



Post Office Box 84  
 Sherman, Texas 75090  
 6412 Highway 75 South  
 Sherman, Texas 75090

(903) 868-7111

**Texas Instruments Enhanced Products Reliability Report**

(Subject To Attached Disclaimers)

Device Type/Device Family: OMAPL138BGWTA3R  
 Package Type: 361 Ball BGA  
 Wafer Fabrication Facility: UMC  
 Assembly/Test Facility: Ti Philippines  
 Compiled: 09/11

Biased Life Test

Test Method: JESD22-A108  
 Test Condition: 150°/500 hours or equivalent  
 Sample Size: 903  
 Rejects: 0  
 Activation Energy (eV): .5  
 Equivalent Device Hours: 20.2E^6  
 Failure Rate (FIT)\*: 45.6

\*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/Rejects</u>	
Biased Humidity or HAST	130°C / 85% / 250 hours**	JESD22-A101 JESD22-A110	231/0	*
Autoclave	121 °C @ 2 atmospheres absolute for 96 hours	JESD22-A102	231/0	*
Temperature Cycle	-65 °C to +150 °C non-biased for 1000 cycles	JESD22-A104	231/0	*
High Temp Storage	170 °C / 420 hours	JESD22-A103-A	77/0	*

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

\*\* This device has been qualified to the elevated standard of 250 Hrs 130/85 HAST (Highly Accelerated Stress Test). This qualification level surpasses JEDEC requirements.

### 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>Sample Size</u>	<u>Referenced Method</u>	
Electrical Characterization	TI Data Sheet	50 units/lot	N/A	
Electrostatic Discharge Sensitivity	HBM MM	3 units/voltage	EIA/JESD22-A114 EIA/JESD22-A115	
Latch-up	Per Technology	5/0 units/lot	EIA/JESD78	
Physical Dimensions	TI Data Sheet	5/0	EIA/JESD22- B100	
Thermal Impedance	Theta-JA on board	Per Pin-Package	EIA/JESD51	
Bias Life Test	125°C / 1000 hours or equivalent	116/0	JESD22-A108	*
Biased Humidity	85°C / 85% / 1000 hours or HAST	77/0	JESD22-A101	*
	130°C / 85% / 96 hours		JESD22-A110	
Autoclave	121 °C @ 2 atmospheres absolute for 96 hours	77/0	JESD22-A102	*
Temperature Cycle	-65 °C to +150 °C non-biased for 1,000 cycles	77/0	JESD22-A104	*
Solder Heat	260 °C for 10 seconds	22/0	JESD22-B106	
Resistance to Solvents	Ink symbol only	12/0	JESD22-B107	
Solderability	Condition A (steam age for 8 hours)	22/0	ANSI/J-STD-002-92	
Flammability	Method A / Method B	5/0	UL-1964	
Bond Strength	-	76/0 wires	ASTM F-459	
Die Shear	-	5/0	MIL-STD-883 Method 2019	
High Temp Storage	150 °C / 1,000 hours	45/0	JESD22-A103-A	*
Moisture Sensitivity	Surface Mount Only	12/0	J-STD-020-A	

\* Precondition performed

**Supplemental Device Characteristics**

Die Revision:	B	Assembly Site:	TIPI
Master Die:	\$7771527B	Package Type:	GWT
Wafer Fab:	UMCI	Pin Count:	361
Fab Technology:	CMOS	Mold Compound:	Shinetsu KMC3580LTVA
Fab Process:	C21	Mount Compound:	Ablestik 2000T
Process Code:	1218C021.M6	Bond:	20.3u Au
Passivation:	Nitride	Lead Composition:	Sn/Pb
Metal System	Damascene Copper	Lead Finish:	Sn/Pb
		Die Size:	4.6x7.4 MM

### **Quality and Reliability Data Disclaimer**

The attached quality and reliability information is specific to the TI Enhanced Plastic product family of plastic encapsulated commercial-off-the-shelf (COTS) semiconductor products and components. Due to possible differences in product assembly and test baselines, this information is NOT APPLICABLE to TI standard, industrial, or automotive catalog commercial products.

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
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