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Texas Instruments Enhanced Plastic Products Reliability Report

(Subject To Attached Disclaimers)

Device Type/Device Family: OPA2227MDREP
Package Type: 8/D
Wafer Fabrication Facility: HFAB/SFAB
Assembly/Test Facility: MLA
Compiled: 12/11

Biased Life Test

Test Method: JESD22-A108
Test Condition: 125°C / 1000 hours or equivalent
Sample Size: 10496
Rejects: 3
Activation Energy (eV): 0.7
Equivalent Device Hours: 1.35E+09
Failure Rate (FIT)*: 3.095

*Derated to +55°C with a 60% Confidence Level

Note: Data for EP product is specific to device technology and foundry. For this reason the FIT rate above may differ from Ti's external web page. This does not reflect a difference in quality but only a difference in sample size.

Package Related Tests

<u>Description</u>	<u>Condition</u>	<u>Referenced Method</u>	<u>Sample Size</u>	<u>Rejects</u>	
Biased Humidity or HAST	85°C / 85% / 1000 hours or 130°C / 85% / 96 hours	JESD22-A101 JESD22-A110	251	0	*
Autoclave or Unbiased HAST	121°C / 2 atm / 96 hours or 130°C / 85% / 96 hours	JESD22-A102	259	0	*
Temperature Cycle	-65°C to +150°C non-biased for 500 cycles or equivalent	JESD22-A104	450	0	*
High Temp Storage	150°C / 1,000 hours	JESD22-A103-A	501	0	*

* Preconditioning per JEDEC Std. 22, Method A112/A113

Initial Product Qualification

The subject Enhanced Plastic device, device family, and/or package family have passed Texas Instruments product qualification as follows:

<u>Description</u>	<u>Condition</u>	<u>Referenced Method</u>	<u>Sample Size</u>	
Electrical Characterization	TI Data Sheet	N/A	3 lot(s)/30 Units	
Electrostatic Discharge Sensitivity	HBM	EIA/JESD22-A114	3 Units/voltage	
	MM	EIA/JESD22-A115	N/A	
	CDM	JESD22-C101	3 Units/voltage	
Latch-up	Per Technology	EIA/JESD78	N/A	
Physical Dimensions	TI Data Sheet	EIA/JESD22- B100	15/0	
Thermal Impedance	Theta-JA on board	EIA/JESD51	Per Pin-Package	
Bias Life Test	125°C / 1000 hours or equivalent	JESD22-A108	231/0	
Biased Humidity or HAST	85°C / 85% / 1000 hours	JESD22-A101	231/0	*
	130°C / 85% / 96 hours	JESD22-A110		
Autoclave or Unbiased HAST	121°C @ 2 atm / 96 hours	JESD22-A102	231/0	*
	130°C / 85% / 96 hours	JESD22-A110		
Temperature Cycle	-65°C to +150°C non-biased for 500 cycles or equivalent	JESD22-A104	231/0	*
High Temp Storage	150°C / 1,000 hours	JESD22-A103-A	77/0	*
Solderability	Condition A (steam age for 8 hours)	ANSI/J-STD-002-92	66/0	
Bond Strength	-	ASTM F-459	30/0	
Moisture Sensitivity	Surface Mount Only	J-STD-020-A	12/0	

* Preconditioning per JEDEC Std. 22, Method A112/A113

Supplemental Device Characteristics

Master Die: FOPA2227CP	Assembly Site: MLA
Wafer Fab: HFAB/SFAB	Pin/Package Type: 8/D
Fab Process: JIBB 635G	Lead Composition: Cu
Fab Technology: BIPOLAR	Lead Finish: NiPdAu (.8um min Pd)
Die Revision: C	Mount Compound: ABLESTIK 8290
Passivation: 5K Ox / 9K OxyNit	Bond: Au/1.2 MIL (HG7 2N Au wire)
Metal 1: TiW/AlCu.5 (11kA)	Mold Compound: SUMITOMO EMEG700FGT
Metal 2: *	Packaged Die Thickness: 10.5 MILS
Metal 3: *	MSL Level: LEVEL3-260CG
Metal 4: *	ESD Class (per MIL-PRF-38535): 2 (2000V - 3999V)
Metal 5: *	
Metal 6: *	

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