## nexperia

## **Reliability Results for Product Type PBSS4041SN**

Time period: Q1/2018 to Q4/2018

**Test Results** 

Test		Conditions	Duration	Quantity	Rejects					
# 1	<b>TEST</b> Pre- and Post-Stress Electrical Test	T <sub>amb</sub> = 25 °C	N/A	all parts	see below					
# 2	<b>PC</b> Preconditioning	JESD22-A113 Bake $T_{amb}$ = 125 °C Soak $T_{amb}$ = 85 °C, RH = 85% Reflow soldering	24 hours 168 hours 3 cycles	35200	0					
# 5	<b>HTRB</b> High Temperature Reverse Bias	MIL-STD-750-1 M1038 Method A $T_j = T_{jmax}$ , Vr = 100% of max. datasheet reverse voltage	1000 hours	9680	0					
# 7	<b>TC</b> Temperature Cycling	JESD22-A104 -55 °C to T <sub>jmax</sub> , not to exceed 150°C	1000 cycles	8800	0					
# 8	<b>AC</b> Autoclave	JESD22-A102 T <sub>amb</sub> = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	8800	0					
# 9	<b>H3TRB</b> High Humidity High Temperature Reverse Bias	JESD22-A101 $T_{amb}$ = 85 °C, RH = 85%, V_R > 80 % of rated reverse voltage	1000 hours	8800	0					
# 10	<b>IOL</b> Intermittent Operating Life	MIL-STD-750 Method 1037 $t_{on} = t_{off}$ , devices powered to insure $\Delta T_j = 100$ °C for 15000 cycles	1000 hours	8800	0					
# 20	<b>RSH</b> Resistance to Solder Heat	JESD22-A111 260 °C ± 5 °C	10 s	2760	0					
# 21	<b>SD</b> Solderability	J-STD-002 Test method B and D		1950	0					

## **Calculation of FIT and MTBF**

Test considered for FIT calculation: High Temperature Reverse Bias (HTRB, Test # 5) 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	e MTBF
Nexperia DHAM	Small Signal Bipolar	9680	0	0.44 FIT	260034 years

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