

# 承認書

## SPECIFICATION FOR APPROVAL

CUSTOMER: \_\_\_\_\_ 2144 \_\_\_\_\_

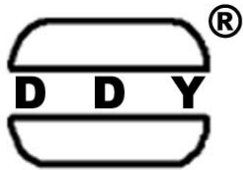
DESCRIPTION: \_\_\_\_\_ SMD INDUCTOR \_\_\_\_\_

DDY PART NO: \_\_\_\_\_ SFE252012S系列 \_\_\_\_\_

CUSTOMERMODELNO: \_\_\_\_\_

DRAWING		
MADE	CHECKED	APPROVED
聂旭彬	余运鸿	陈启善
DATE: 2021年7月19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  
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惠州市德立电子有限公司  
HUI ZHOU DE LI ELECTRONICS CO., LTD

CUSTOMER:	2144	REV NO:	A1.0
DESCRIPTION:	SMD INDUCTOR	PAGE NO:	PAGE 1 OF 9
CUST P/N:		SN.	210703110
PART NO:	SFE252012S系列	DATE:	2021年7月19日

## CATALOG

Resume	.....	P2
Shape & Dimension	.....	P3
Part numbering system	.....	P3
General specification	.....	P3
Electrical Characteristics List	.....	P4
Package Information	.....	P5-6
Reliabilty Test	.....	P7-8
Soldering Conditions	.....	P9





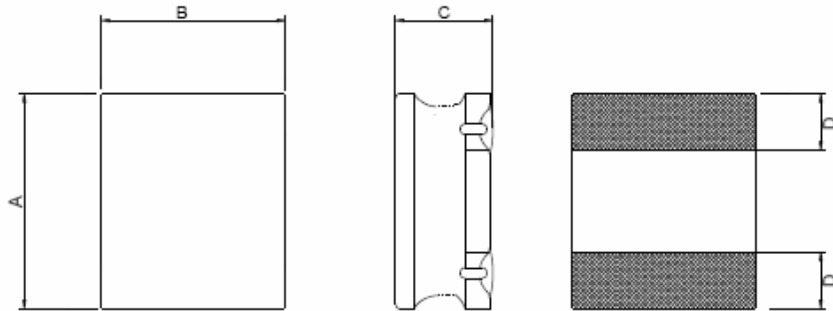
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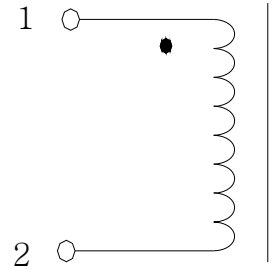
CUSTOMER:	2144	REV NO:	A1.0
DESCRIPTION:	SMD INDUCTOR	PAGE NO:	PAGE 3 OF 9
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PART NO:	SFE252012S系列	DATE:	2021年7月19日

### 1. SHAPE & DIMENSION

UNIT: mm



SCHEMATICS



CODE	A	B	C	D		
DIMENSION	2.5±0.3	2.0±0.3	1.25Max	0.8 TYP		

### 2. PART NUMBERING SYSTEM

**SFE 252012S - 2R2 M - HF**

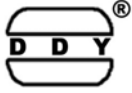
**1 2 3 4 5**

- 1 PRODUCT SYMBOL (产品代号)
- 2 DIMENSIONS (规格尺寸)
- 3 INDUCTANCE (电感量)
- 4 TOLERANCE (公差) : M±20%; P±25%; N±30%
- 5 E.P. (环保) : LF—Lead Free HF—Halogen Free FP—Red Phosphor Free

### 3. GENERAL SPECIFICATION

- a. Rating DC current: Temperature rise( $\Delta T$ ) is 40°C approximately at Irms.
- b. Saturation DC current: Inductance drop approximately 30% of  $L_0$  at Isat.
- c. Operating temp.: -40°C~ +125°C

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CUSTOMER:	2144	REV NO:	A1.0
DESCRIPTION:	SMD INDUCTOR	PAGE NO:	PAGE 4 OF 9
CUST P/N:		SN.	210703110
PART NO:	SFE252012S系列	DATE:	2021年7月19日

**4.ELECTRICAL CHARACTERISTICS LIST**

NO.	Part Number	Inductance	DCR		Isat		Irms	
		( $\mu$ H)	( $\Omega$ )		(A)		(A)	
	Units	1MHz/1V	Max	Typ	Max	Typ	Max	Typ
1	SFE252012S-R24M	0.24 $\pm$ 20%	0.023	0.019	4.10	4.80	4.10	4.50
2	SFE252012S-R33M	0.33 $\pm$ 20%	0.031	0.026	4.00	4.70	3.35	3.70
3	SFE252012S-R47M	0.47 $\pm$ 20%	0.036	0.031	3.80	4.50	3.00	3.30
4	SFE252012S-R68M	0.68 $\pm$ 20%	0.047	0.038	3.00	3.30	2.30	2.50
5	SFE252012S-1R0M	1.0 $\pm$ 20%	0.060	0.050	2.25	2.50	2.30	2.60
6	SFE252012S-1R2M	1.2 $\pm$ 20%	0.078	0.065	2.20	2.50	2.00	2.20
7	SFE252012S-1R5M	1.5 $\pm$ 20%	0.090	0.075	2.00	2.35	1.80	2.00
8	SFE252012S-1R8M	1.8 $\pm$ 20%	0.108	0.093	1.95	2.20	1.75	1.90
9	SFE252012S-2R2M	2.2 $\pm$ 20%	0.108	0.093	1.75	1.90	1.75	1.90
10	SFE252012S-2R7M	2.7 $\pm$ 20%	0.156	0.130	1.30	1.60	1.40	1.50
11	SFE252012S-3R3M	3.3 $\pm$ 20%	0.156	0.130	1.20	1.35	1.40	1.50
12	SFE252012S-4R7M	4.7 $\pm$ 20%	0.228	0.190	1.10	1.20	1.10	1.20
13	SFE252012S-5R6M	5.6 $\pm$ 20%	0.330	0.255	1.00	1.10	1.00	1.15
14	SFE252012S-6R8M	6.8 $\pm$ 20%	0.360	0.300	0.90	1.10	0.95	1.05
15	SFE252012S-100M	10 $\pm$ 20%	0.522	0.435	0.70	0.85	0.78	0.86
16	SFE252012S-150M	15 $\pm$ 20%	1.000	0.700	0.60	0.70	0.50	0.60
17	SFE252012S-220M	22 $\pm$ 20%	1.290	1.000	0.45	0.55	0.48	0.55
18								
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DESCRIPTION:	SMD INDUCTOR	PAGE NO:	PAGE 5 OF 9
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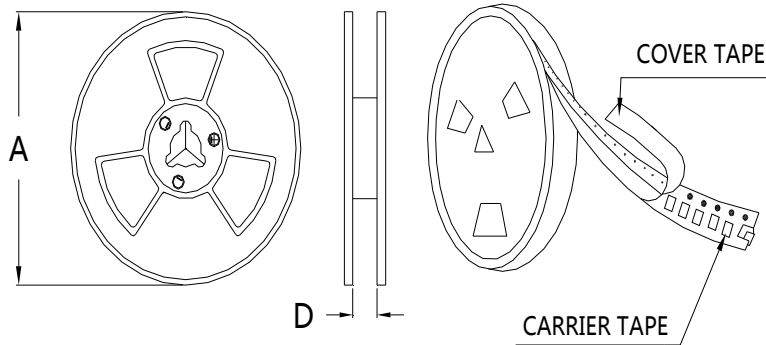
5. PACKAGING(unit: mm)

1.包装类型：编带装

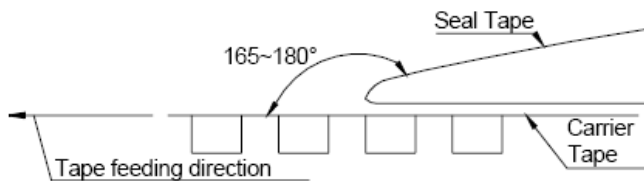
2.包装尺寸：

13" 盘

7" 盘



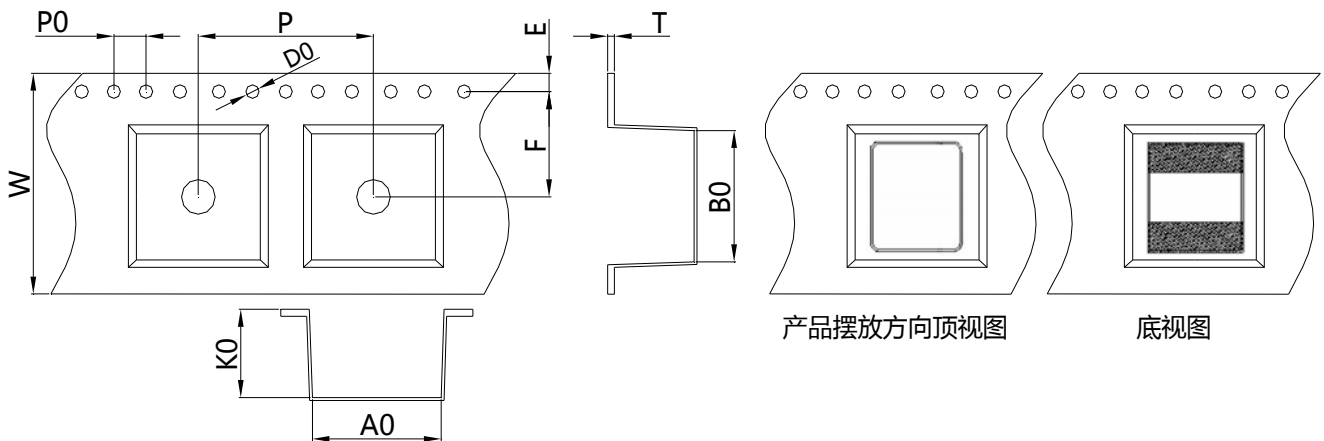
	13" 盘	7" 盘
A	$\Phi 330 \pm 2.0$	$\Phi 178 \pm 2.0$
D	8.5	



Peel-off strength: 10~100gf.

Peel-off angle: 165°-180°

Peel-off speed: 300mm/min.



Item	W	A0	B0	K0	P	T	E	F	D0	P0		
DIM(mm)	8.00 $\pm 0.3$	2.35 $\pm 0.2$	2.65 $\pm 0.2$	1.40 $\pm 0.1$	4.00 $\pm 0.1$	0.25 $\pm 0.1$	1.75 $\pm 0.1$	3.50 $\pm 0.1$	1.50 $\pm 0.1$	4.00 $\pm 0.2$		

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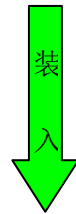


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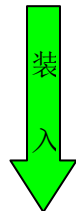
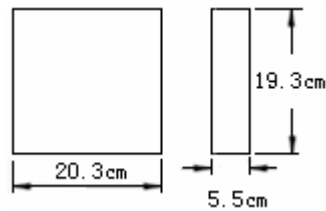
CUSTOMER:	2144	REV NO:	A1.0
DESCRIPTION:	SMD INDUCTOR	PAGE NO:	PAGE 6 OF 9
CUST P/N:		SN.	210703110
PART NO:	SFE252012S系列	DATE:	2021年7月19日

3.包装数量:

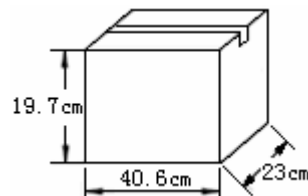
卷轴包装数量		
每卷	<b>2000</b>	PCS



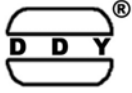
内盒包装数量		
每盒	<b>4</b> 卷,共	<b>8000</b> PCS



外箱包装数量		
每箱	<b>6</b> 盒,共	<b>48000</b> PCS



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CUST P/N:		SN.	210703110
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## 6.1 RELIABILITY TEST

TEST ITEM	SPECIFICATION	TEST CONDITION
Withstanding voltage test	After test, inductors shall have no evidence of electrical and mechanical damage.	AC voltage of 100v and AC current of 1mA applied between inductor's terminal and core for 3 secs.
Resistance to soldering heat	1. Inductor shall have no evidence of electrical and mechanical damage. 2. Inductance shall not change more than $\pm 5\%$ . 3. Q shall not change more than $\pm 20\%$ .	a. Temp: $260\pm 5^{\circ}\text{C}$ b. Time: $10\pm 1.0$ secs
Solderability test	The terminal shall be at least 95% covered with solder.	After fluxing, the terminal shall be dipped in a melted solder bath at $245\pm 5^{\circ}\text{C}$ for $4\pm 1.0$ secs.
High temperature & high humidity test	The anti-erosion quality of the surface and the specimen's inductance shall not change from the initial value within $\pm 10\%$	a. Test condition 1)Temp.: $85^{\circ}\text{C}$ , R.H.:85% 2)Time:144 $\pm 2$ hours b. Measurement methods: The experimental component should be put at normal condition for 2 hours then to measure again after test
Salt spray test		a. Test condition 1)Temp.: $35\pm 2^{\circ}\text{C}$ 2)Time:48 $\pm 2$ hours 3)Salt solution PH:6.5~7.2 b. Measurement methods: The experimental component should be put at normal condition for 2 hours then to measure again after test
Vibration test	1. Inductance shall be within $\pm 10\%$ of the initial value. 2. Appearance:no damage	a. Frequency: 10 to 55HZ b. Amplitude: 1.5mm c. Direction and time: X, Y and Z directions for 2 hours each.

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CUST P/N:		SN.	210703110
PART NO:	SFE252012S系列	DATE:	2021年7月19日

## 6.2 RELIABILITY TEST

TEST ITEM	SPECIFICATION	TEST CONDITION
Free fall test	No mechanical damage shall be noticed.	Drop 5 times on a concrete floor from 1m the height
Temperature Cycling test	1. Inductance shall be within $\pm 10\%$ of the initial value 2. Appearance: No damage	a. Test condition 1)Temp.: $-55^{\circ}\text{C}$ ,time: $30\pm 3\text{min}$ 2)Temp.: $+125^{\circ}\text{C}$ ,time: $30\pm 3\text{min}$ 3)Cycles times:12 cycles b. Measurement methods: The experimental component should be put at normal condition for 2 hours then to measure again after test
High Temperature resistance test		a. Test condition 1)Applied rated current 2)Temp.: $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ 3)Test time: $1000+24/-0\text{H}$ b. Measurement methods: The experimental component should be put at normal condition for 24 hours then to measure again after test.
Low temperature resistance test		a. Test condition 1)Temp.: $-55^{\circ}\text{C}\pm 2^{\circ}\text{C}$ 2)Test time: $1000+24/-0\text{H}$ b. Measurement methods: The experimental component should be put at normal condition for 24 hours then to measure again after test.

We have suggested the storage period of lead-free product should not over 6 months.

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CUST P/N:		SN.	210703110
PART NO:	SFE252012S系列	DATE:	2021年7月19日

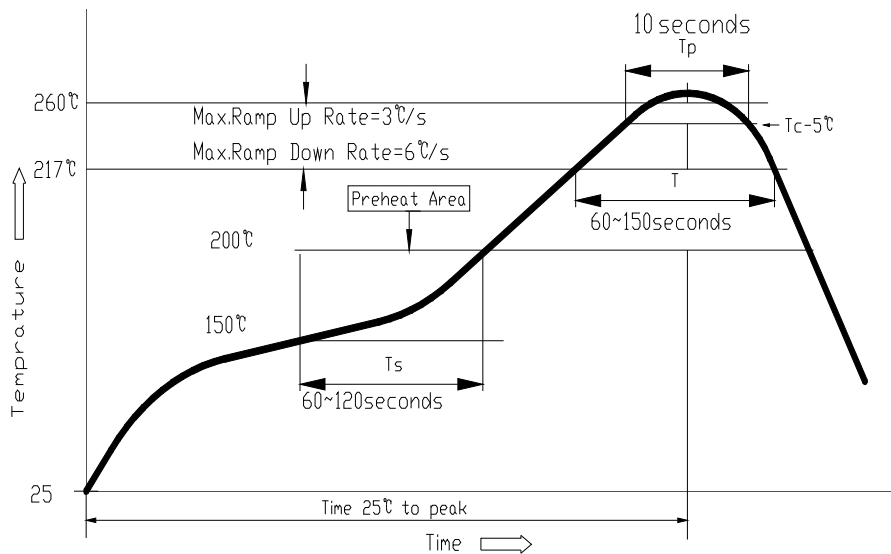
### 7. SOLDERING CONDITIONS

Applicable soldering process to the products is refl.

#### 7.1 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

#### 7.2 Reflow Soldering Profile



#### 7.3 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: ≤30W;
- ③ Diameter of soldering iron end: ≤1.0mm;
- ④ Soldering time: <3 s



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