

Report Date: November 25, 2022

Product Details:

Supplier:	Taiwan Semiconductor Co., Ltd.		
Test Vehicle/s:	PUAD4B,PUAD4D		
Reason for Rel:	New Product Qualification and Reliability Monitoring		
Part Description:	4A, 100V - 200V Ultra Fast Surface Mount Rectifier		
Package Type:	Thin DPAK		
Assembly Site:	YEW,CHINA	General Specification:	AEC-Q101 Rev. E

Product Series Covered:

PUAD4B,PUAD4D

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	-	530	3	0	PASS
Extrenal 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	264 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	175°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
Solderability	SD	J-STD-002	245°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 - CDM	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: PUAD4B,PUAD4D successfully passed Automotive-grade qualification per AEC-Q101 Rev. E.

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