

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. : _____

EP13-090

VERSION: _____

J

DATE: _____

2018/7/11

Attachments:

- Product specification
- Sample Qty. :
- Test data

Prepared By	Checked By	Approved By
Hebe Deng 2018/7/11	Liang Wong 2018/7/11	Alan Wong 2018/7/11

Semitel International Ltd.,	TEL: 886-2-86922121 FAX: 886-2-26483379
www.semitelint.com	12F, No.183, Sec.1, Datong Rd., Xizhi Dist., New Taipei City 22145, Taiwan

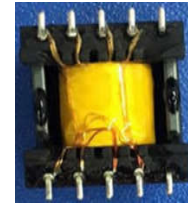
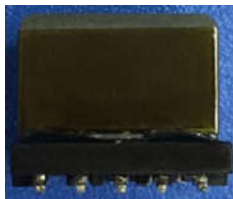
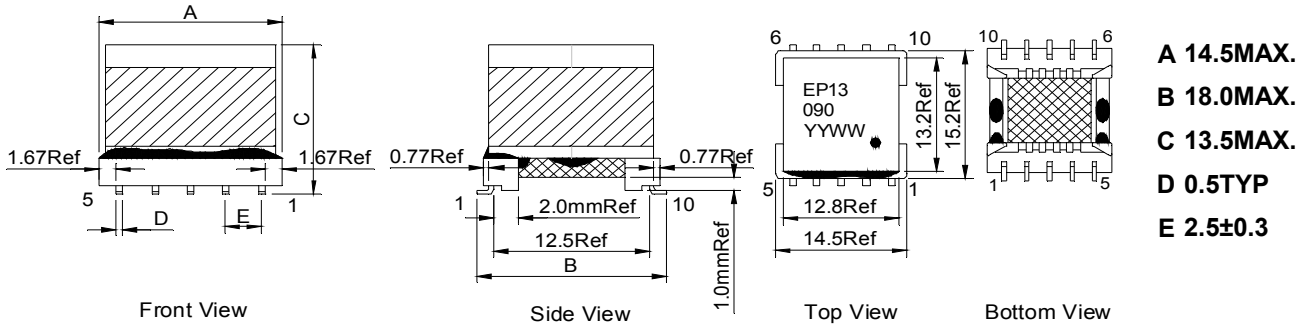
Revision Record

Version	Revision Date	Revision For Items	Reason For Revision
A	2012-10-11	New Revision	According to the measured sample data change
		Interwinding Capacitance from(1-10)(tie2-3,8-9)110pF Max changed to 120pF Max	
B	2013-1-29	Modify the electrical characteristic parameters	Customer request
C	2013-6-10	Interwinding Capacitance (1-10)(tie2-3,8-9) from 56~110pF changed to 56~150pF	According to the measured sample data change
		THD (1-4):(10-7)(tie2-3,8-9) 2Vp at 25kHz from -90dB Max changed to -90dB Typ	
		THD (1-4):(10-7)(tie2-3,8-9) 5.5Vp at 25kHz from -85dB Max changed to -85dB Typ	
D	2013-11-22	DCR(10-7) (tie8-9) from 0.9Ω±30% changed to 0.5~0.9Ω	According to the measured sample data change
E	2014-12-17	Interwinding Cap(1-10) from 110pF Typ changed to 56pF Min~110pF Max	customer request
		LCL (ITU 993.2+3dB) at 12 MHz from -41Min changed to 41dB Min	customer request
		LCL (ITU 993.2+3dB) at 30 MHz from -33Typ changed to 33dB Min	customer request
		DCR(10-7) (tie8-9) from 0.5~0.9Ω changed to 0.9Ω±30%	customer request
F	2016-5-4	Adhesive tape of 3M need to add 3M logo on the tape	3M adds the logo to identify their own products
		Marking changes from inkjet printing to laser printing 	Amend for mass production
		Product photo of laser marking. 	
G	2016-8-3	1, The amount of packaging per roll from 250PCS to 200PCS 2, Add 32 mm pearl cotton to the inner part of the carrier tape for two rounds. 3, Add 32 mm cartoon paper for one round at the outer part of the carrier tape.	For better protection of the products
H	2016-9-29	1, Packing qty is 250pcs per reel, totally 1500pcs per carton. 2, Add one octagon cardboard at each top and bottom side of reel for protection.	For better protection of the products
I	2017-2-10	Seal the wires of Primary and Secondary from the PINS to the coil by using epoxy.	Enhance the Hi-pot protection of the products.
J	2018-7-11	Add the JCH-10S core of CERAMICS	Customer request

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Product Specification

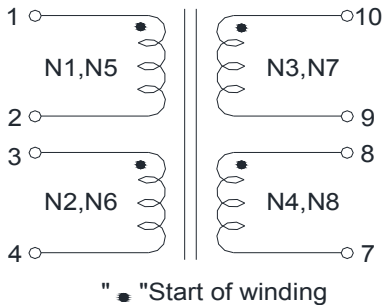
1. Physical Dimensions (Unit:mm)



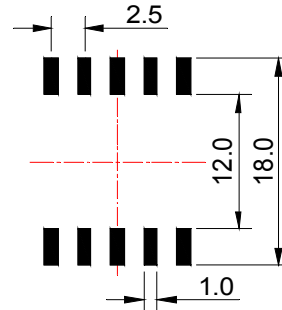
Notes:

- *Marking type is laser printing
- *YY: Year Code; WW: Week Code
- *Terminals should be measured excluding the length of the soldered point.
- *Dot indicates the location of pin#1.
- *Coplanarity Requirement: Less than 0.15mm
- *ITDSC Model:SF13AD

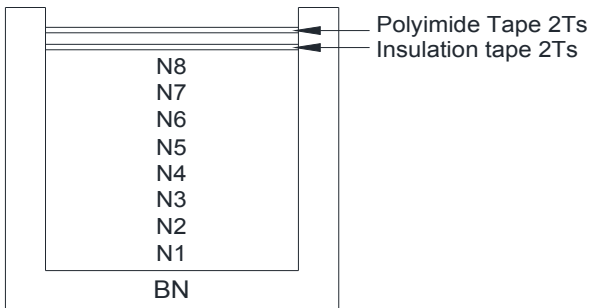
2.Connection



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	1 - 2	32 TS	1 P	ø0.10mm P180
N2	3 - 4	32 TS	1 P	ø0.10mm P180
N3	10 - 9	16 TS	1 P	ø0.09mm TIW-F
N4	8 - 7	16 TS	1 P	ø0.09mm TIW-F
N5	1 - 2	32 TS	1 P	ø0.10mm P180
N6	3 - 4	32 TS	1 P	ø0.10mm P180
N7	10 - 9	16 TS	1 P	ø0.09mm TIW-F
N8	8 - 7	16 TS	1 P	ø0.09mm TIW-F

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6. Electrical Characteristics

*ELECTRICAL SPECIFICATIONS @ 25°C unless otherwise noted:

*Surge standard: IEC61000-4-5 6KV

Items	Min	Nom	Max	Tol	Units	Conditions
Inductance		1400		±10%	μH	1-4 (tied 2-3) , at 10KHz,0.1Vrms
LK-Inductance	600	850	1080		nH	1-4 (tied 2-3, 7+8+9+10) (25kHz-30MHz signal bandwidth)
DC Resistance pri	0.85	1.5	2.0		Ω	1-4 (tied 2-3)
DC Resistance sek		0.9		±30%	Ω	10-7 (tied 8-9)
Turns ratio		2:1		±2%		1-4 (tied 2-3) : 10-7 (tied 8-9) at 10KHz,0.1Vrms
Dielectric Withstanding		1875			VAC	1 second between pri and sec
Total Harmonic Distortion			-90		dB	2Vp at 25kHz, line side
			-85		dB	5.5Vp at 25kHz, line side
Interwinding Cap.	56	80	110		pF	1-10 (1+2+3+4, 7+8+9+10)
LCL (ITU 993.2+3dB)	41					at 12MHz
	33					at 30MHz
Operating Temperature	-40		85		°C	
Safety Requirements	supplementary insulation					operating voltage up to 250V

7. Bill of Material

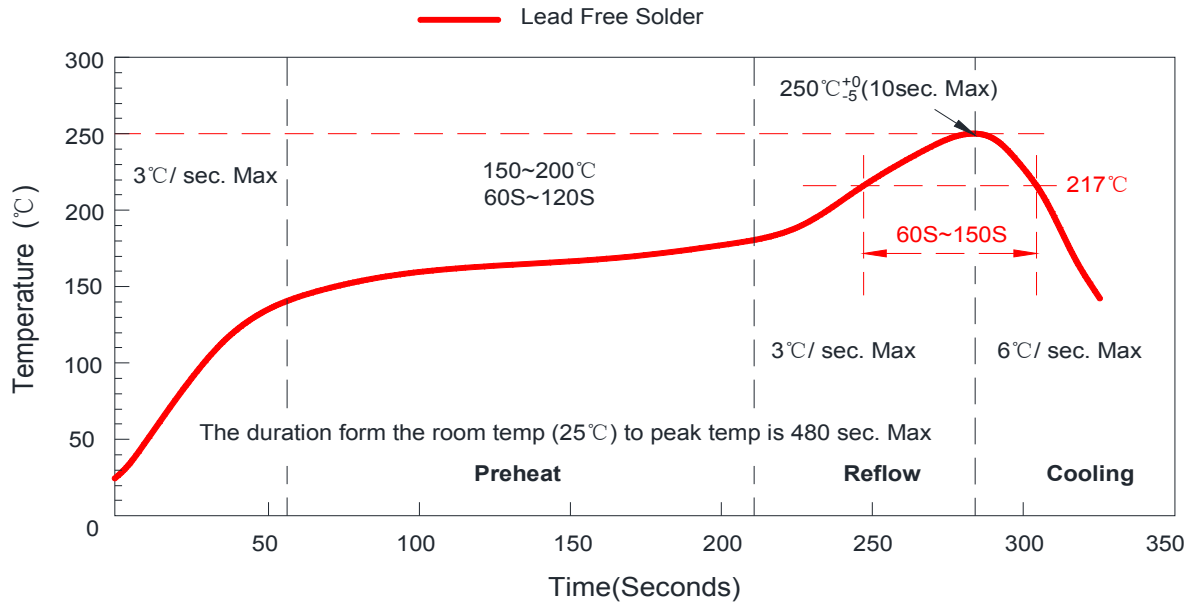
No	Item	Material Name	Manufacturer	Rating	UL File No	SGS File No
1	Core	FERRITE CORE A101	ACME or Equivalent		NIL	CE/2014/13071E
OR	Core	FERRITE CORE JCH-10S	FCRI or Equivalent		NIL	CANEC1712442501
2	Bobbin	PM-9630	SUMITOMO or Equivalent	150°C	E41429	10333034(2)
3	Copper Wire	Polyurethane wire ø0.1mm Polysol 180	ELEKTRISOLA or Equivalent	180°C	E258243	CE/2014/41140 CE/2014/41158
4	TILW	Triple-Layer insulation wire ø0.09mm TIW-FXX	FLUO TECH or Equivalent	155°C	E488352	CE/2014/24762
OR	TILW	Teflon Triple Insulated ø0.09mm FIW-F*	Yusheng or Equivalent	155°C	E332529	SHAEC1512279501
5	Insulation tape	YELLOW COLOR 1350F-1(b)	3M or Equivalent	130°C	E17385	CE/2013/A5042
6	Polyimide Tape	Brown adhesive plastic 0.025mm V-0	RUNSEA (RAYITEK) or Equivalent	130°C	E339977	CANEC1405474201
7	Epoxy	TH320	TIANHUAN or Equivalent	130°C	E257593	CANEC1417094801
8	Solder	Lead free solder	HONGTAIZHOU or Equivalent	280°C	NIL	CANEC1410188301

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8.Recommended Temperature Conditions of Air Reflow Soldering

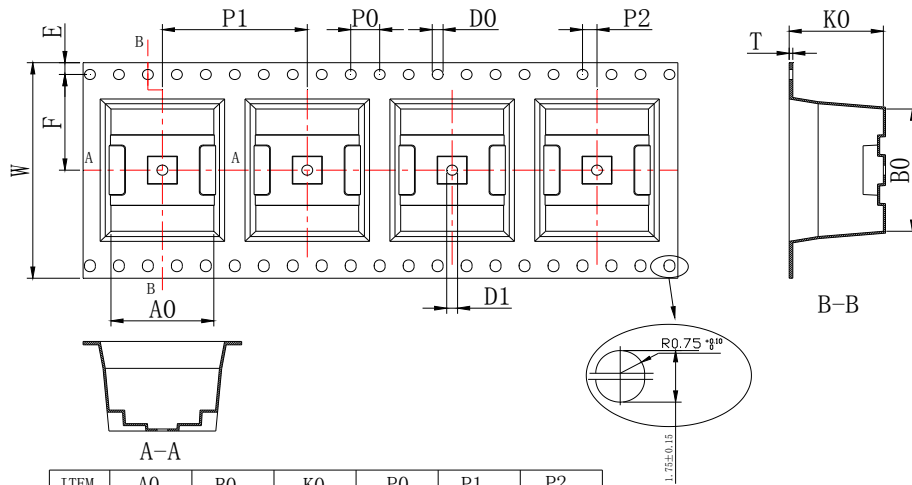
Test Solderability Temperature Profile



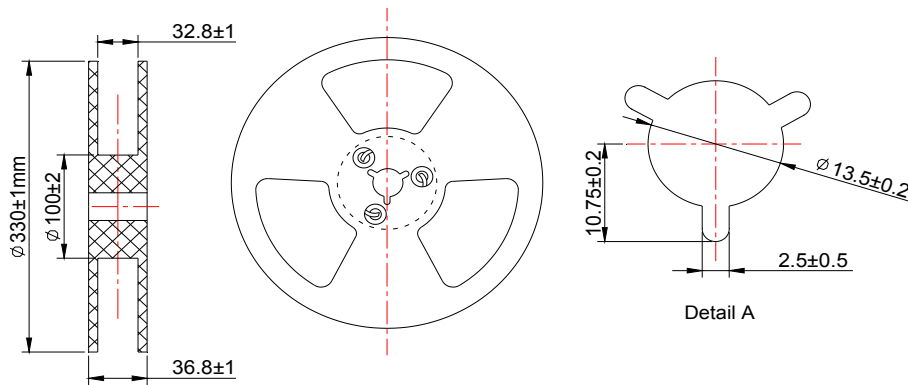
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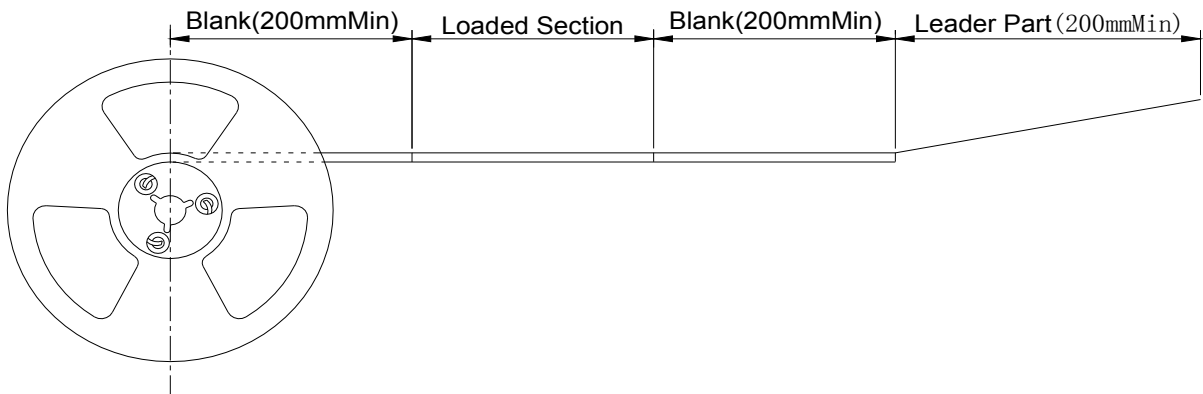
9. Tape and Reel Dimensions (Unit:mm)



ITEM	A0	B0	K0	P0	P1	P2
DIM	14.2±0.1	18.15±0.1	13±0.1	4.0±0.1	20.0±0.1	2.0±0.1
ITEM	W	T	E	F	D0	D1
DIM	32.0±0.3	0.5±0.05	1.75±0.1	14.2±0.1	$\phi 1.5^{+0.1}_0$	$\phi 2.0^{+0.1}_0$



10.Coil Positioning



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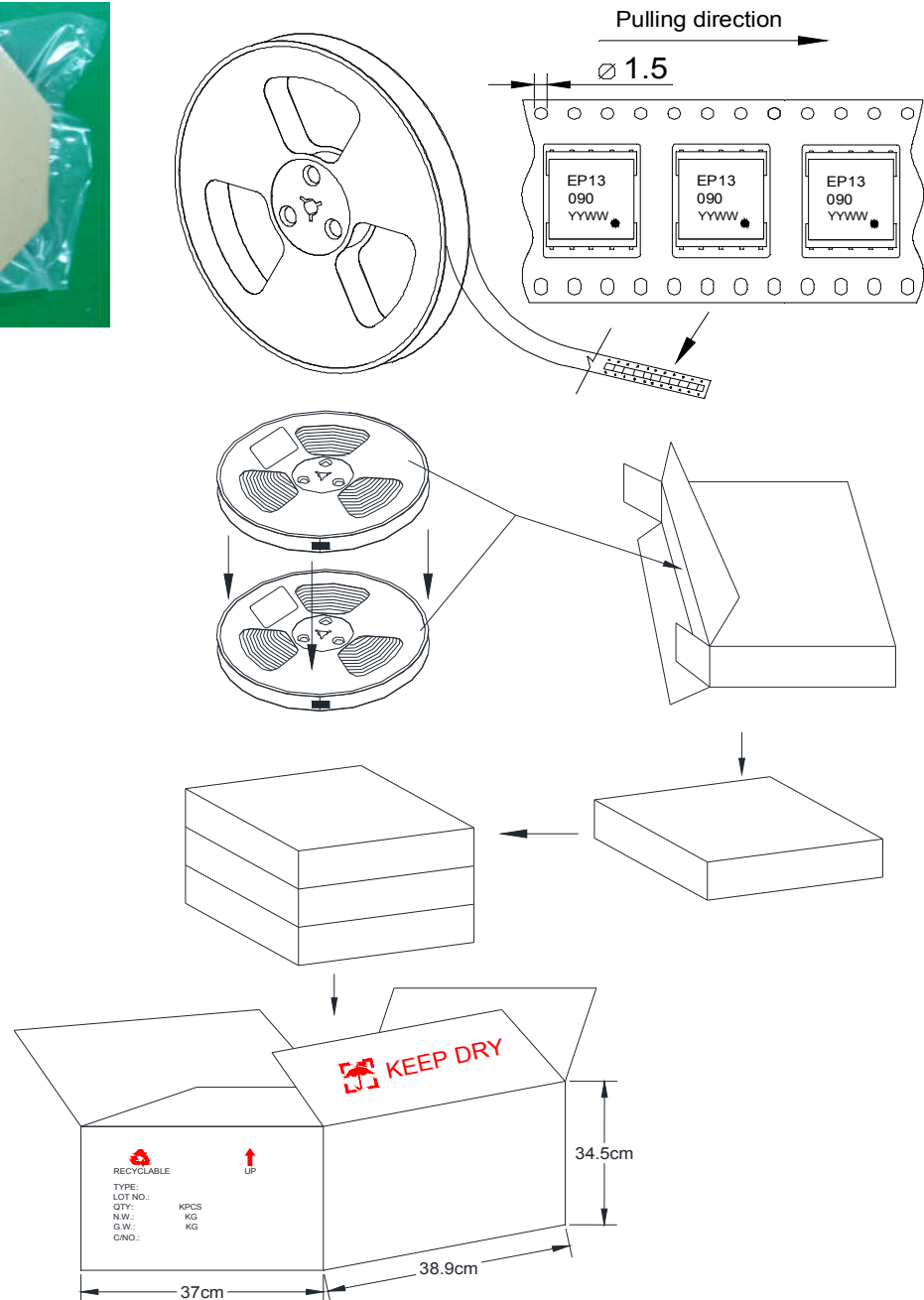
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11.Packing Request

- *Add one octagon cardboard at each top and bottom side of reel for protection. (please see the figure 1)
- *Every roll of the carrier tape can contain 250pcs products.
- *Every small packing box contains two rolls of carrier tape. Total quantity: 500pcs.
- *Every carton box contains 3 small packing boxes. Total quantity: 1500pcs.



figure 1



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Test Report

Test	Inductance	LK-Inductance	DC Resistance pri		Turns ratio	Total Harmonic Distortion		Interwinding Cap.	LCL (ITU 993.2+3dB)		Dielectric Withstanding
			1-4 (tied 2-3)	10-7 (tied 8-9)		1-4 (tied 2-3) : 10-7 (tied 8-9)	-90.0		-85.0		
Pins	1-4 (tied 2-3)	1-4 (tied 2-3, 7+8+9+10)	1-4 (tied 2-3)	10-7 (tied 8-9)	1-4 (tied 2-3) : 10-7 (tied 8-9)						pri. To sec.
Minimum	1260	0.60	0.85	0.630	1.96:1			56	41	33	
Nominal	1400	0.85	1.50	0.900	2.00:1			80			1875
Maximum	1540	1.08	2.00	1.17	2.04:1	-90.0	-85.0	110			
Condition	10 kHz	200kHz	at25°C	at25°C	10 kHz	25kHz	25kHz	100 kHz	12MHz	30MHz	VAC
	0.1 V	0.1V			0.1 V	2.0Vrms	5.5Vrms	0.1 V			1 sec
Units	μH	μH	Ω	Ω	N/A	dB	dB	pF	dB	dB	
1	1400	0.94	1.60	0.931	Passed	-92.10	-87.00	89.30	47.40	44.70	No breakdown
2	1480	0.90	1.60	0.919	Passed	-91.60	-88.80	90.70	45.80	40.10	No breakdown
3	1430	0.90	1.60	0.905	Passed	-93.50	-89.80	89.30	46.00	33.30	No breakdown
4	1420	0.90	1.59	0.925	Passed	-91.90	-88.80	84.90	47.40	36.30	No breakdown
5	1360	0.92	1.58	0.936	Passed	-91.50	-87.20	91.20	48.40	33.30	No breakdown
MIN.	1360	0.90	1.58	0.91		-93.50	-89.80	84.90	45.80	33.30	
MAX.	1480	0.94	1.60	0.94		-91.50	-87.00	91.20	48.40	44.70	
AVE.	1418	0.91	1.59	0.92		-92.12	-88.32	89.08	47.00	37.54	
Result	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						
	14.5MAX.	18.0MAX.	13.5MAX.	0.5TYP	2.5±0.3						
1	13.89	17.38	12.26	0.50	2.51						
2	13.87	17.35	12.33	0.51	2.51						
3	13.88	17.39	12.22	0.50	2.51						
4	13.91	17.36	12.27	0.50	2.50						
5	13.89	17.38	12.00	0.51	2.51						
MIN.	13.87	17.35	12.00	0.50	2.50						
MAX.	13.91	17.39	12.33	0.51	2.51						
AVG.	13.89	17.37	12.22	0.50	2.51						
Result	Passed	Passed	Passed	Passed	Passed						

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