

Report Date: Jul 10, 2025

Report Name: R20230019

Product Details:

Supplier:	Taiwan Semiconductor Co., Ltd.		
Test Vehicle/s:	TSUP8H100H, TSUP15H100H, TSUP20H100H, TSUP20H120H, TSUP8H120H		
Reason for Rel:	New Product Qualification		
Part Description:	100-120V Trench Schottky		
Package Type:	SMPC4.6U		
Assembly Site:	Taiwan	General Specification:	AEC-Q101

Product Series Covered:

TSUP8H100H, TSUP15H100H, TSUP20H100H, TSUP20H120H, TSUP8H120H, TSUP10H100H, TSUP12H100H, TSUP10H120H, TSUP12H120H, TSUP15H120H, TSUP8H100SH

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	-	All	5	PASS	PASS
Extrenal Visual	EV	JESD22-B101	per reference standard	-	All	5	PASS	PASS
Preconditioning	PC	J-STD-020	MSL-1 (3x reflow at 260°C)	-	77	3	0/231	PASS
Temperature Cycle	TC	JESD22-A104	-55°C to +150°C; 15 mins dwell	1000 cycs	77	3	0/231	PASS
Unbiased HAST	UHAST	JESD22-A118	130°C/85% RH; unbiased	96 hrs	77	3	0/231	PASS
Highly Accelerated Stress Test	HAST	JESD22-A110	110°C/85% RH; V=80% VR; 42V max	264 hrs	77	3	0/231	PASS
Resistance to Solder Heat	RSH	JESD22-B106	SMD (Pb free): 260°C; 10 sec	10 secs	10	3	0/30	PASS
High Temp Storage Life	HTSL	JESD22-A103	175°C	1000 hrs	77	3	0/231	PASS
High Temp Reverse Bias	HTRB	MIL-STD-750-1	175°C; V=100% rated V	1000 hrs	77	5	0/385	PASS
Intermittent Operating Life	IOL	MIL-STD-750	Ta=25°C; ΔTj=125°C; 2.0 min on/off	7500 cyc	77	3	0/231	PASS
				15000 cycs*	77	1	0/77	PASS
Electrical Verification Tests								
Parametric Verification	PV	TSC Datasheet	per product datasheet	results	25	5	0/125	PASS
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	30	3	±8kV ^a	Class H3A
					30	2	±6kV ^b	Class H3A
ESD - Charged Device Model	ESD - CDM	AEC-Q101-005	per product spec	results	30	5	±1kV	Class C3

Note: * - Extended timepoints for robustness testing

a - 100V devices passed 8kV

b - 120V devices passed 6kV

Conclusion: TSUP8H100H, TSUP15H100H, TSUP20H100H, TSUP20H120H, TSUP8H120H successfully passed Automotive-grade qualification per AEC-Q101.

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