

Process Change Notification

This is to inform you that a design and/or process change/s will be implemented to the following product(s) listed below. This notification requires your concurrence within 45 days upon receipt of this notification.

The plan change/s will take effect 90 calendar days from the date of this notification.

Please work with your local Taiwan Semiconductor Sales Representative to manage your inventory of the existing product if your evaluation of this change will require more than 90 calendar days.

For additional data and samples, you can contact your local Taiwan Semiconductor Field Quality Service or Customer Quality Engineer within 45 days upon receipt of this notification

PCN No: PCN23002 rev0

Title: SS24LW(H) Change the barrier type of wafer and parameter of datasheet

Issue Date: 2023/2/23

If you have any questions concerning this change, please contact:

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PCN Type: Changed the barrier type of wafer and parameter of datasheet

Effectivity:

Expected 1st device shipment date: 2023/5/24

Last Order Date: 2023/8/22

Last Delivery Date: 2024/8/21

Product Category (Description):

Affected SOD-123W parts provided by Taiwan Semiconductor Co. Ltd. The full lists of products affected are listed in the "List of Affected Devices" section.

Description of Change:

This PCN is to inform customers regarding the changes of wafer barrier type and parameter of datasheet in SS24LW/SS24LWH to meet market demand. Schottky products will revalidate and update for problematic VF and IR and CJ curves.

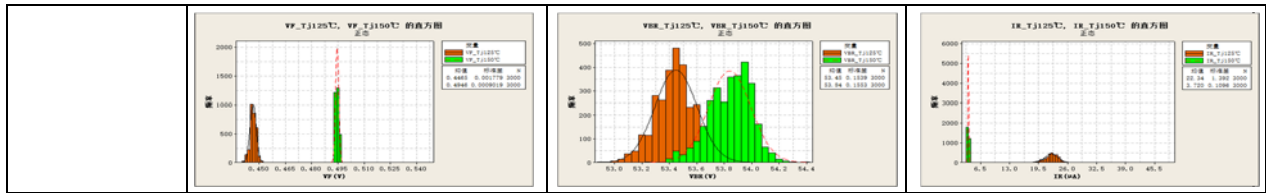
Details of changes are enclosed in this notification letter including the electrical test data and qualification report below.

1. Wafer Comparison table

Item	From	To	Remarks
Wafer Source	Li-On	Li-On	Same
Fab Location	China	China	Same
Wafer Size	6	6	Same
Die Size	45mil	45mil	Same
Die Thickness	280um	280um	Same
Barrier Type	NiPt4	NiPt1	Different barrier type
Temperature junction	125°C	150°C	Different temperature

2. Electrical Test Result

P/N	SS24LW/SS24LWH_Tj125°C			SS24LW/SS24LWH_Tj150°C		
Lot No.	TA-210402-018			TP-200922-002		
Die Size	45mil			45mil		
Wafer No.	LI2104363			LI2035095		
Item	Tj125°C wafer			Tj150°C wafer		
	VF(V)@2A	VBR(V)@1mA	IR(μA)@40V	VF(V)@2A	VBR(V)@1mA	IR(μA)@40V
D/S Spec.	0.55	40	200	0.55	40	200
Max.	0.452	54.390	26.400	0.497	54.320	4.280
Min.	0.439	52.900	16.400	0.490	53.240	3.240
Ave.	0.446	53.450	22.341	0.495	53.841	3.720
Mean	0.447	53.450	22.400	0.495	53.850	3.720
Sigma	0.002	0.154	1.392	0.001	0.155	0.110
Cpk	19.398	29.130	42.552	20.461	29.714	596.804
Result	PASS	PASS	PASS	PASS	PASS	PASS
Distribution	VF(V)@2A		VBR(V)@1mA	IR(μA)@40V		



Qualification and Reliability Result:

Stress Test	Abbrev	Test Methods	Test Conditions	Final Readpoint	Requirements		Results		
					SS	# Lots	Rej/SS	Remarks	
Environmental and Lifetime Stress Tests									
Pre- and Post-Stress Electrical Test	TEST	Product Datasheet	Test at room temp	-	530	3	0	PASS	
External Visual	EV	JESD22-B101	per reference standard	-	530	3	0	PASS	
Preconditioning	PC	J-STD-020	MSL-1 (3x reflow at 260°C)	-	338	3	0	PASS	
Temperature Cycle	TC	JESD22-A104	-55°C to +150°C; 15 mins dwell	1016 cycs	77	3	0	PASS	
Unbiased HAST	UHASt	JESD22-A118	130°C/85% RH; unbiased	96 hrs	77	3	0	PASS	
Autoclave	AC	JESD22-A102	N/A	N/A	N/A	N/A	N/A	N/A	
Highly Accelerated Stress Test	HAST	JESD22-A110	110°C/85% RH; V=80% VR; 42V max	96 hrs	77	3	0	PASS	
High Humidity High Temp Reverse Bias	H3TRB	JESD22-A101	N/A	N/A	N/A	N/A	N/A	N/A	
Resistance to Solder Heat	RSH	JESD22-B106	SMD (Pb free): 260°C; 10 sec	10 secs	30	3	0	PASS	
High Temp Storage Life	HTSL	JESD22-A103	N/A	N/A	N/A	N/A	N/A	N/A	
High Temp Reverse Bias	HTRB	MIL-STD-750-1	150°C; V=100% rated V	1008 hrs	77	3	0	PASS	
High Temp Gate Bias	HTGB	JESD22-A108	N/A	N/A	N/A	N/A	N/A	N/A	
Intermittent Operating Life	IOL	MIL-STD-750	Ta=25°C; ΔTj=100°C; 2.0 min on/off	15120 cycs	77	3	0	PASS	
Power Temp Cycle	PTC	JESD22-A105	N/A	N/A	N/A	N/A	N/A	N/A	
High Temp High Humidity Bias	HTHHB	JESD22-A101	N/A	N/A	N/A	N/A	N/A	N/A	
Steady State Operating Life	SSOP	MIL-STD-750-1	N/A	N/A	N/A	N/A	N/A	N/A	
Package Assembly Integrity Tests									
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-TC	results	2	1	0	PASS	
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-HAST	results	2	1	0	PASS	
Temp Cycling Hot Test	TCHT	JESD22-A104	Post-TC	N/A	N/A	N/A	N/A	N/A	
Temp Cycle Delamination Test	TCDT	JESD22-A104	Post-TC	N/A	N/A	N/A	N/A	N/A	
Wire Bond Pull	WBP	MIL-STD-750-2	per assembly spec	N/A	N/A	N/A	N/A	N/A	
Wire Bond Shear	WBS	AEC Q101-003	per assembly spec	N/A	N/A	N/A	N/A	N/A	
Resistance to Solvents	RTS	JESD22-A111/B107	per TSC spec	N/A	N/A	N/A	N/A	N/A	
Solder ability	SD	J-STD-002	260°C	5 secs	10	1	0	PASS	
Thermal Resistance	TR	JESD24	per product datasheet	results	10	1	0	PASS	
Physical Dimension	PD	JESD22-B100	per assembly spec	N/A	N/A	N/A	N/A	N/A	
Terminal Strength	TS	JESD22-B105	per reference standard	N/A	N/A	N/A	N/A	N/A	
Ball Shear	BS	AEC-Q101-003	per assembly spec	N/A	N/A	N/A	N/A	N/A	
Die Shear	DS	MIL-STD-750-2	per assembly spec	results	5	1	0	PASS	
Electrical Verification Tests									
Parametric Verification	PV	TSC Datasheet	per product datasheet	results	30	3	0	PASS	
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	30	3	0	>8KV/H3B	
ESD - Charged Device Model	ESD - HBM	AEC-Q101-005	per product spec	results	30	3	0	≥1KV/C3	
Unclamped Inductive Switching	UIS	AEC-Q101-004	per product datasheet	N/A	N/A	N/A	N/A	N/A	
Die Integrity	DI	AEC-Q101-004	per product spec	N/A	N/A	N/A	N/A	N/A	
Short Circuit Characterization	SC	AEC-Q101-006	per product spec	N/A	N/A	N/A	N/A	N/A	

Conclusion: SS24LW/SS24LWH successfully passed Automotive-grade qualification per AEC-Q101 Rev. E.

Identification and Traceability:

Item	Identification
Traceability	Product date code

Effect of Change:

There is no impact in product electrical specification, functionality, quality and reliability. This change will guarantee Taiwan Semiconductor commitment on customer service and satisfaction through continuous improvement.

List of Affected Devices:

Family	Package	Ordering Code
Schottky	SOD-123W	SS24LW
Schottky	SOD-123W	SS24LWH