



Comparison Report

Prepared by Shawn Jiang
Checked by James Yu
Approved by Quayer Chen
Issued date at August 4,2016
Reversion for A

Comparison report

No.	Item	Specification	Old	New	Comments
1	Electrical test data	Refer to TSC data sheet	Page3~4	Page3~4	OK
2	General appearance	Micro SMA Die-bond Quality Inspection Instruction-AQ3QC34			OK
3	Dimension	1.Micro SMA Clip design control WI-AQ3PE11 2.Micro SMA L/F design control WI-AQ3PE12	Page5~6	Page5~6	OK
4	Composition	N/A	Lead Frame (L/F)- Copper alloy C19210: Copper \geq 99.6% Clip - Copper alloy EFTEC-64T: Copper \geq 99.1%	Lead Frame (L/F)- Copper alloy C19210: Copper \geq 99.6% Clip - Copper alloy EFTEC-64T: Copper \geq 99.1%	OK
5	Reliability test	Per ZEVl case SEM-PA-16 : No need to do AEC-Q101 test	N/A	Per ZEVl case SEM-PA-16 : No need to do AEC-Q101 test. We do extra H3TRB/LTSL/HTSL/IOL/TC/AC/HTHH/RSH Refer SS14M reliability test report	OK

Electrical test

1. Test data comparison

Supplier	Old	Supplier	New
P/N	SS14M	P/N	SS14M
Lot No.	L1-160630-002	Lot No.	A01-160413-003
VR min@1mA:40V	>51.7V	VR min@1mA:40V	>49V
IFSM@25A	PASS	IFSM@25A	PASS
VF Max@1A:0.55V	<0.474V	VF Max@1A:0.55V	<0.47V
IR Max@Tj=25°C :50uA	<17.25uA	IR Max@Tj=25°C :50uA	<12.6uA
ERSM@L=120mH:10MJ	PASS	ERSM@L=120mH:10MJ	PASS
Elec. Yield	98.78%	Elec. Yield	99.71%

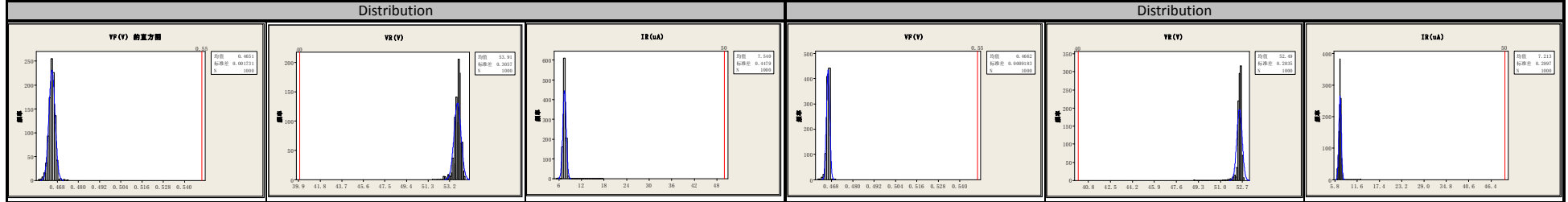
Date:20160720

Approved by : Quayer Chen

Prepared by: Shawn Jiang

Distribution

P/N	SS14M						P/N	SS14M					
Lot No.	L1-160630-002						Lot No.	A01-160413-003					
Spec.	VF Max@1A:0.55V	Spec.	VR min@1mA:40V	Spec.	IR Max@Tj=25°C :50uA	Spec.	VF Max@1A:0.55V	Spec.	VR min@1mA:40V	Spec.	IR Max@Tj=25°C :50uA		
Min.(V)	0.458	Min.(V)	51.7	Min.(V)	5.68	Min.(V)	0.461	Min.(V)	49	Min.(V)	6.53		
Max.(V)	0.474	Max.(V)	54.5	Max.(V)	17.25	Max.(V)	0.47	Max.(V)	52.8	Max.(V)	12.6		
Avg.(V)	0.465	Avg.(V)	53.9	Avg.(V)	7.583	Avg.(V)	0.467	Avg.(V)	52.500	Avg.(V)	7.255		
Std.	0.003	Std.	0.535	Std.	1.414	Std.	0.039	Std.	0.444	Std.	1.384		
Cpk	8.86	Cpk	8.65	Cpk	10.00	Cpk	9.96	Cpk	9.37	Cpk	10.29		



Clip Comparison report

Production Part Approval - Dimensional Results

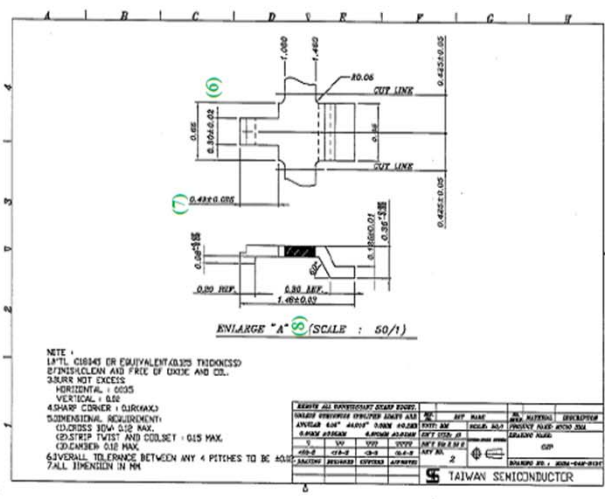
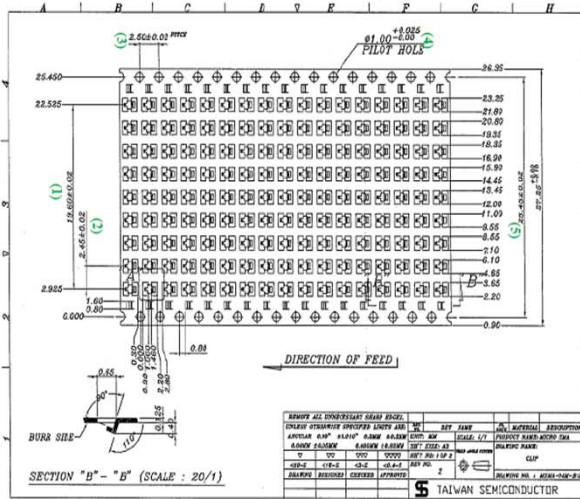
Supplier name :	Old	Part Name :	Surface Mount Rectifiers
Supplier code :	N/A	Sample size(pcs) :	10
Customer P/N :	N/A	Units weight(mg) :	6.11
Package :	uSMA	Measure Machine :	3D Family (MCS02)

Item	Spec LSL	Spec USL	Units	Measurement Results					Results
				Max.	Avg.	Min.	3sigma	Cpk	
1	19.58	19.62	mm	19.60	19.60	19.59	0.010	1.84	Passed
2	2.43	2.47	mm	2.46	2.45	2.44	0.011	1.75	Passed
3	2.48	2.52	mm	2.51	2.50	2.49	0.010	1.97	Passed
4	0.975	1.025	mm	1.009	1.002	0.998	0.013	1.71	Passed
5	25.43	25.47	mm	25.46	25.45	25.44	0.011	1.71	Passed
6	0.28	0.32	mm	0.31	0.30	0.29	0.011	1.68	Passed
7	0.465	0.515	1.49	0.495	0.489	0.483	0.013	1.89	Passed
8	1.43	1.49	1.43	1.47	1.46	1.45	0.016	1.87	Passed

Supplier name :	New	Part Name :	Surface Mount Rectifiers
Supplier code :	N/A	Sample size(pcs) :	10
Customer P/N :	N/A	Units weight(mg) :	6.11
Package :	uSMA	Measure Machine :	3D Family (MCS02)

Item	Spec LSL	Spec USL	Units	Measurement Results					Results
				Max.	Avg.	Min.	3sigma	Cpk	
1	19.58	19.62	mm	19.61	19.60	19.60	0.011	1.73	Passed
2	2.43	2.47	mm	2.46	2.45	2.44	0.011	1.80	Passed
3	2.48	2.52	mm	2.51	2.50	2.50	0.010	1.89	Passed
4	0.975	1.025	mm	1.008	1.002	0.993	0.013	1.76	Passed
5	25.43	25.47	mm	25.45	25.45	25.44	0.011	1.69	Passed
6	0.28	0.32	mm	0.31	0.30	0.29	0.011	1.73	Passed
7	0.465	0.515	mm	0.497	0.491	0.483	0.013	1.84	Passed
8	1.43	1.49	mm	1.47	1.46	1.45	0.015	1.89	Passed

Prepared by :	Jack	Approved by :	Karl
Date :	13-Jul-16	Date :	13-Jul-16
Title :	Process Engineer	Title :	Section staff





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Reliability Test Report

Part Number: SS14M

Prepared By: Pony Chen

Approved by: James Yu

2016/3/18

Content

<u>Item</u>	<u>Description</u>	<u>Remark</u>
1	Qualification Plan	
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Qualification Plan

User P/N:		SS14M	Process Engineer:		James Yu	
User Spec. #:		N/A	General specification:		SS14M	
Supplier:		Taiwan Semiconductor Corp.	Supplier manufacture site:		TSC	
Supplier Generic P/N:		SS14M	Required submission date:		18-Mar-16	
Supplier internal P/N:		SS14M	Family Type:		SKY	
Item	Test	Test Conditions	Est. Start	Est. Comp.	# Lot	S.S.
1	Test	Electrical Characterization @ 25 °C	7-Mar-16	7-Mar-16	ALL	ALL
2	External Visual	@ 25 °C	7-Mar-16	8-Mar-16	ALL	ALL
3	H3T.R.B.	85°C .85% Relative humidity, VR=32V, 168hrs	7-Mar-16	14-Mar-16	1	77
4	Low Temp. Storage Life	Ta=-55±3°C/168hrs	8-Mar-16	15-Mar-16	1	77
5	High Temp. Storage Life	Ta=150(+10/-0)°C/168hrs	8-Mar-16	15-Mar-16	1	77
6	Intermittent Operating Life	On/2min, off/2min, Δ Tj ≥ 100°C, 2520cycles	8-Mar-16	15-Mar-16	1	77
7	Temp. Cycling	-55°C/15Min, 150°C/15Min, 100 cycles	8-Mar-16	11-Mar-16	1	77
8	Autoclave	Ta=121°C, P=15PSIG /96hrs	8-Mar-16	12-Mar-16	1	77
9	Moisture Resistance	85°C .85% Relative humidity /168hrs	8-Mar-16	15-Mar-16	1	77
10	Solderability	245±5°C / 5sec	17-Mar-16	17-Mar-16	1	10
11	Solder Heat	260±5°C/10+2/-0 secs	17-Mar-16	17-Mar-16	1	30
Wafer no. LI1416130						
Prepared By: Pony Chen			Approved by: James Yu			
Title :Hi-Rel Engineer			Title : Leader of QA			



Environment Test Summary

Supplier Taiwan Semiconductor Corp.			User Part Number SS14M			
Name of laboratory I-Lan Company Hi-Rel Lab.			Part Description Micro SMA			
Item	Test	Test Conditions	# lots	# tested	# Failed	Result
1	Test	Electrical Characterization @ 25 °C	ALL	ALL	0	Accept
2	External Visual	@ 25 °C	ALL	ALL	0	Accept
3	H3T.R.B.	85°C .85% Relative humidity, VR=32V, 168hrs	1	77	0	Accept
4	Low Temp. Storage Life	Ta=-55±3°C/168hrs	1	77	0	Accept
5	High Temp. Storage Life	Ta=150(+10/-0)°C/168hrs	1	77	0	Accept
6	Intermittent Operating Life	On/2min, off/2min, ΔTj ≥ 100°C, 2520cycles	1	77	0	Accept
7	Temp. Cycling	-55°C/15Min, 150°C/15Min, 100 cycles	1	77	0	Accept
8	Autoclave	Ta=121°C, P=15PSIG /96hrs	1	77	0	Accept
9	Moisture Resistance	85°C .85% Relative humidity /168hrs	1	77	0	Accept
10	Solderability	245±5°C / 5sec	1	10	0	Accept
11	Solder Heat	260±5°C/10+2/-0 secs	1	30	0	Accept
Wafer no.LI1416130						
Prepared By: Pony Chen			Approved by: James Yu			
Title :Hi-Rel Engineer			Title : Leader of QA			