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Texas Instruments High Rel Products Reliability Report

Device Type/Device Family:	SM470R1B1MHFQS/HKP
Package Type:	84CQFP
Wafer Fabrication Facility:	DMOS5
Assembly/Test Facility:	Millennium Microtech
Compiled:	07/12

Biased Life Test

Test Method:	JESD22-A108
Test Condition:	210°C / 1000 hours
Sample Size:	90
Rejects:	0
Activation Energy (eV):	.5
Equivalent Device Hours:	45000
Failure Rate (FIT)*:	10246

* 60% confidence level of random failure rate during nominal 1000 hour life based on test sample size. This not based on wear out failure mechanisms which will begin to affect past the 1000 hr test limit.

Group B Tests (Weekly by Package Family)

Description	Condition	Referenced Method	Sample Size/Rejects	
B1				
Resistance to Solvents		Mil Std 883 Method 2015	3/0	
B2				*
Bond strength	Test condition F (FC)	Mil Std 883 Method 2011/2019/2027	22/0-3/0	*
B3				
Solderability	Soldering temperature of 245C±5	Mil Std 883 Method 2003	22/0	

Group C Test (Per 3 Month Period by Family)

Description	Condition	Referenced Method	Sample Size/Rejects	
C1				
Steady-state life test	125C/1000Hrs 4.6V	Mil Std 883 Method 1005		
End point electrical			45/0	*

Group D Tests (Annually by Package Family)

Description	Condition	Referenced Method	Sample Size/Rejects	
D1				
Physical Dimensions		Mil Std 883 Method 2016	15/0	*
D2				
Lead Integrity		Mil Std 883 Method 2004 & 2028	45/0	*
Seal(Fine and Gross)		Mil Std 883 Method 1014	45/0	*
D3				
Thermal Shock	-65°C to +150°C 15 cycles	Mil Std 883 Method 1011		
Temperature Cycle	-65°C to +150°C 100 cycles	Mil Std 883 Method 1010		*
Moisture Resistance		Mil Std 883 Method 1004		
Seal(Fine and Gross)		Mil Std 883 Method 1014		*
Visual examination		Mil Std 883 Method 1004 &1010		
End point electrical			15/0	*
D4				
Mechanical Shock		Mil Std 883 Method 2002		
Variable Freq Vibration		Mil Std 883 Method 2007		*
Constant acceleration		Mil Std 883 Method 2001		
Seal		Mil Std 883 Method 1014		*
Visual Examination		Mil Std 883 Method 2009		
End point electrical			15/0	*
D5				
Salt Atmosphere		Mil Std 883 Method1009		
Seal		Mil Std 883 Method 1014		*
Visual Examination		Mil Std 883 Method 1009	15/0	
D6				
Internal Water Vapor		Mil Std 883 Method1018	3/0	
D7				
Adhesion of Lead Finish		Mil Std 883 Method 2025	15/0	

Supplemental Device Characteristics

Die Revision:	A	Assembly Site:	ALP
Master Die:	CC741651ACDH	Package Type:	HFQ/HKP
Wafer Fab:	DMOS-5	Pin Count:	84
Fab Technology:	CMOS	Mold Compound:	Ceramic
Fab Process:	EPIC .25	Mount Compound:	QMI 3555
Process Code:	N/A	Bond:	.7 Mil Au
Passivation:	Nitride	Lead Composition:	Kovar
Lead Finish:	Au		

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