

Report Date: 31-Mar-25

Product Details:

Supplier:	Taiwan Semiconductor Co., Ltd.		
Test Vehicle/s:	PUUP12JH, PUUP8JH, PUUP3JH		
Reason for Rel:	Wafer Fab Process Change Qualification		
Part Description:	600V, Ultra Fast Recovery Rectifier		
Package Type:	SMPC4.6U		
Assembly Site:	Taiwan	General Specification:	AEC-Q101

Product Series Covered:

PUUP12JH, PUUP8JH, PUUP3JH, PUUP6JH, PUUP10JH, PUUP3J, PUUP6J, PUUP8J, PUUP10J, PUUP12J

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	3	PASS	PASS
Extrenal Visual	EV	JESD22-B101	per reference standard	-	All	3	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
				2000 cycs*	77	1	0/77	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	130°C/85% RH; V=80% VR; 42V max	96 hrs	77	3	0/231	PASS
				192 hrs*	77	1	0/77	PASS
Resistance to Solder Heat	RSH	JESD22-A111	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	3	0/231	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
Package Assembly Integrity Tests								
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-1000cyc TC	results	2	3	0/6	PASS
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-96hrs HAST	results	2	3	0/6	PASS
Die Shear	DS	MIL-STD-750-2	per assembly spec	results	30	3	0/90	PASS
Electrical Verification Tests								
Parametric Verification	PV	TSC Datasheet	per product datasheet	results	30	3	0/90	PASS
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	30	3	0/90	PASS ±8kV Class H3A
ESD - Charged Device Model	ESD - CDM	AEC-Q101-005	per product spec	results	30	3	0/90	PASS ±1kV Class C3

Note: * - Extended timepoints for robustness testing done on 1 lot PUUP12JH.

Conclusion: PUUP12JH, PUUP8JH, PUUP3JH successfully passed Automotive-grade qualification per AEC-Q101.

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