SPECIFICATION FOR APPROVAL

CUSTOMER'S APPROVAL CHOP

Approval's condition: _____

Approved date: _____

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. : **EP13-346**

VERSION: **C**

DATE: **2020/6/18**

Attachments:

- ☐ Product Specification
- ☐ Sample Qty. :
- ☐ Test Data

Prepared By	Checked By	Approved By
Hebe Deng 2020/6/18	Liang Wong 2020/6/18	Alan Wong 2020/6/18

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Revision Record

<table>
<tr><th>Version</th><th>Revision Date</th><th>Revision For Items</th><th>Reason For Revision</th></tr>
<tr><td>A</td><td>2019/10/22</td><td>New Revision</td><td>-</td></tr>
<tr><td rowspan="2">B</td><td rowspan="2">2019/12/13</td><td>Change the model of the bobbin.</td><td>Customer request</td></tr>
<tr><td>Wire Spec change from
<table>
<tr><th>No</th><th>No of Pin</th><th>Truns</th><th>Wire Spec</th></tr>
<tr><td>N1</td><td>1 - X</td><td>8 Ts</td><td>ø0.25mm*3P P180</td></tr>
<tr><td>N2</td><td>9 - 6</td><td>6 Ts</td><td>ø0.25mm*4P P180</td></tr>
<tr><td>N3</td><td>X - 3</td><td>8 Ts</td><td>ø0.25mm*3P P180</td></tr>
<tr><td>N4</td><td>10 - 7</td><td>6 Ts</td><td>ø0.25mm*4P P180</td></tr>
<tr><td>N5</td><td>4 - 5</td><td>6 Ts</td><td>ø0.13mm*3P P180</td></tr>
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to
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<tr><th>No</th><th>No of Pin</th><th>Truns</th><th>Wire Spec</th></tr>
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<tr><td>N2</td><td>9 - 6</td><td>6 Ts</td><td>ø0.26mm*4P P180</td></tr>
<tr><td>N3</td><td>2 - 3</td><td>8 Ts</td><td>ø0.26mm*3P P180</td></tr>
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<tr><td>N5</td><td>4 - 5</td><td>6 Ts</td><td>ø0.15mm*3P P180</td></tr>
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 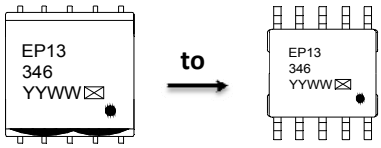
</td><td>Customer Request</td></tr>
<tr><td>DCR (1-2) change from 70mΩ Max to 140mΩ Max.
DCR (4-5) change from 100mΩ Max to 370mΩ Max.</td><td>Change according to the measured sample data</td></tr>
<tr><td>Wire Spec change from
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<tr><td>N1</td><td>1--2</td><td>24 Ts</td><td>ø0.24mm*1P P180</td></tr>
<tr><td>N2</td><td>6,7--9,10</td><td>9 Ts</td><td>ø0.23mm*6P P180</td></tr>
<tr><td>N3</td><td>1--2</td><td>24 Ts</td><td>ø0.24mm*1P P180</td></tr>
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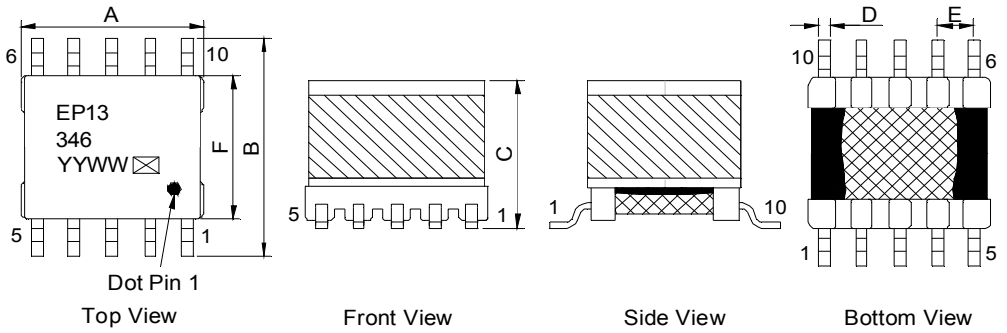
Semitel'S MODEL NO. :	**EP13-346**	**CUSTOMER'S MODEL NO. :**	
VERSION:	**C**	**CUSTOMER'S PART NO. :**	
DATE:	**2020/6/18**		

Product Specification

1.Physical Dimensions (Unit:mm)



A 13.46 MAX.
B 17.75MAX.
C 13.0MAX.
D 0.7±0.1
E 2.5±0.3
F 13.97MAX.

Notes:

*Marking type is laser printing,Dot indicates the location of pin#1.

*YY: Year Code; WW: Week Code

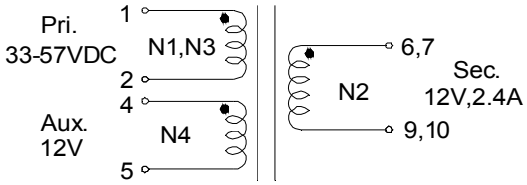
* ☒ :When making samples, S is used to represent the product is a sample.

* ☒ :Use different letters or numbers to represent the products are produced from different production lines .

*Size B not including soldering tags

*Coplanarity requirement: Less than 0.15mm

2. Connection

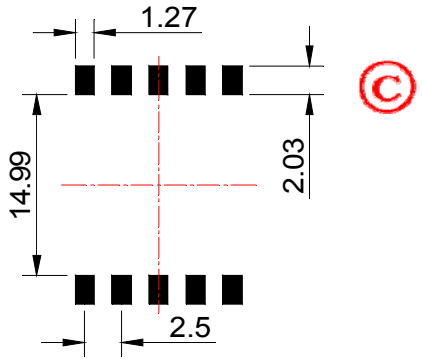


" ● "Start of winding

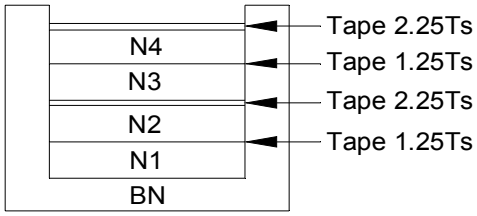
*Customer to tie terminals 6&7 and 9&10 on PC board.

*Application of the transformer allows for the leadwires between terminals 6&7 and 9&10 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--2	24 Ts	ø0.24mm*1P P180
N2	6,7--9,10	9 Ts	ø0.23mm*6P P180
N3	1--2	24 Ts	ø0.24mm*1P P180
N4	4--5	9 Ts	ø0.15mm*1P P180

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Product Specification

6.Electrical Characteristics

***Operating temperature range: -40℃ to +125℃ .**

***Storage temperature range: -40℃ to +125℃ .**

***Ambient temperature range: -40℃ to +125℃ .**

Items	Winding	Specifications	Test Conditions
Inductance	L(1-2)	41uH ±10%	at 100kHz,0.1Vrms
LK-Inductance	LK(1-2) Tie other	0.5uH MAX.	at 100kHz,0.1Vrms
DCR	R(1-2)	140mΩ MAX.	at 25℃
	R(6,7-9,10)	23mΩ MAX.	
	R(4-5)	370mΩ MAX.	
Turns Ratio	(1-2):(6,7-9,10):(4-5)	2.67:1:1;±2%	at 100kHz,0.1Vrms
Hi-Pot	Pri. to Sec.	1500VAC	3mA.6SEC
	Win. to Core.	500VAC	3mA.6SEC

7.Bill of Material

No	Items	Material Name	Manufacturer	UL File No	SGS File No
1	Core	MnZn ferrite core JCP-95	FCRI or Equivalent	NIL	CANEC1913430901
2	Bobbin	PM-9630	SUMITOMO (SumiDurez) or Equivalent	E41429	SHAEC1904476901
3	Copper Wire	Polyurethane bare wire (Cu) Polysol 180	ELEKTRISOLA or Equivalent	E258243	CE/2019/37143
4	Polyimide Tape	Brown adhesive plastic HN NC 0.025mm V-0	RUNSEA (RAYITEK)or Equivalent	E339977	SZXEC1900617511
5	EPOXY	TH320	TIAN HUAN or Equivalent	E257593	SZXEC1902353001
6	EPOXY	EB-360	CHANGFENG or Equivalent	NIL	SHAEC1826217301
7	Varnish	8562*	HANG CHEUNG or Equivalent	E200154	CANEC1900008105
8	Solder	Lead free solder	HONGTAIZHOU or Equivalent	NIL	CANEC1911577101

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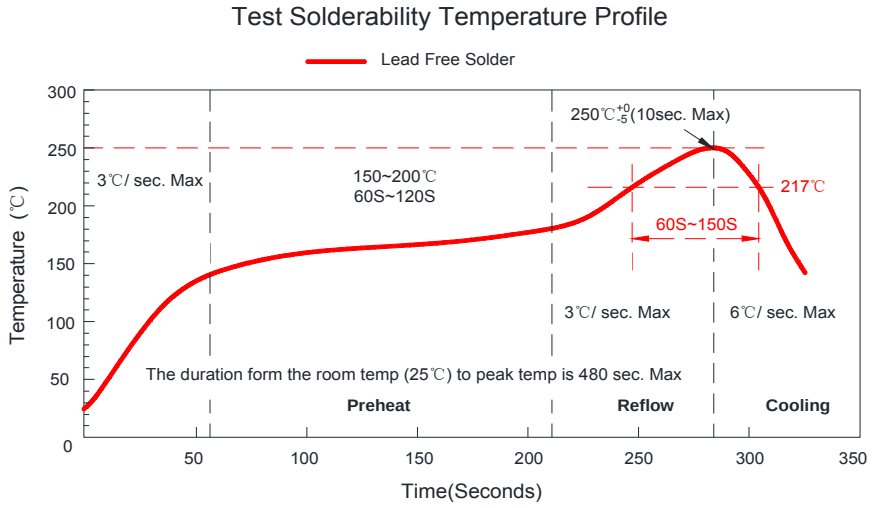
Product Specification

Vendor	Part number	Product Name	Type	Pin	Bobbin	Inductance	Application	Number of windings
Semitel	EP13-346	Power Transformer	SMT	10Pin	EP13	41uH	Flyback	Winding 4Layers

Input			Output			Operating Temp(℃)range Min	Operating Temp(℃)range Max
Vin(Min)	Vin(Max)	Pin	Vo	Io	Pin		
33V	57V	1-3	12V	2.4A	9,10-6,7	-40	125

Dimension (LXWXH)	Vendor Part no
12.8*17.4*12.0mm REF	EP13-346

8.Recommended Temperature Conditions of Air Reflow Soldering



Profile Feature	
Average Ramp-Up Rate (Tsmax to Tp)	3℃/Second Max.
Preheat	
-Temperature Min. (Tsmin)	150℃
-Temperature Max. (Tsmax)	200℃
-Time (Tsmin to Tsmax)	60-120 Seconds
Time maintained above:	
-Temperature (TL)	217℃
-Time (TL)	60-150 Seconds
Peak/Classification Temperature (Tp)	250℃
Time within 5℃ of actual PeakTemperature (Tp)	10 Seconds Max.
Ramp-Down Rate	6℃/Second Max.
Time 25℃ to Peak Temperature	8 Minutes Max.

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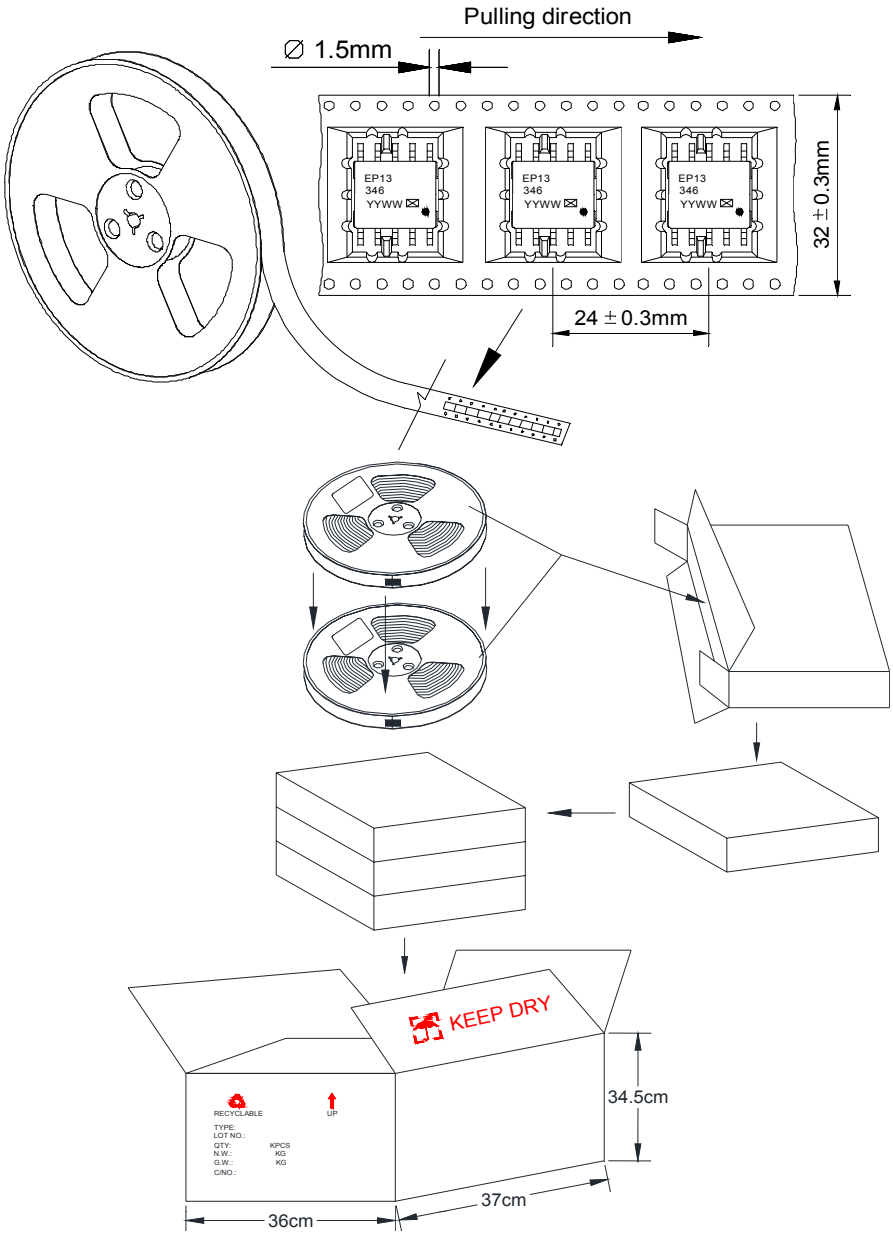
9.Packing Request

*Every roll of the carrier tape can contain 180pcs products.

*Every small packing box contains two rolls of carrier tape. Total quantity: 360pcs.

*Every carton box contains 3 small packing boxes. Total quantity: 1080pcs.



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Test Report

	Test Instruments							
	HP4284A	HP4284A	VR131			HP4284A	CS2670A	
NO	Inductance	LK-Inductance	DCR			Turns Ratio	Hi-Pot	
	at 100kHz,0.1Vrms	at 100kHz,0.1Vrms	at 25℃			at 100kHz,0.1Vrms	3mA.6SEC	3mA.6SEC
	L(1-2)	LK(1-2) Tie other	R(1-2)	R(6,7-9,10)	R(4-5)	(1-2):(6,7-9,10):(4-5)	Pri. to Sec.	Win. to Core.
	41uH ±10%	0.5uH MAX.	140mΩ MAX.	23mΩ MAX.	370mΩ MAX.	2.67:1:1;±2%	1500VAC	500VAC
1								
2								
3								
4								
5								
MIN.	0.00	0.00	0.00	0.00	0.00			
MAX.	0.00	0.00	0.00	0.00	0.00			
AVG.	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!			
Result	**Passed**	**Passed**	**Passed**	**Passed**	**Passed**	**Passed**	**Passed**	**Passed**

Overall Dimensions Test **Measurement Tools: Caliper (Unit:mm)**

NO	A	B	C	D	E	F		
	13.46 MAX.	17.75MAX.	13.0MAX.	0.7±0.1	2.5±0.3	13.97MAX.		
1								
2								
3								
4								
5								
MIN.	0.00	0.00	0.00	0.00	0.00	0.00		
MAX.	0.00	0.00	0.00	0.00	0.00	0.00		
AVG.	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
Result	**Passed**	**Passed**	**Passed**	**Passed**	**Passed**	**Passed**		

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