

Report Date: June 27, 2025

Product Details:

Supplier:	Taiwan Semiconductor Co., Ltd.		
Test Vehicle/s:	MMSZ4684, MMSZ4697, MMSZ4699, MMSZ4716		
Reason for Rel:	Qualification		
Part Description:	500mW, 1.8V - 39V Surface Mount Zener Diode		
Package Type:	SOD-123		
Assembly Site:	(4793), China	General Specification :	JESD22

Product Series Covered:

MMSZ4684, MMSZ4697, MMSZ4699, MMSZ4716, MMSZ4678

Reliability Test Results Summary:

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	-	815	4	0/3260	Pass
Extrenal Visual	EV	JESD22-B101	per reference standard	-	866	4	0/3464	Pass
Preconditioning	PC	J-STD-020	MSL-1 (3x reflow at 260°C)	-	320	4	0/1280	Pass
Temperature Cycle	TC	JESD22-A104	-55°C to +150°C; 15 mins dwell	1000 cyc	77	4	0/308	Pass
Unbiased HAST	UHAST	JESD22-A118	130°C/85% RH; unbiased	96 hrs	77	4	0/308	Pass
Highly Accelerated Stress Test	HAST	JESD22-A110	130°C/85% RH; V=80% VR; 42V max	96 hrs	77	4	0/308	Pass
Resistance to Solder Heat	RSH	JESD22-A111	SMD (Pb free): 260°C; 10 sec	10 secs	30	4	0/120	Pass
Intermittent Operating Life	IOL	MIL-STD-750	Ta=25°C; ΔTj=125°C; 2.0 min on/off	7500 cycs	77	4	0/308	Pass
Steady State Operating Life	SSOP	MIL-STD-750-1	150°C; V=80% rated IZ	1000 hrs	77	4	0/308	Pass
Package Assembly Integrity Tests								
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-TC 1000	results	2	4	0/8	Pass
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-HAST 264	results	2	4	0/8	Pass
Wire Bond Pull	WBP	MIL-STD-750-2	per assembly spec	results	6	4	0/24	Pass
Wire Bond Shear	WBS	AEC Q101-003	per assembly spec	results	6	4	0/24	Pass
Solderability	SD	J-STD-002	245°C	results	10	4	0/40	Pass
Physical Dimension	PD	JESD22-B100	per assembly spec	results	30	1	0/30	Pass
Die Shear	DS	MIL-STD-750-2	per assembly spec	results	5	4	0/20	Pass
Electrical Verification Tests								
Parametric Verification	PV	TSC Datasheet	per product datasheet	results	10	4	0/40	Pass
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	30	4	0/120	±16KV (Class)
ESD - Charged Device Model	ESD - CDM	AEC-Q101-005	per product spec	results	30	4	0/120	±500V (Class)

Conclusion: MMSZ4684, MMSZ4697, MMSZ4699, MMSZ4716 successfully passed Consumer-grade qualification per JESD22.

Prepared by:

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