

Quarterly Reliability Monitoring Results

Quarters: Q1/2020 to Q4/2020

Based on structural similarity

Supplier		User Part Number				
Nexperia B.V.		TLVH431NQDBZR				
Name of Laboratory		Part Description				
Assembly reliability labs		Nexperia DHAM Bipolar Analog Power SMD package				
AEC-Q100 Test	Test Conditions	Duration	# Lots	# Quantity	# Rejects	
# E1	TEST Pre- and Post-Stress Electrical Test Tamb = 25 °C	N/A	see below	all parts	see below	
# A1	PC Preconditioning JESD22-A113 Bake Tamb = 125 °C Soak Tamb = 85 °C, RH = 85% Reflow soldering	24 hours 168 hours 3 cycles	60	3200	0	
# A2	THB Temperature Humidity Bias Tamb = 85 °C, RH = 85%, Vref = 0 V, VKA = 36 V	1000 hours	10	800	0	
# A3	AC Autoclave JESD22-A102 Tamb = 121 °C, RH = 100 % Pressure = 205 kPa (29.7 psia)	96 hours	10	800	0	
# A4	TC Temperature Cycling JESD22-A104 -65 °C to +150 °C	1000 cycles	10	800	0	
# A5	IOL Intermittent Operating Life MIL-STD-750 Method 1037 ton = toff = 2 minutes, Ptot = 250 mW to insure ΔTj = 100 °C for 15000 cycles	1000 hours	10	800	0	
# B1	HTOL High Temperature Operating Life Tamb = 150 °C, Vref = 0 V, VKA = 36 V	1000 hours	20	1600	0	
# C3	RSH Resistance to Solder Heat JESD22-A111 / JESD22-B106 260 °C ± 5 °C	10 s	10	300	0	
# C3	SD Solderability JESD22-B102 245 °C ± 5 °C		552	5520	0	

Calculation of FIT and MTTF

Test considered for FIT calculation: High Temperature Operating Life (HTOL, AEC-Q100 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)
Nexperia DHAM	Bipolar Analog Power	1600	0	2,65	3,77E+08

© 2021 Nexperia B.V.

All information hereunder is per Nexperia's best knowledge. This document does not provide for any representation or warranty express or implied by Nexperia. In case Nexperia has tested the product, this documentation reflects the outcome of the analysis of the actually tested parts only.

nexperia.com