

## 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:** \_\_\_\_\_  
**EP13**

**Semitel'S MODEL NO. :** \_\_\_\_\_  
**EP13-115**

**VERSION:** \_\_\_\_\_  
**E**

**DATE:** \_\_\_\_\_  
**2019-4-30**

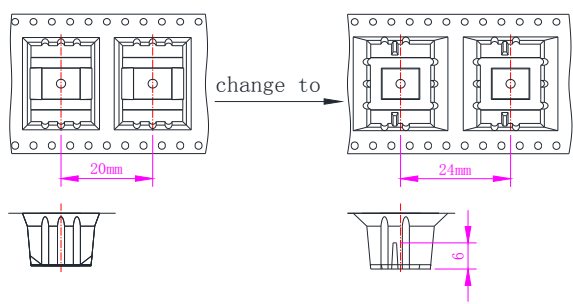
**Attachments:**

- Product Specification
- Sample Qty. :
- Test Data

Prepared By	Checked By	Approved By
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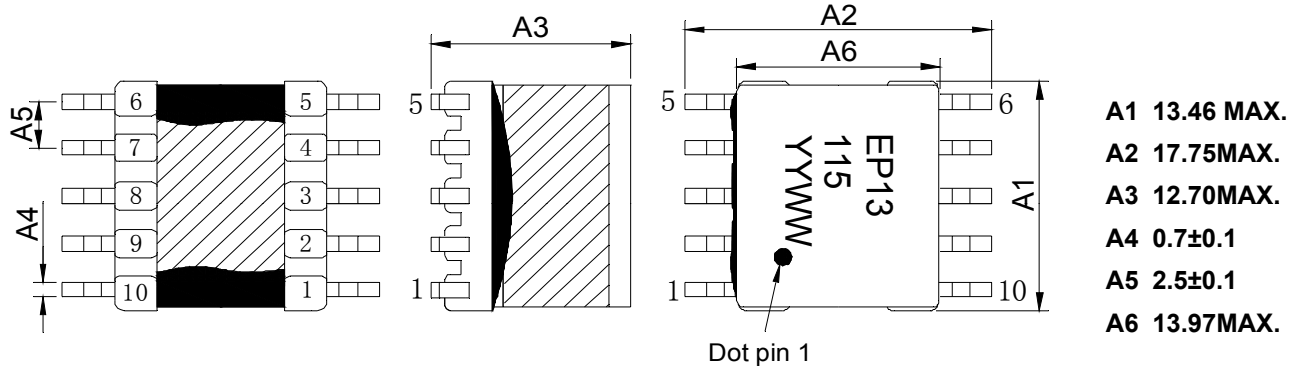
## Revision Record

Version	Revision Date	Revision For Items	Reason For Revision
A	2013-3-22	New Revision	-
B	2013-8-25	The checking frequency changes from 250KHz,0.2Vrms to 200KHz,0.2Vrms.	Change according to the test instrument frequency
		LK(3-4) changes from 0.95uH Max to 1.315uH Max.	Change according to the measured sample data
C	2013-10-22	LK(3-4) changes from 1.315uH Max to 0.95uH Max.	Customer request
		Adhesive tape of 3M need to add 3M logo on the tape	3M adds the logo to identify their own products
D	2017-3-9	<p>1.The amount of packaging per roll from 200PCS to 180PCS                  2.Add a 6mm height convex pillar on the PIN side of the carrier tape to fix to transformers inside the tape.                  3.Increase the distance of the two nearby cells of the carrier tape from 20mm to 24mm.</p> 	To avoid the PINs of the transformer to pierce the cells of the carrier tape.
E	2019-4-30	1,The tape of the outside of the product changes from 3M tape to kapoton tape	Customer request
		2,The epoxy to fix coil and core change from four points to two line	
		3,Add the varnish of the coil .	

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# Product Specification

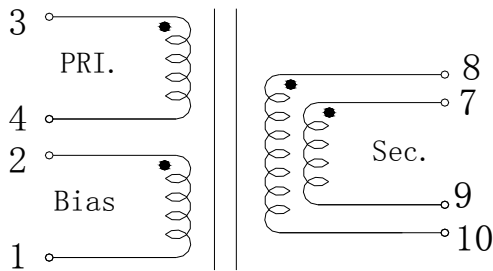
## 1. Physical Dimensions (Unit:mm)



**Notes:**

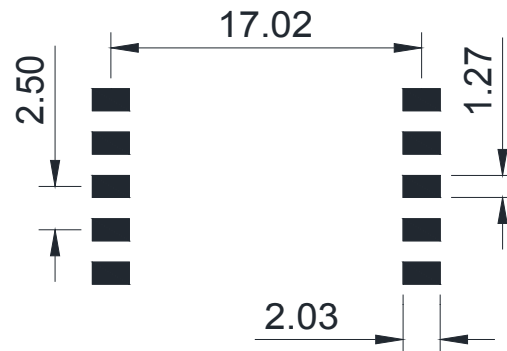
- \*Marking type is laser printing
- \*YY: Year Code; WW: Week Code
- \*Size A2 not including soldering tags
- \*Coplanarity Requirement: Less than 0.15mm

## 2. Connection

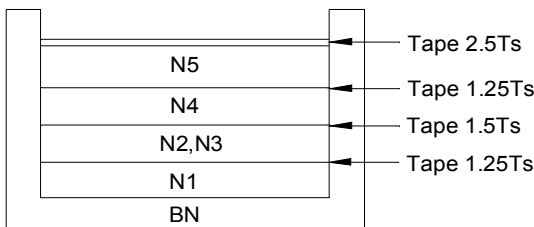


" • " Start of winding  
 Secondary windings to be connected in parallel on the PC board

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



## 4. Structure of Products



## 5. No of Turns & Wire Spec

No	No of Pin	Truns	Section	Wire Spec
N1	3 - 4	32 Ts	1 P	ø0.20 mm P180
N2	7 - 9	8 Ts	2 P	ø0.29 mm P180
N3	8 - 10	8 Ts	2 P	ø0.29 mm P180
N4	3 - 4	32 Ts	1 P	ø0.20 mm P180
N5	2 - 1	16 Ts	1 P	ø0.18mm P180

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## Product Specification

### 6. Electrical Characteristics

\*Operating temperature range: -40°C to +85°C .

\*Storage temperature range: -40°C to +85°C .

\*Ambient temperature range: -40°C to +85°C .

Items	Winding	Specifications	Test Conditions
Inductance	L(3-4)	127uH ±10%	at 200KHz,0.2Vrms
LK-Inductance	LK(3-4)	0.95uH Max.	at 200KHz,0.2Vrms
DCR	R(3-4)	222mΩ MAX	at 20°C
	R(2-1)	348mΩ MAX	
	R(8-10)	39mΩ MAX	
	R(7-9)	39mΩ MAX	
Hi-Pot	Pri. and Bias To Sec.	1500VAC	1mA.1SEC
	Pri. To Core	800VAC	1mA.1SEC
Turns ratio	pri:sec	1:0.25,±3%	at 200KHz,0.2Vrms
	pri:bias	1:0.50,±3%	

### 7. Bill of Material

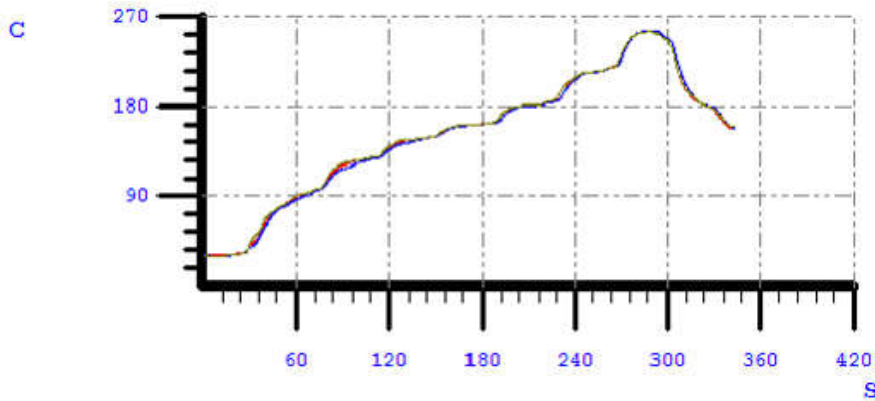
No	Item	Material Name	Manufacturer	UL File No	SGS File No
1	Core	MnZn ferrite core EP13 JP4A	JINNING or Equivalent	NIL	SHAEC1304464602
2	Bobbin	EP-13 PM9630	SumiDurez or Equivalent	E41429	10290364(1)
3	Terminal	COPPER-CLOD STEEL WIRE	XINXING or Equivalent	NIL	SHAEC1221658501
4	Copper Wire	Polyurethane wire ø0.20mm /ø0.29mm P180 G1	ELEKTRISOLA or Equivalent	E258243	CE/2013/45017
5	Insulation tape	YELLOW COLOR T=0.025mm 1350F-1	3M or Equivalent	E17385	CE/2012/A5663
6	Polyimide Tape	Brown adhesive plastic HN NC 0.025mm V-0	RUNSEA (RAYITEK) or Equivalent	E339977	CANML1808714601
7	Varnish	8562*	HANG CHEUNG or Equivalent	E200154	CANEC1800622403
8	EPOXY	TH320	TIANHUAN or Equivalent	E257593	CANEC1417094801
9	Solder	Lead free solder	HONGTAIZHOU or Equivalent	NIL	CANEC1313212013

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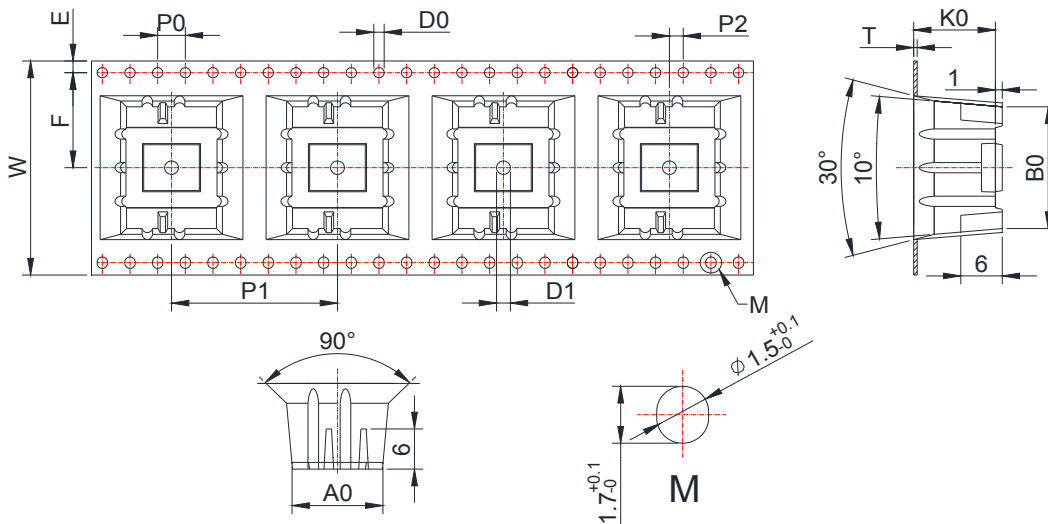
### 8.Recommended Temperature Conditions of Air Reflow Soldering

#### Welder Test Line



										Peak					
Time(S)	25S	60S	85S	120S	145S	180S	205S	240S	265S	288S	300S	325S	345S	360S	420S
Tem(°C)	34°C	90°C	108°C	130°C	144°C	162°C	180°C	205°C	216°C	250°C	242°C	180°C	162°C	144°C	54°C

### 9.Tape Dimensions (Unit:mm)



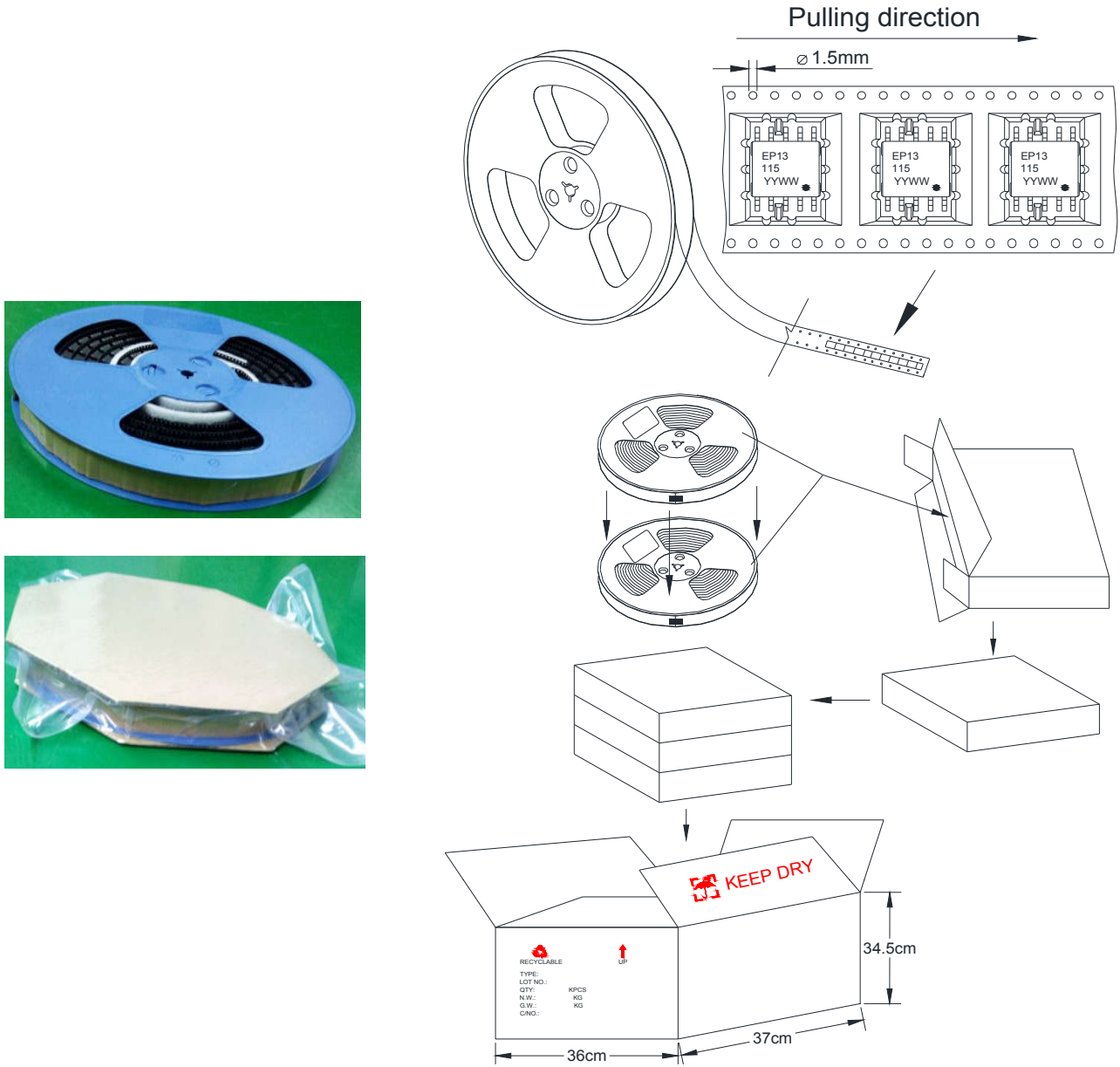
symbol	A0	B0	K0	P0	P1	P2
spec	13.0±0.3	18.2±0.3	11.8±0.3	4.0±0.1	24.0±0.15	2±0.1
symbol	W	T	E	F	D0	D1
spec	32.0±0.3	0.5±0.05	1.75±0.1	14.2±0.1	$\phi 1.5_{-0}^{+0.1}$	$\phi 2.0\pm 0.1$

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## 10.Packing Request

- \*Every roll of the carrier tape can contain 180pcs products.
- \*Every small packing box contains two rolls of carrier tape. Total quantity: 360pcs.
- \*Every cartoon box contains 3 small packing boxes. Total quantity: 1080pcs.



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## Test Report

Test Instruments											
LCR METER 1062		3250	VR131				3250	CS2670A			
NO	Inductance	LK-Inductance	DCR				Turns ratio		Hi-Pot		
	L(3-4)	LK(3-4)	R(3-4)	R(2-1)	R(8-10)	R(7-9)	pri:sec	pri:bias	Pri. and Bias To Sec.	Pri. To Core	
	at 200KHz,0.2Vrms		at 20°C	at 20°C	at 20°C	at 20°C	at 200KHz,0.2Vrms		1500VAC	800VAC	
	127uH ±10%	0.95uH Max.	222mΩ MAX	348mΩ MAX	39mΩ MAX	39mΩ MAX	1:0.25,±3%	1:0.50,±3%	1mA.1SEC	1mA.1SEC	
1	127.60	0.929	150.20	255.8	24.91	24.48	PASS	PASS	PASS	PASS	
2	125.16	0.932	151.80	255.2	24.98	24.73	PASS	PASS	PASS	PASS	
3	126.40	0.935	150.74	258.6	25.92	25.21	PASS	PASS	PASS	PASS	
4	128.70	0.932	150.82	258.2	24.94	25.33	PASS	PASS	PASS	PASS	
5	127.30	0.935	151.37	254.7	24.95	24.92	PASS	PASS	PASS	PASS	
MIN.	125.16	0.929	150.20	254.7	24.91	24.48					
MAX.	128.70	0.935	151.80	258.6	25.92	25.33					
AVG.	127.03	0.933	150.99	256.5	25.14	24.93					
<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>	<b>Passed</b>	

### Overall Dimensions Test

Measurement Tools: Caliper (Unit:mm)

NO	A1	A2	A3	A4	A5	A6		
	13.46 MAX.	17.75MAX.	12.70MAX.	0.7±0.1	2.5±0.1	13.97MAX.		
1	12.76	17.43	11.91	0.68	2.52	12.22		
2	12.71	17.30	11.81	0.68	2.56	12.31		
3	12.75	17.40	11.93	0.69	2.51	12.25		
4	12.72	17.38	11.85	0.68	2.54	12.24		
5	12.71	17.37	11.89	0.67	2.50	12.45		
MIN.	12.71	17.30	11.81	0.67	2.50	12.22		
MAX.	12.76	17.43	11.93	0.69	2.56	12.45		
AVG.	12.73	17.38	11.88	0.68	2.53	12.29		
<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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