

Quarterly Reliability Monitoring Results

Quarters: Q1/2022 to Q4/2023

Based on structural similarity

	User Part Number PESD4USB3BTBR-Q						
oratory	Part Description						
	NXP ICN8 Protection INDI						
D	MCD package, Subcon UTAC						
C-Q101 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects		
TEST							
Pre- and Post-Stress							
Electrical Test	Tamb = 25 °C	N/A	see below	all parts	see below		
	JESD22-A113						
Preconditioning		3 cycles	69	3000	0		
		1000 hours	20	1200	0		
	Teverse voltage	1000 110015	30	1200	U		
TC	IFSD22-Δ104						
Temperature Cycling	-65 °C to Timax, not to exceed 150°C	1000 cycles	23	1000	0		
		2000 0,000		2000			
UHAST	JESD22-A118						
Unbiased HAST	Tamb = 130 °C, RH = 85 %	06.1	22	1000	•		
	JESD22-A102	– 96 hours	23	1000	0		
AC	Tamb = 121 °C, RH = 100 %						
Autoclave	Pressure = 205 kPa (29.7 psia)						
H3TRB	JESD22-A101						
Temperature Reverse Bias	rated reverse voltage ¹⁻³	1000 hours	23	1000	0		
	MIL-STD-750 Method 1037						
Intermittent Operating Life	100 °C for 15000 cycles	1000 hours	n.a.	n.a.	n.a.		
DCH	IECD22-A111						
		10.0	n 2	n 2	0		
	200 0 = 3 0	10.5	II.d.	II.d.	0		
	1-STD-002		21	630	0		
1	C-Q101 Test TEST Pre- and Post-Stress Electrical Test PC Preconditioning HTRB High Temperature Reverse Bias TC Temperature Cycling UHAST Unbiased HAST AC Autoclave H3TRB High Humidity High Temperature Reverse Bias IOL Intermittent Operating Life	NXP ICN8 MCD package, Subcon UTAC C-Q101 Test Test Conditions TEST Pre- and Post-Stress Electrical Test Tamb = 25 °C JESD22-A113 Bake Tamb = 125 °C PC Soak Tamb = 85 °C, RH = 85% Preconditioning Reflow soldering MIL-STD-750-1 M1038 Method A High Temperature Reverse Bias MIL-STD-750-1 Temperature Cycling JESD22-A104 Temperature Cycling -65 °C to Tjmax, not to exceed 150 °C UHAST JESD22-A108 Tamb = 130 °C, RH = 85 % JESD22-A108 AC Autoclave Pressure = 205 kPa (29.7 psia) H3TRB High Humidity High Temperature Reverse Bias MIL-STD-750 Method 1037 ton = toff, devices powered to insure ΔTj = 100 °C for 15000 cycles RSH Resistance to Solder Heat JESD22-A111 Resistance	NXP ICN8 MCD package, Subcon UTAC	NXP ICN8 MCD package, Subcon UTAC	NXP ICN8 MCD package, Subcon UTAC		

^[1] The maximum applied voltage is limited by test chamber set up and does not exceed 115V.

Calculation of FIT and MTTF

Test considered for FIT calculation: High Temperature Reverse Bias (HTRB, Test #B1) Confidence level 60%, derated to 55 °C, activation energy 0.7 eV, test time 168 to 1000 hours

Wafer Fab	Technology	Quantity	Rejects	Failure Rate (FIT)	MTTF (hrs)
NXP ICN8	Protection INDI	1280	0	3,32	3,01E+08

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