

SPECIFICATION FOR APPROVAL

<p>CUSTOMER'S APPROVAL CHOP</p> <p>Approval's condition: _____</p> <p>Approved date: _____</p>

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. : _____
EP13-239

VERSION: _____
D

DATE: _____
2019/1/14

Attachments:

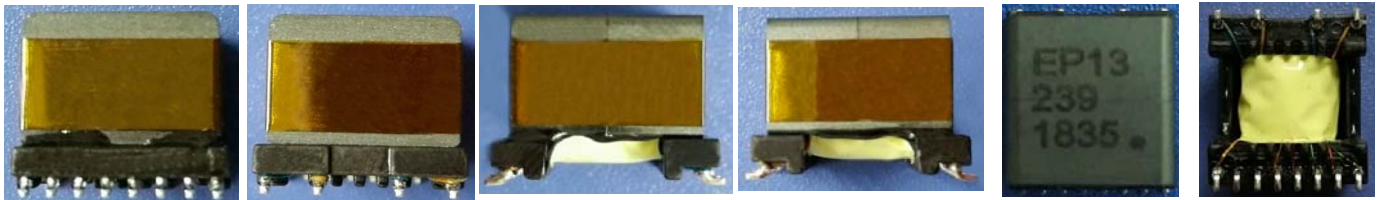
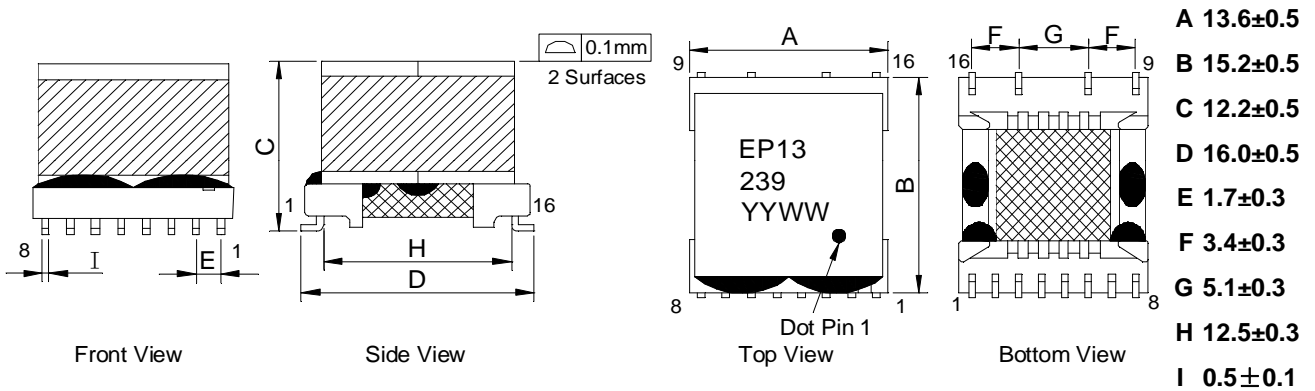
- Product specification
- Sample Qty.:
- Test data

Prepared By	Checked By	Approved By
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Product Specification

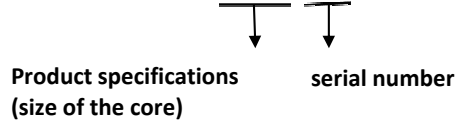
1. Physical Dimensions (Unit:mm)



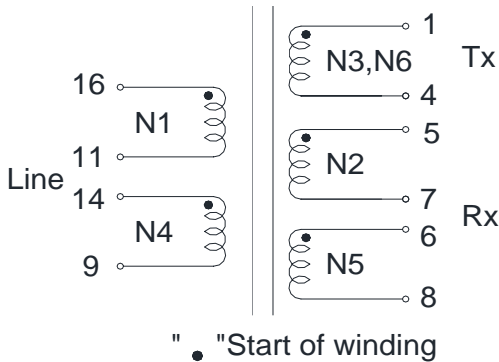
Notes:

- *Marking type is laser printing
- *Size D not including soldering tags
- *YY: Year Code; WW: Week Code
- *Coplanarity Requirement: Less than 0.10mm
- *ITDSC Model:SF13AD

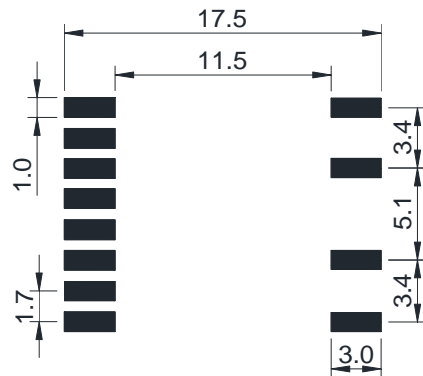
***Marking Rule: EP13-239**



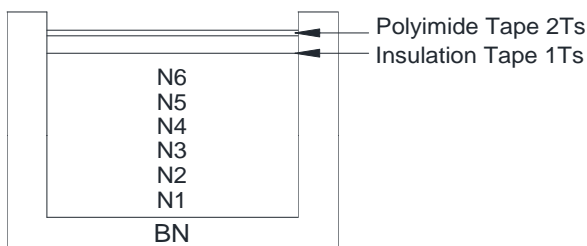
2. Connection



3. Recommended Pad Layout (Unit:mm)



4. Structure of Products



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5. Electrical Characteristics

*Electrical specifications at 25°C unless otherwise noted:

*Operation temperature:-40°C~+85°C

*Using Semitel Int. test method.

Items	Winding	Specifications	Test Conditions
Inductance	L(16-9) tie(11-14)	1.4mH±10%	at 10KHz,0.1Vrms
LK-Inductance	LK(16-9) tie(11-14,5-6-7-8)	1.1uH Max	at 1MHz,0.1Vrms
	LK(16-9) tie(11-14,1-4)	1.1uH Max	at 1MHz,0.1Vrms
Interwinding Capacitance	(16-14-11-9) TO (1-4-5-6-7-8)	145pF Max	at 100KHz,1.0Vrms
DCR	R(16-9) tie(11-14)	2.0Ω Max	at 25°C
	R(5-8) tie(6-7)	5.0Ω Max	
	R(1-4)	0.9Ω Max	
TURNS RATIO	(16-9):(5-8) tie(11-14)&(6-7)	1:1±2%	at 100KHz,0.1Vrms
	(16-9):(1-4) tie(11-14)	2:1±2%	
THD		-90dB MAX	2Vp at 25kHz, line side @100Ω
		-85dB MAX	5.5Vp at 25kHz, line side @100Ω
LCL		41 dB Min	@ 12MHz
		32 dB Min	@ 35MHz
Hi-Pot	Pri. to Sec.	1850VAC	1mA.3SEC.
Operating Temperature		-40°C~85°C	
Safety Requirements ²		supplementary insulation	operating voltage up to 250V
Safety Requirements ³		6kV Min	ITU-T K.21 Enhanced 6kV level

6. Bill of Material

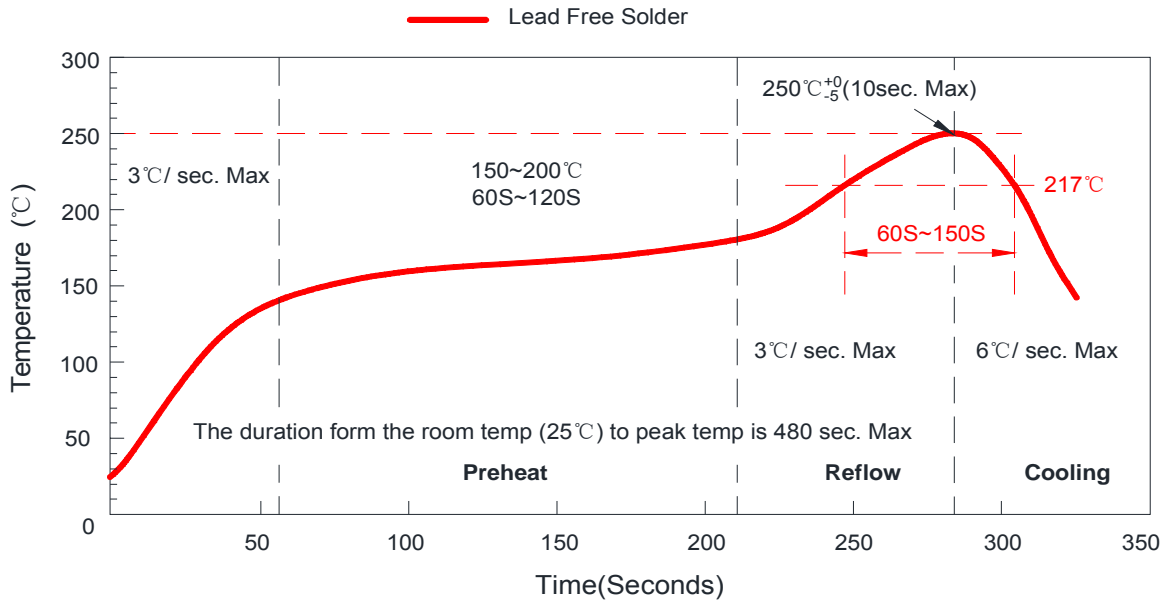
No	Items	Material Name	Type	Manufacturer	Temp	UL File No	SGS File No
1	Core	FERRITE CORE A101	EP13AL	ACME	/	NIL	CE/2017/A2987B
2	Bobbin	PM-9630	EP13	SUMITOMO	150°C	E41429	SHAEC1802754204
3	Copper Wire	enamelled wire	QPN180 0.09 AWG39 / 0.10 AWG38	SUNTEK	180°C	E234867	A2180011364102E
4	Wire	Insulated wire TIW-FXX	ø0.14mm	FLUO-TECH	155°C	E488352	CANML1803322201
OR	Wire	Insulated wire FIW-F*	ø0.14mm	Yusheng	155°C	E332529	SHAEC1718738501
5	Insulation tape	Yellow color 1350F-1(b)	0.025*8mm	3M	130°C	E17385	CE/2017/A2661
6	Polyimide Tape	Brown adhesive plastic 0.025mm V-0	0.06*6mm	RUNSEA (RAYITEK)	130°C	E339977	CANML1808714601
7	EPOXY	TH320		TIANHUAN	130°C	E257593	CANEC1719881801
8	EPOXY	EB-360		CHANGFENG	130°C	NIL	SHAEC1726002103
9	Solder	Lead free solder		HONGTAIZHOU	227°C	NIL	CANEC1812220901

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7.Recommended Temperature Conditions of Air Reflow Soldering :(IPC/JEDEC J-STD-020)

Test Solderability Temperature Profile



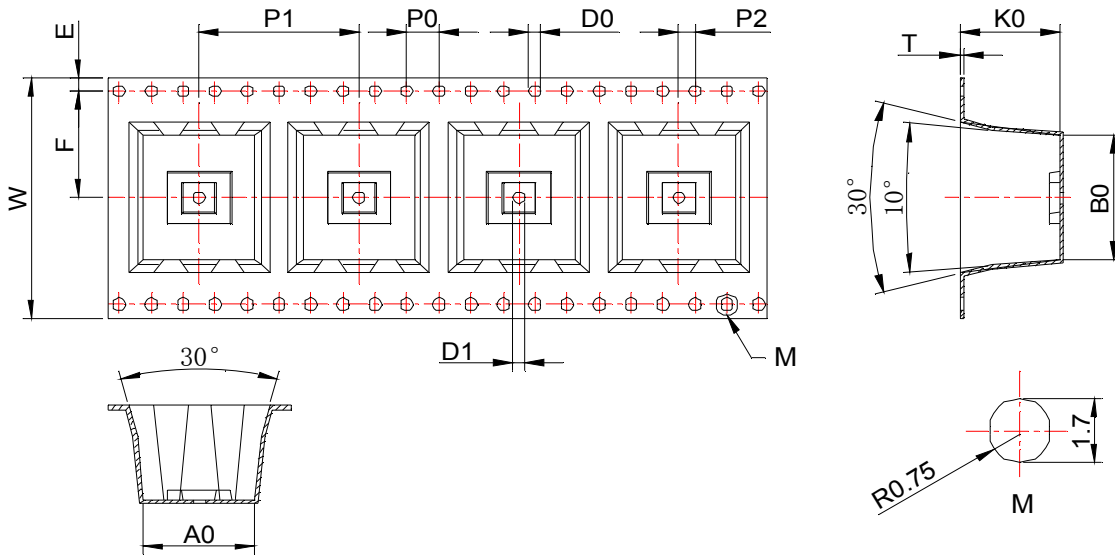
Profile Feature	
Average Ramp-Up Rate (T _{smax} to T _p)	3°C/Second Max.
Preheat	
-Temperature Min. (T _{smin})	150°C
-Temperature Max. (T _{smax})	200°C
-Time (T _{smin} to T _{smax})	60-120 Seconds
Time maintained above:	
-Temperature (T _L)	217°C
-Time (T _L)	60-150 Seconds
Peak/Classification Temperature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

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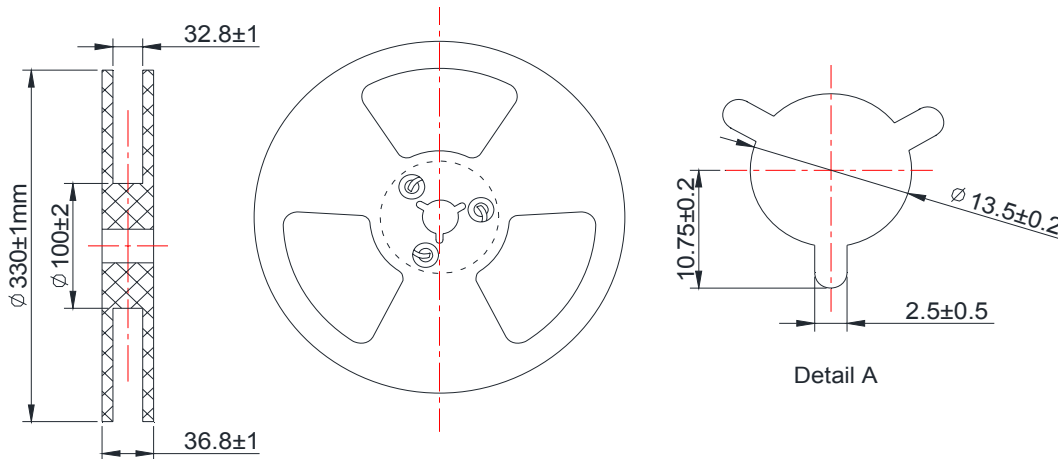
Product Specification

8. Tape and Reel Dimensions (Unit: mm)

*Packing information is according with EIA-841 standard, When W=32mm and other wider tapes that should have elongated sprocket holds on the other side.



symbol	A0	B0	K0	P0	P1	P2
Spec	14.0±0.3	16.5±0.3	12.5±0.3	4.0±0.1	20.0±0.15	2.0±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	∅ 1.5 ^{+0.1} ₋₀	∅ 2.0±0.1

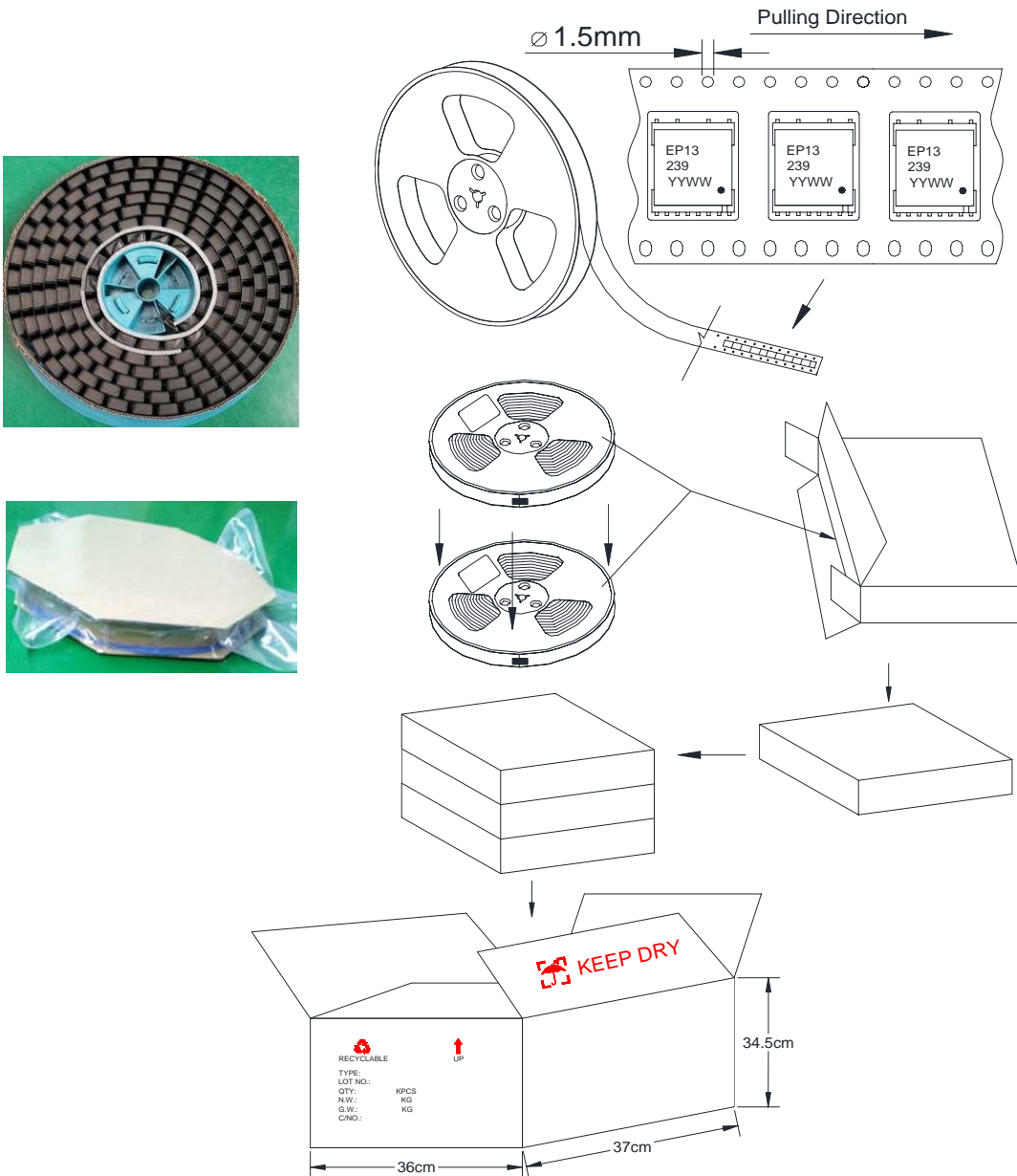


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9. Packing Request

- *Every roll of the carrier tape can contain 200pcs products.
- *Every small packing box contains two rolls of carrier tape. Total quantity: 400pcs.
- *Every carton box contains 3 small packing boxes. Total quantity: 1200pcs.



10. Net weight

The weight of a single product is about 5.94g.

11. The place of origin

These products are made in guangdong province, China.

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Test Report

Test Instruments														
	HP4284A	HP4284A		DCR METER 131			SYS2702A		HP4284A	HP87510A		3250		CS2670A
NO	Inductance	LK-Inductance		DCR			THD		Interwinding Capacitance	LCL		TURNS RATIO		Hi-Pot
	at 10KHz,0.1Vrms	at 1MHz,0.1Vrms		at 25°C			2Vp at 25kHz, line side @100Ω	5.5Vp at 25kHz, line side @100Ω	at 100KHz,1.0Vrms	@ 12MHz	@ 35MHz	at 100KHz,0.1Vrms		1mA.3SEC.
	L(16-9) tie(11-14)	LK(16-9) tie(11-14,5-6-7-8)	LK(16-9) tie(11-14,1-4)	R(16-9) tie(11-14)	R(5-8) tie(6-7)	R(1-4)			(16-14-11-9) TO (1-4-5-6-7-8)			(16-9):(5-8) tie(11-14)&(6-7)	(16-9):(1-4) tie(11-14)	Pri. to Sec.
	1.4mH±10%	1.1uH Max	1.1uH Max	2.0Ω Max	5.0Ω Max	0.9Ω Max	-90dB MAX	-85dB MAX	145pF Max	41 dB Min	32 dB Min	1:1±2%	2:1±2%	1850VAC
1	1.42	0.97	0.97	1.70	4.30	0.84	-94.30	-90.60	126.80	46.0	42.0	PASS	PASS	PASS
2	1.41	0.98	0.97	1.73	4.25	0.84	-94.10	-90.40	129.50	44.0	35.0	PASS	PASS	PASS
3	1.44	0.97	0.98	1.81	4.28	0.83	-93.50	-89.80	133.80	45.0	36.0	PASS	PASS	PASS
4	1.47	0.98	0.97	1.70	4.25	0.84	-94.60	-90.10	128.70	54.0	45.0	PASS	PASS	PASS
5	1.35	0.97	0.97	1.72	4.24	0.83	-94.60	-89.40	128.50	44.0	38.0	PASS	PASS	PASS
MIN.	1.35	0.97	0.97	1.70	4.24	0.83	-94.60	-90.60	126.80	44.0	35.0			
MAX.	1.47	0.98	0.98	1.81	4.30	0.84	-93.50	-89.40	133.80	54.0	45.0			
AVG.	1.42	0.97	0.97	1.73	4.26	0.84	-94.22	-90.06	129.46	46.6	39.2			
Result	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed

Overall Dimensions Test

Measurement tools: Caliper (Unit:mm)

NO	A	B	C	D	E	F	G	H	I					
	13.6±0.5	15.2±0.5	12.2±0.5	16.0±0.5	1.7±0.3	3.4±0.3	5.1±0.3	12.5±0.3	0.5±0.1					
1	13.55	15.17	12.19	15.56	1.68	3.33	5.07	12.63	0.51					
2	13.57	15.21	12.24	15.59	1.68	3.33	5.03	12.85	0.50					
3	13.59	15.23	12.18	15.57	1.71	3.33	5.04	12.64	0.50					
4	13.59	15.25	12.26	15.54	1.67	3.30	5.08	12.68	0.53					
5	13.56	15.20	12.14	15.52	1.66	3.37	5.07	12.68	0.50					
MIN.	13.55	15.17	12.14	15.52	1.66	3.30	5.03	12.63	0.50					
MAX.	13.59	15.25	12.26	15.59	1.71	3.37	5.08	12.85	0.53					
AVG.	13.57	15.21	12.20	15.56	1.68	3.33	5.06	12.70	0.51					
Result	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed					

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