.50	7.00	4.40	4.80	3R3
7	□ SFE8040A-4R7M-F-HF	4.7±20%	0.025	0.021	5.90	6.50	4.10	4.50	4R7
8	□ SFE8040A-5R6M-F-HF	5.6±20%	0.027	0.025	6.00	6.50	3.85	4.50	5R6
9	□ SFE8040A-6R8M-F-HF	6.8±20%	0.034	0.030	4.55	5.20	3.60	4.00	6R8
10	□ SFE8040A-8R2M-F-HF	8.2±20%	0.039	0.035	4.20	4.80	3.45	3.80	8R2
11	□ SFE8040A-100M-F-HF	10.0±20%	0.043	0.037	3.60	4.10	3.30	3.60	100
12	□ SFE8040A-150M-F-HF	15.0±20%	0.065	0.053	2.95	3.60	2.60	2.80	150
13	□ SFE8040A-220M-F-HF	22.0±20%	0.090	0.081	2.40	2.70	2.10	2.30	220
14	□ SFE8040A-330M-F-HF	33.0±20%	0.126	0.097	2.05	2.40	1.80	2.00	330
15	□ SFE8040A-470M-F-HF	47.0±20%	0.200	0.164	1.75	2.00	1.55	1.70	470
16	□ SFE8040A-560M-F-HF	56.0±20%	0.230	0.205	1.55	1.70	1.45	1.60	560
17	□ SFE8040A-680M-F-HF	68.0±20%	0.255	0.235	1.45	1.60	1.25	1.40	680
18	□ SFE8040A-820M-F-HF	82.0±20%	0.293	0.263	1.30	1.40	1.15	1.20	820
19	□ SFE8040A-910M-F-HF	91.0±20%	0.354	0.296	1.20	1.30	1.05	1.10	910
20	□ SFE8040A-101M-F-HF	100.0±20%	0.377	0.338	1.15	1.30	1.00	1.10	101
21	□ SFE8040A-121M-F-HF	120.0±20%	0.434	0.382	1.05	1.10	0.95	1.00	121
22	□ SFE8040A-151M-F-HF	150.0±20%	0.533	0.475	1.10	1.20	0.85	0.94	151
23	□ SFE8040A-221M-F-HF	220.0±20%	0.850	0.790	0.85	0.94	0.80	0.88	221
24	□ SFE8040A-331M-F-HF	330.0±20%	1.156	1.050	0.68	0.75	0.64	0.70	331
25	□ SFE8040A-471M-F-HF	470.0±20%	2.100	1.750	0.60	0.70	0.50	0.60	471
26	□ SFE8040A-561M-F-HF	560.0±20%	2.370	2.100	0.55	0.65	0.50	0.60	561
27	□ SFE8040A-681M-F-HF	680.0±20%	2.370	2.100	0.52	0.60	0.50	0.65	681
28	□ SFE8040A-102M-F-HF	1000.0±20%	3.900	3.150	0.40	0.45	0.36	0.42	102

※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

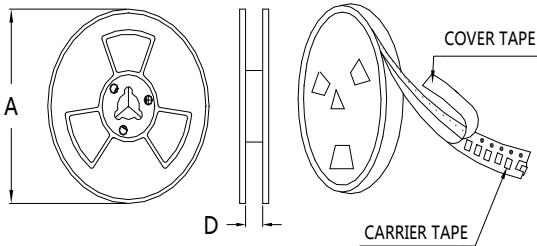
2.包装尺寸：



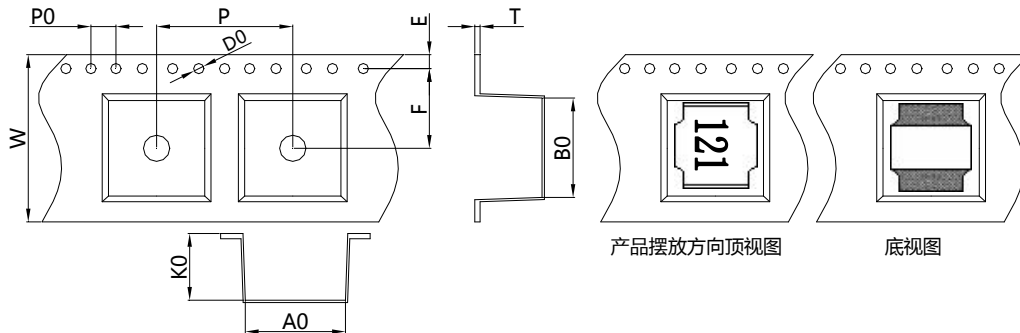
13" 盘



7" 盘



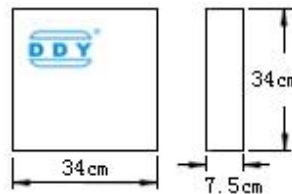
	13" 盘	7" 盘
A	$\Phi 330 \pm 2.0$	$\Phi 178 \pm 2.0$
D	16.5	



产品摆放方向顶视图

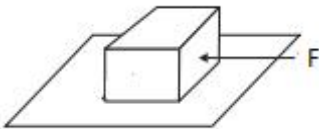
底视图

Size	Item	W	A0	B0	K0	P	T	E	F	D0	P0
8040	(mm)	$16 \pm 0.3$	$8.4 \pm 0.1$	$8.4 \pm 0.1$	$4.4 \pm 0.1$	$12 \pm 0.1$	$0.4 \pm 0.1$	$1.75 \pm 0.1$	$7.5 \pm 0.1$	$1.5 \pm 0.1$	$4.0 \pm 0.1$



每卷	1000	Pcs		每盒	3卷,共	3000	Pcs		每箱	3盒,共	9000	Pcs
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<b>8. RELIABILITY TEST</b>			
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

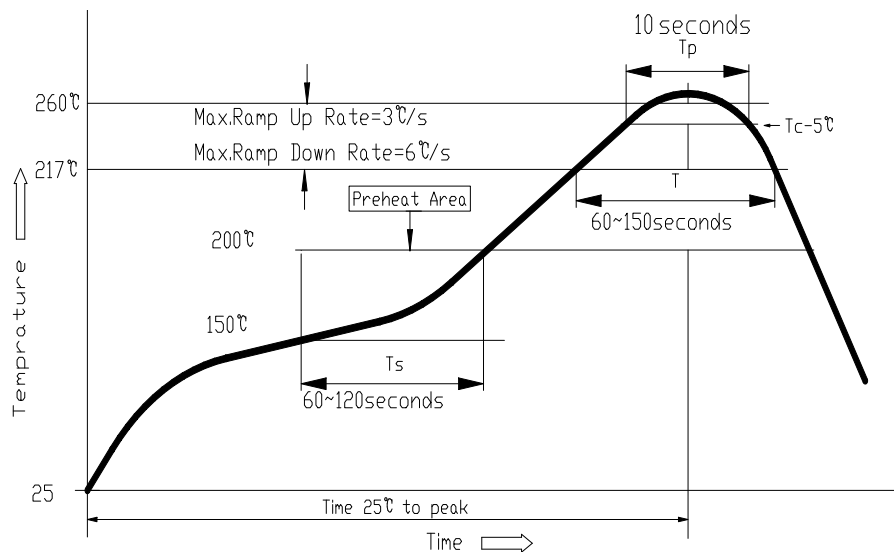
Applicable soldering process to the products is refl.

### 9.1 Soldering Materials

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

(2) Flux: Use rosin-based flux, but not strongly acidic flux (with 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:  $< 3 s$



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