

## SPECIFICATION FOR APPROVAL

<p><b>CUSTOMER'S APPROVAL CHOP</b></p>  <p>Approval's condition: _____</p> <p>Approved date: _____</p>
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KINDLY RETURN A SET WITH YOUR COMPANY'S OFFICIAL  
STAMP ON APPROVAL OF THIS ITEM

**CUSTOMER'S NAME:** \_\_\_\_\_

**CUSTOMER'S MODEL NO. :** \_\_\_\_\_

**CUSTOMER'S PART NO. :** \_\_\_\_\_

**DESCRIPTION:** \_\_\_\_\_  
**EFD20**

**Semitel'S MODEL NO. :** \_\_\_\_\_  
**EFD20-467**

**VERSION:** \_\_\_\_\_  
**B**

**DATE:** \_\_\_\_\_  
**2020/12/26**

**Attachments:**

- Product specification
- Sample Qty.:
- Test data

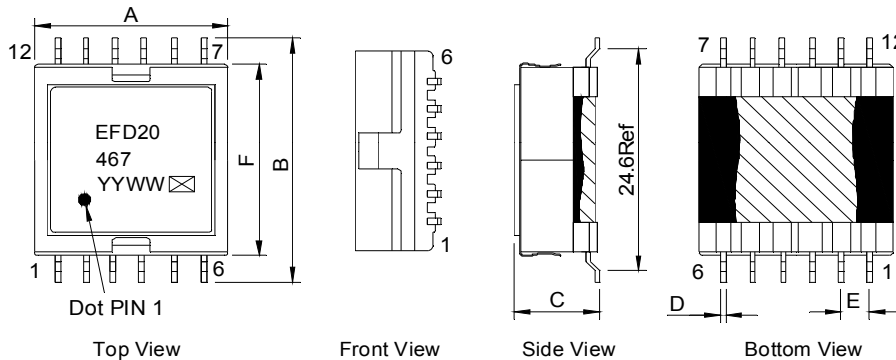
Prepared By	Checked By	Approved By
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# Product Specification

## 1. Physical Dimensions (Unit:mm)

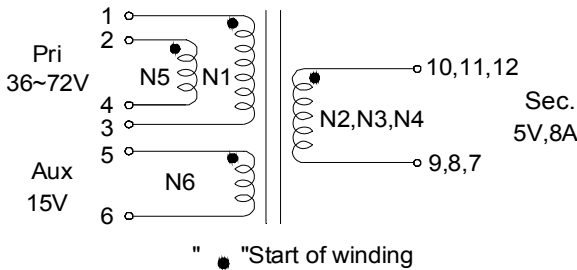


- A 22.5MAX.
- B 30.0MAX.
- C 12.5MAX. B
- D 0.7±0.1
- E 3.0±0.3
- F 23.5MAX.

### Notes:

- (1). Marking type is laser printing
- (2). YY: Year Code; WW: Week Code
- (3). :When making samples, S is used to represent the product is a sample
- (4). :Use different letters or numbers to represent the products are produced from different production lines
- (5). Size B not including soldering tags
- (6). Coplanarity Requirement: Less than 0.10mm

## 2. Connection

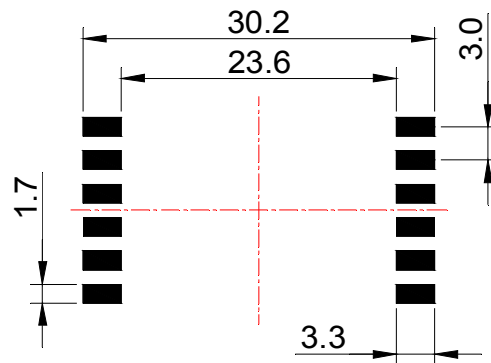


"Start of winding"

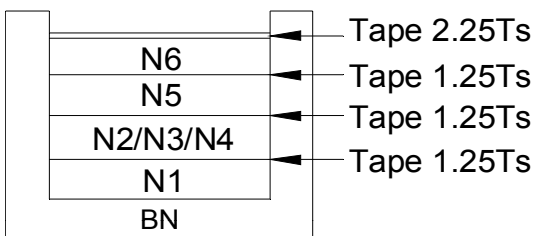
\*Customer to tie terminals 1&2,3&4, 7&8&9 and 9&10&12 on PC board.

\*Application of the transformer allows for the leadwires between terminals 1&2,3&4, 7&8&9 and 9&10&12 to solder bridge.

## 3. Recommended Pad Layout (Unit:mm)



## 4. Structure of Products



## 5. No of Turns & Wire Spec

No	No of Pin	Turns	Wire Spec
N1	1--3	30 Ts	ø0.20mm*4P P180
N2/N3/N4	10,11,12--9,8,7	6 Ts	ø0.315mm*12P P180
N5	2--4	30 Ts	ø0.20mm*4P P180
N6	5--6	18 Ts	ø0.20mm*2P P180

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### 6. Electrical Characteristics

\*Operating temperature: -40°C to +125°C.

\*Storage temperature range: -40°C to +125°C .

Items	Winding	Specifications	Test Conditions
Inductance	L(1,2-3,4)	70uH±10%	at 250kHz,0.1Vrms
LK-Inductance	LK(1,2-3,4) Tie other	1.82uH MAX.	at 250kHz,0.1Vrms
DCR	R(1,2-3,4)	111mΩ MAX	at 25°C
	R(10,11,12-9,8,7)	6mΩ MAX	
	R(5-6)	660mΩ MAX	
Turns Ratio	(1,2-3,4):(10,11,12-9,8,7):(5-6)	30:6:18;±3%	at 250kHz,0.1Vrms
Hi-Pot	Pri. to Sec.	1500VAC	5 mA.3Sec
	Pri. to Aux.	500VAC	5 mA.3Sec
	Win to Core	500VAC	5 mA.3Sec

### 7.Bill of Material

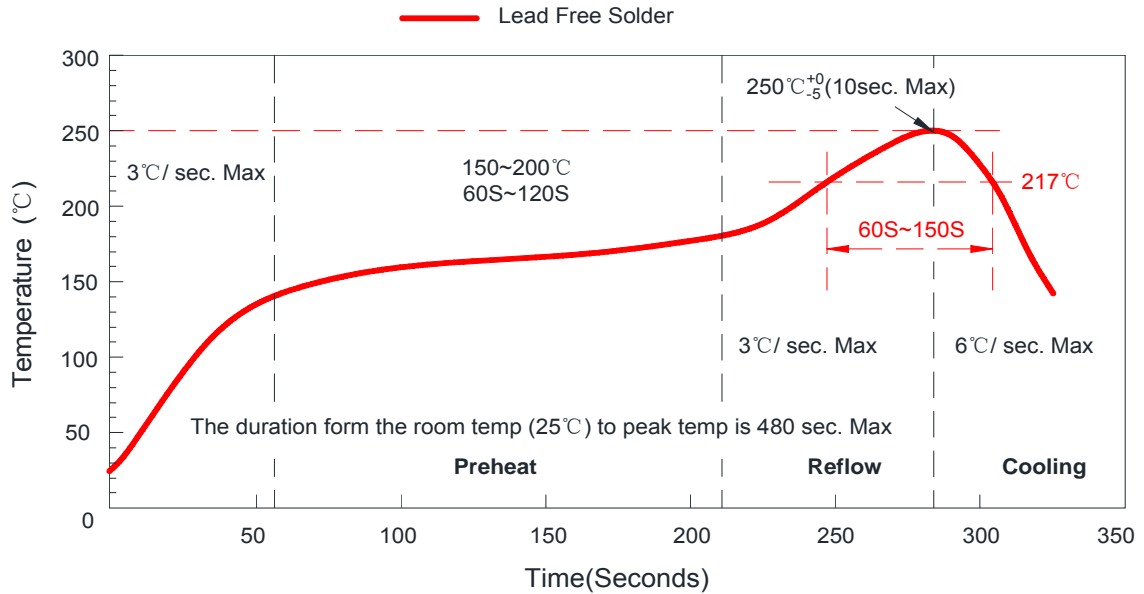
No	Items	Material Name	Manufacturer	UL File No	SGS File No
1	Core	Soft ferrite cores SSP-95	SUNSHINE or Equivalent	NIL	CANEC2002070201
2	Bobbin	PM-9630	SUMITOMO (SumiDurez) or Equivalent	E41429	SHAEC2002442505
3	Clip	SUS301	TONG FENG or Equivalent	NIL	SZXEC2001378801
4	Copper Wire	Polyurethane bare wire (Cu) Polysol 180	ELEKTRISOLA or Equivalent	E258243	CE/2020/34972
OR	Copper Wire	Polyurethane wire UEWH/U	PACIFIC or Equivalent	E201757	A220035992510301E
5	Polyimide Tape	Brown adhesive plastic HN NC 0.025mm V-0	RUNSEA (RAYITEK)or Equivalent	E339977	SZXEC2000536905
6	Epoxy	EB-360	CHANGFENG or Equivalent	NIL	SHAEC2022446003
7	Varnish	ZS-NJ-D938XX	ZHAOSHUN or Equivalent	E329120	CANEC2003028910
8	Solder	Lead free solder	HONGTAIZHOU or Equivalent	NIL	SZXEC2001415205

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### 8.Recommended Temperature Conditions of Air Reflow Soldering

#### Test Solderability Temperature Profile



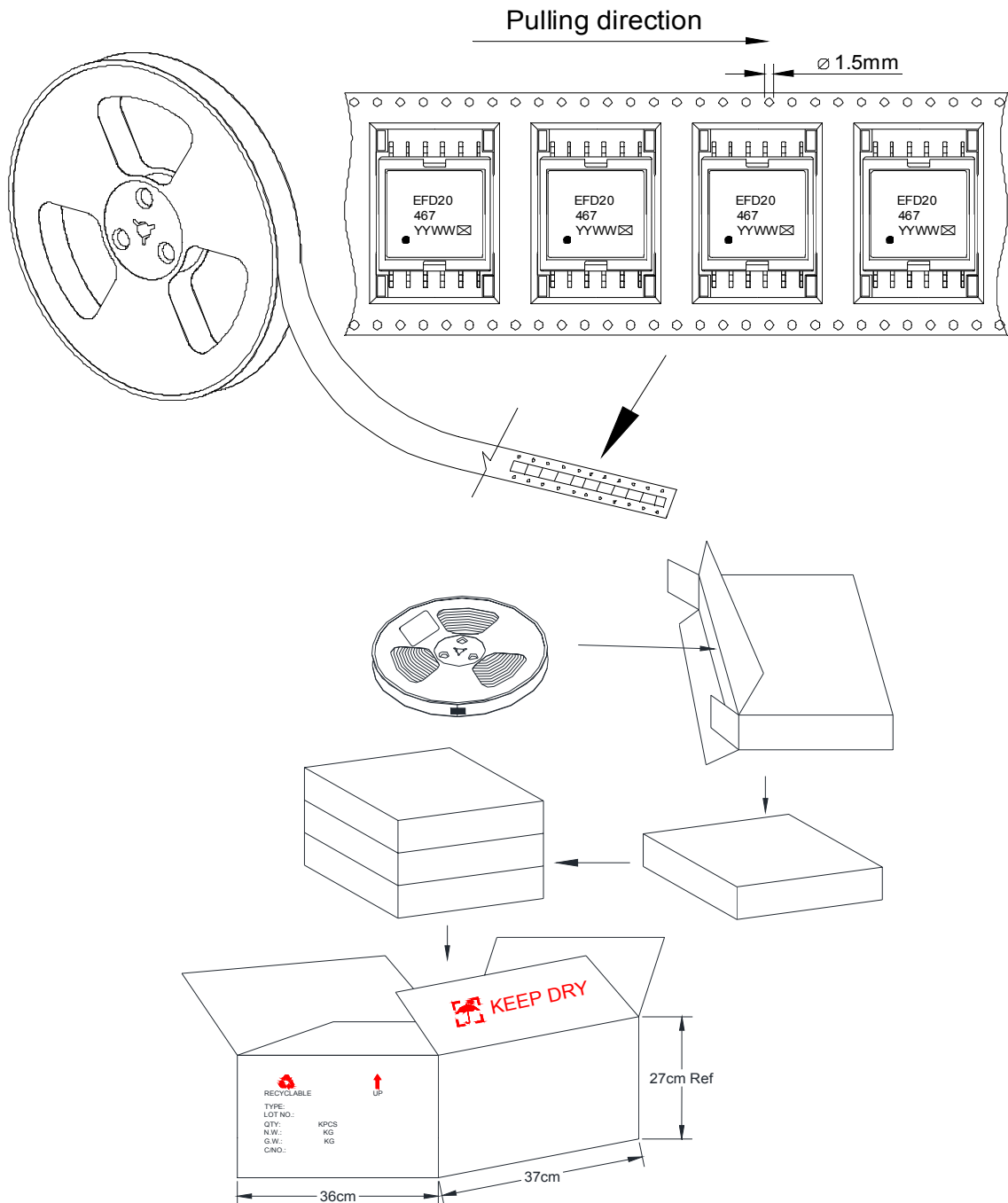
<b>Profile Feature</b>	
Average Ramp-Up Rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/Second Max.
<b>Preheat</b>	
-Temperature Min. (T <sub>smin</sub> )	150°C
-Temperature Max. (T <sub>smax</sub> )	200°C
-Time (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 Seconds
<b>Time maintained above:</b>	
-Temperature (T <sub>L</sub> )	217°C
-Time (T <sub>L</sub> )	60-150 Seconds
Peak/Classification Temperature (T <sub>p</sub> )	250°C
Time within 5°C of actual PeakTemperature (T <sub>p</sub> )	10 Seconds Max.
Ramp-Down Rate	6°C/Second Max.
Time 25°C to Peak Temperature	8 Minutes Max.

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<b>DATE :</b>	<b>2020/12/26</b>		

## Product Specification

### 9.Packing Request

- (1), Every roll of the carrier tape can contain 125pcs products.
- (2), Every small packing box contains one rolls of carrier tape. Total quantity: 125pcs.
- (3), Every carton box contains 3 small packing boxes. Total quantity: 375pcs.



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## Test Report

Test Instruments									
HP4284A		DCR METER 131			HP4284A	CS2670A			
NO	Inductance	Inductance	DCR			Turns Ratio	Hi-Pot		
	at 250kHz,0.1Vrms	at 250kHz,0.1Vrms	at 25°C	at 25°C	at 25°C	at 250kHz,0.1Vrms	5 mA.3Sec		
	L(1,2-3,4)	LK(1,2-3,4) Tie other	R(1,2-3,4)	R(10,11,12-9,8,7)	R(5-6)	(1,2-3,4):(10,11,12-9,8,7):(5-6)	Pri. to Sec.	Pri. to Aux.	Win to Core
	70uH±10%	1.82uH MAX.	111mΩ MAX	6mΩ MAX	660mΩ MAX	30:6:18;±3%	1500VAC	500VAC	500VAC
1	70.30	0.45	74.90	3.10	217.00	Passed	Passed	Passed	Passed
2	69.70	0.46	74.70	3.00	217.00	Passed	Passed	Passed	Passed
3	70.00	0.48	75.30	2.90	220.00	Passed	Passed	Passed	Passed
4	70.40	0.44	74.80	3.20	219.00	Passed	Passed	Passed	Passed
5	70.50	0.49	74.70	3.20	218.00	Passed	Passed	Passed	Passed
MIN.	69.70	0.44	74.70	2.90	217.00				
MAX.	70.50	0.49	75.30	3.20	220.00				
AVG.	70.18	0.46	74.88	3.08	218.20				
<b>Result</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>
Overall Dimensions Test					Measurement Tools: Caliper (Unit:mm)				
NO	A	B	C	D	E	F			
	22.5MAX.	30.0MAX.	12.5MAX.	0.7±0.1	3.0±0.3	23.5MAX.			
1	20.10	29.00	11.70	0.72	3.00	21.50			
2	20.00	29.00	11.40	0.72	3.00	21.60			
3	20.00	29.00	11.50	0.72	3.00	21.60			
4	20.00	29.00	11.30	0.71	3.00	21.60			
5	20.00	29.00	11.60	0.71	3.00	21.60			
MIN.	20.00	29.00	11.30	0.71	3.00	21.50			
MAX.	20.10	29.00	11.70	0.72	3.00	21.60			
AVG.	20.02	29.00	11.50	0.72	3.00	21.58			
<b>Result</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>	<b>Passed</b>			
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