

SPECIFICATION

CUSTOMER	宝盈新电子
PRODUCT DESCRIPTION	EP13 Transformer
Sunlord P/N	TWPEP131313B305T
CUSTOMER P/N	/

☒ New Released, ☐ Revised]

SPEC No.: TW170021

【This SPEC is total 7 pages 】
【RoHS Compliant Parts 】

Approved By	Checked By	Issued By
		

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【For Customer approval Only】

Date: _____

Qualification Status: Full Restricted Rejected

Approved By	Verified By	Re-checked By	Checked By

Comments:

【Change History】

Rev.	Effective Date	Changed Contents	Change reasons	Approved By
01	Nov.23, 2017	New release	/	Duoyuan Zhou

1. Scope

This specification is applied to the POE applications transformer TWPEP131313B305T

2. Product Description and Identification (Part Number)

- a) Description:
TWPEP131313B305T Transformer.
- b) Product Identification (Part Number)

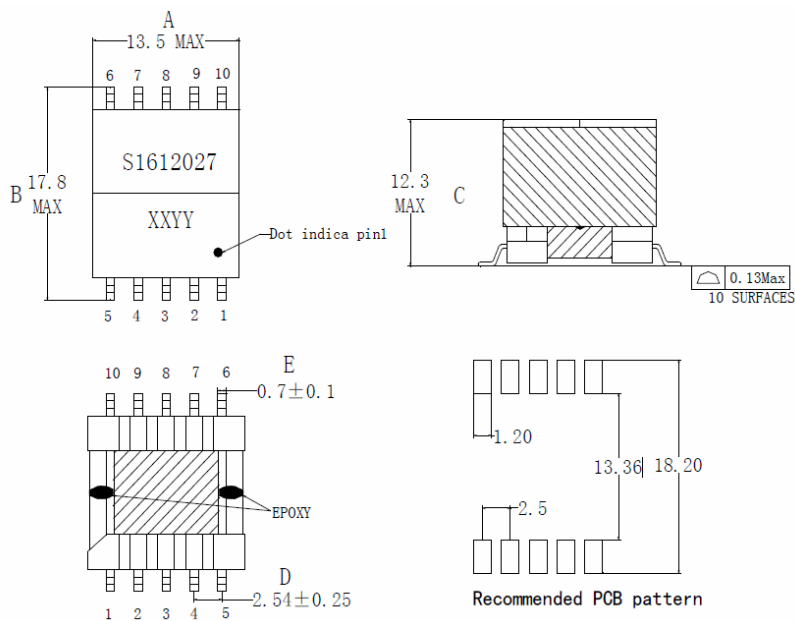
T	W	P	EP	13	13	13	B	3	05	T
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

命名注释:

- ② Transformer
- ② Type: W--Wrie, P--PCB Planar
- ③ Type: S--Signal, P--Power, N--Network
- ④ Core type
- ⑤ Core A size
- ⑥ Bobbin Pin direct size
- ⑦ Product Height(Top to Stand off)
- ⑧ Style, A--Horizontal&Pin, B--Horizontal&SMD, C--Vertical&Pin, D--Vertical&SMD
- ⑨ Windings, 1~9
- ⑩ Code stream, 00~99, A0~Y9 (EXCEPT : I、J、O、V、Z)
- ⑪ Packing method, T--Taping, P--Pallet, B--Bulk

3. Shape and Dimensions

3.1 Shape



Note : For RoHS compliant products:
 1. The Sunlord ordering code: TWPEP131313B305T.
 2. Solder : Sn /Ag /Cu .
 3. Marking code: S1612027
 4. XYY is Date Code

FIG-1 : Shape

3.2 Dimensions (Unit: mm)

ITEM	A	B	C	D	E
LIMIT	13.5 Max	17.8Max	12.3Max	2.54±0.25	0.7±0.1

3.3 Appearance

There is not the visual track and other mechanical damage on the product surface. Marking must be clearly and stable. Core and other parts assembly stably. mounting dimensions and the location of the terminals should be in accord with standard.

4. Schematic

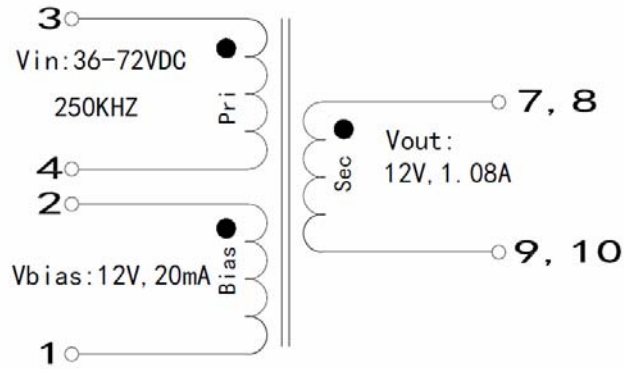


FIG-2: Schematic

5. Winding Specification

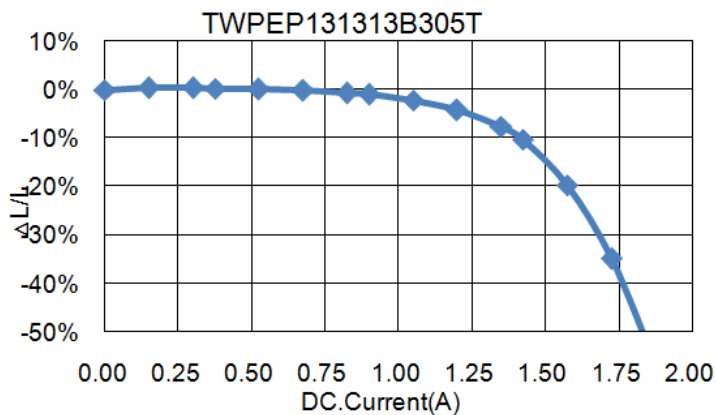
NO.	COIL	PIN NO.	WIRE	TURNS	WINDING METHOD	INSULATION TAPE
1	N1	P3-4	P180 $\Phi 0.20 \times 1P$	32	CLOSE	1.5
2	N2	P7,8~9,10	P180 $\Phi 0.20 \times 4P$	16	CLOSE	1.5
3	N3	P3-4	P180 $\Phi 0.20 \times 1P$	32	CLOSE	1.5
4	N4	P2~1	P180 $\Phi 0.20 \times 1P$	16	CLOSE	2

6. Electrical Test

ITEM	TEST TERMINAL	TEST SPECIFICATION	TEST CONDITION	TESTER
INDUCTANCE	Pin(3-4)	127uH $\pm 10\%$	250KHz, 0.1V	Agilent E4980A
LEAKAGE INDUCTANCE	Pin(3-4), shorted other pins	1.0uH Max		
D.C.R	Pin(3-4)	199m Ω Max	—	HIOKI3541
	Pin(7,8-9,10)	65m Ω Max		
	Pin(2-1)	308m Ω Max		
HI-POT	Pin(1,2,3,4) to Pin(7,8,9,10)	No breakdown	1850Vac/50Hz/1mA/3Sec	CH333
	All winding to core	No breakdown	600Vac/50Hz/1mA/3Sec	
URNS RATIO	Pin(3-4):Pin(7,8-9,10):Pin(2-1)	1:0.5:0.5 $\pm 3\%$	15.75KHz, 1V	CH3302

1)Test Condition: $T=25\pm 5^{\circ}C$, $RH=65\%\pm 20\%$ 2)Operating Temperature: $-40^{\circ}C$ to $+85^{\circ}C$.

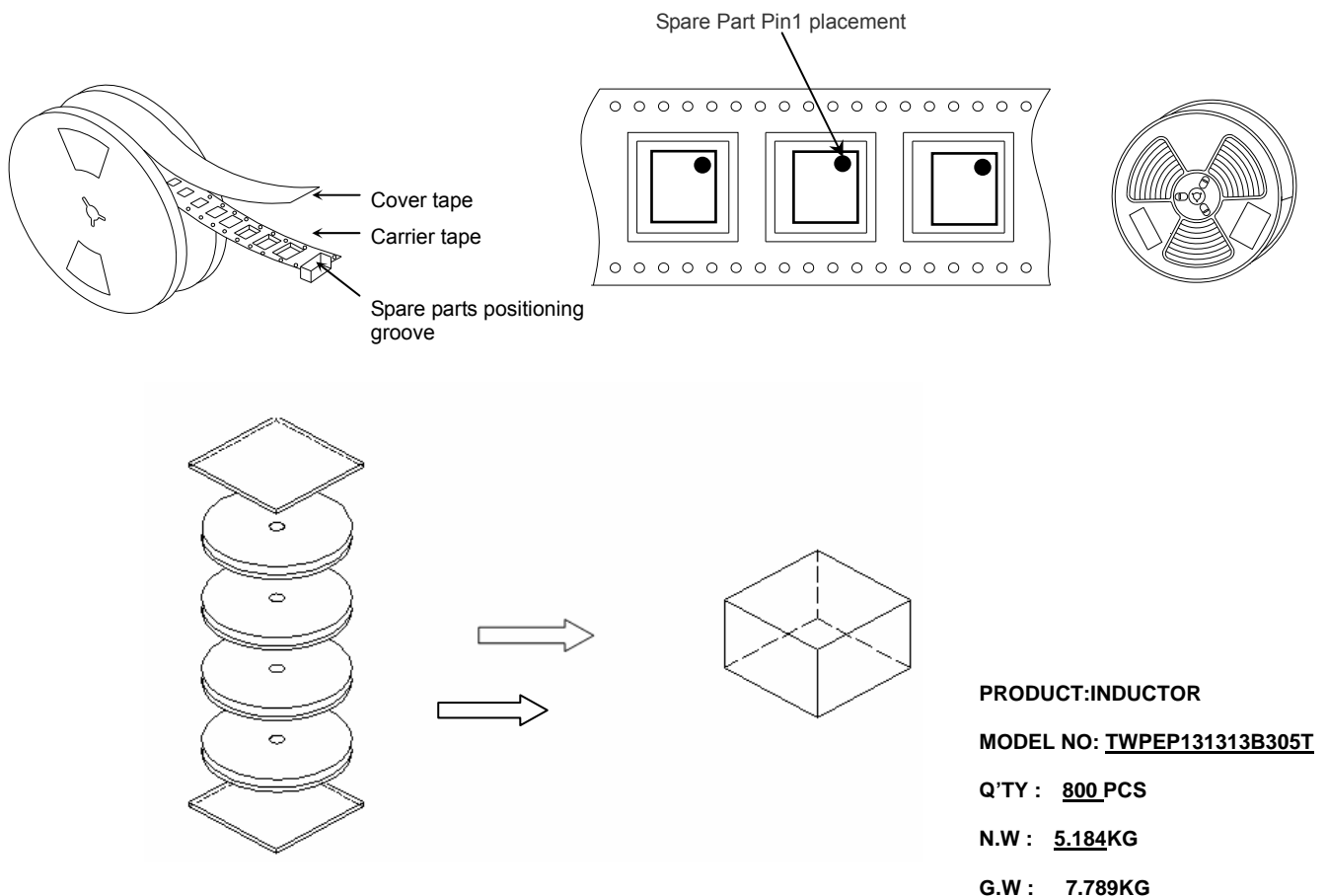
3) Saturation current & Inductance characteristic curves:



7. Material List

NO.	ITEM	MATERIAL DESCRIPTION	TEMP. (FLAME) CLASS	VENDER.	UL FILE NO.
1	CORE	Mn-Zn FERRITE CORE, EP13, JPP-44	—	A- CORE ELECTRICAL CO.,LTD. OR EQUIV	—
OR		Mn-Zn FERRITE CORE, EP13, DMR44	—	DMEGC MAGNETICS CO.,LTD. OR EQUIV	—
OR		Mn-Zn FERRITE CORE, EP13,TPA4	—	TDG CO.,LTD. OR EQUIV	—
2	BOBBIN	PHENOLIC PM9630	V-0	SUMITOMO BAKELITE CO., LTD.	E41429
3	WIRE	MODIFIED POLYESTER ENAMELLED WIRE, TYPE P180	180℃	ELEKTRISOLA HANGZHOU CO., LTD.OR EQUIV.	E258243
4	TAPE	FK-01	180℃	CHANGSHU FUBANG ADHESIVE TAPE LTD CO OR EQUIV.	E248834
5	SOLDER	Sn /Ag /Cu	—	THOUSAND ISLAND METAL FOIL CO., LTD.	—
6	EPOXY	S-3668 9F	180℃	SHAW HUOW ENTERPRISE CO.,LTD. OR EQUIV.	E105888

8. Packaging Information: (Unit :mm)

**Note:**

- 1.) The packaging boxes would be marked with a green label that indicates that no lead (Pb) is present in the components and components are applicable to Lead-Free process. .
- 2.) Monomer weight: 6.48±0.2 g/pcs
- 3.) Moisture Sensitivity Parts : Level 1.

Storage and Manufacturer :

1. **Storage :** Recommended keeping conditions: -40℃~65℃, 60%RH (Max.)

Service life : Within the limits of twelve month from being produced.

The appearance and solder ability should be check, If product is not in expiry date.

2. Manufacturer : Shenzhen Sunlord Electronics Co., Ltd.

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China

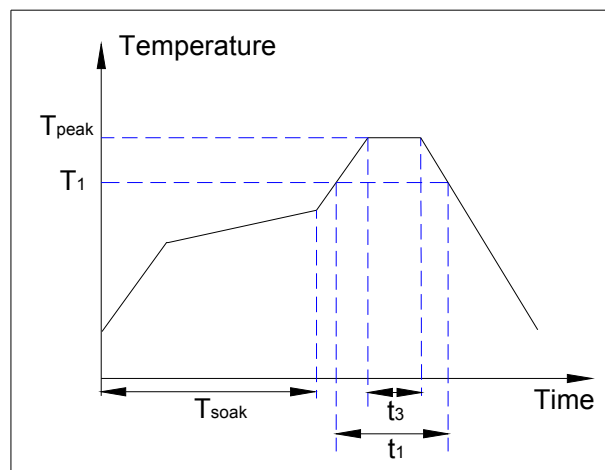
TEL: +86-0755-82400574 FAX: +86-0755-82269029

9. Reflow soldering profile for soldering heat resistance testing: (IPC/JEDEC J-STD-020C)

The reflow profile specified in this section describes expected maximum heat exposure of components during the reflow process of Sunlord SMD Transformer Components. Temperature is measured on top of component. All components have to tolerate at least this profile three times(3x) without affecting electrical performance, mechanical performance or reliability.

Pb-free reflow profile requirements for soldering heat resistance			
Parameter	Reference	Specification	
		Large Body Thickness $\geq 2.5\text{mm}$ and Volume $\geq 350\text{mm}^3$	Small Body Thickness $\geq 2.5\text{mm}$ and Volume $< 350\text{mm}^3$
Temperature gradient in preheating		3°C/s max.	
Soak time 150°C- 200°C	Tsoak	60 -180 seconds	
Time above 217°C (T1)	t1	60 - 150 seconds	
Time within 5°C of actual peak	t3	20 -40 seconds	
Peak temperature in reflow	Tpeak	245°C (+0/-5°C)	250°C (+0/-5°C)
Temperature gradient in cooling		6°C/second max	
Time 25 °C to Peak Temperature		8 minutes max.	

Note: The table is defined by Sunlordinc's SMD Transformer components range, for the peak solder temperature rating of other components body, please refer to table 5-2 in IPC/JEDEC J-STD-020C.

**10. Reliability Test**

Items	Requirements	Test Methods and Remarks
Terminal Strength	No removal or split of the termination or other	Endurance of 25N (30 seconds) loads in axial direction

	defects shall occur.	
Bend Strength	No abnormality in the omission of the terminal and the lead disconnection and the main body.	It works in the opposite direction after the static load of 0.25kg is added in the direction of the terminal axis, 90° is bent within five seconds, and it return it.
Vibration	① No visible mechanical damage. ② The electrical characteristics are tested and should meet the standard of 6 items.	① Product was mounted on PCB board (t=1.6) on the vibration-testing machine ② The specimens shall be subjected to a simple harmonic motion having total amplitude of 1.5 mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz. ③ The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3mutually perpendicular directions (total of 6 hours).
Fall Test	① No abnormality in externals. ② The electrical characteristics are tested and should meet the standard of 6 items.	① Product was put in the inner box, then put the inner box in the outer box. ② The smooth maple wooden board or equal goods is 30mm in thickness and size 150mm×150mm or more. ③ Lift the outer box 750mm in height form the maple wooden board. ④ Drop the outer box and let it free fall. ⑤ Three faces must drop once each.
Mechanical Shock	① No visible mechanical damage. ② the electrical characteristics are tested and should meet the standard of 6 items.	The specimens shall be subjected to shock force of 1000m/s ² (100G) for 6ms 3 times in each of three (X,Y,Z) axes. (9 times in all)
Solder Ability	90% or more of electrode area shall be coated by new solder.	① The test samples shall be dipped in flux, and then immersed in molten solder. ② Solder temperature: 245±5℃ ③ Duration: 5±1 sec. ④ Solder: Sn/3.0Ag/0.5Cu ⑤ Flux: 25% resin and 75% ethanol in weight ⑥ Immersion depth: all sides of mounting terminal shall be immersed
Resistance to Soldering Heat	① No visible mechanical damage. ② The electrical characteristics are tested and should meet the standard of 6 items.	① After heating for 30±5 seconds so that it may become 100~105 degrees . ② Dip for 10±1 second into a 260℃±3℃ solder tub from an attachment side to the place of 1.0~1.5mm or kept soldering iron of 380℃±10℃ on the terminal for 3~4 seconds. ③ It shall be stabilized at normal condition for 1~2 hours before measuring.
Resistance to Low Temperature	① No visible mechanical damage ② The electrical characteristics are tested and should meet the standard of 6 items.	① Temperature: -40±3℃ ② Duration: 96 ^{±2} hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring
Resistance to High Temperature	① No mechanical damage. ② The electrical characteristics are tested and should meet the standard of 6 items.	① Temperature: 85±2℃ ② Duration:96 ^{±2} hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
Thermal Shock	① No visible mechanical damage. ② The electrical characteristics are tested and should meet the standard of 6 items.	① Temperature and time: -40±3℃ for 30±3 min→85℃ for 30±3min. ② Transforming interval: Max. 20 sec ③ Tested cycle: 100 cycles ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring
Damp Heat	① No mechanical damage. ② The electrical characteristics are tested and should meet the standard of 6 items.	① Temperature: 60±2℃ ② Humidity: 90% to 95%RH ③ Duration: 96 ^{±2} hours ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring