

PCN Number:	20130312001		PCN Date:	03/25/2013	
Title:	AMC1200STDUBRQ1 design - CMS C1212071				
Customer Contact:	PCN_ww_admin_team@list.ti.com	Phone:	+1(214)480-6037	Dept:	Quality Services
Proposed 1st Ship Date:	09/25/2013	Estimated Sample Availability:	Upon request		
Change Type:					
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Assembly Materials
<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<input type="checkbox"/>	Design
<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Site
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material	<input type="checkbox"/>	Wafer Bump Site
<input type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Wafer Fab Materials	<input type="checkbox"/>	Wafer Fab Site
PCN Details					
Description of Change:					
The die bond pad opening has been increased and a crack arrest structure has been added.					
Reason for Change:					
Align the bond pad opening with the manufacturing standard.					
Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):					
Positive impact.					
Changes to product identification resulting from this PCN:					
None					
Product Affected:					
AMC1200STDUBRQ1					

Qualification Data:

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Automotive New Product Qualification Plan/Summary

(As per AEC-Q100 and JEDEC Guidelines)

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Supplier Name:	Texas Instruments Inc.	Supplier Wafer Fabrication Site/Process:	Dallas, Texas, USA (TI DMOS 5)/50HPA07ISO Taiwan (TSMC) /0.8DPDM
Supplier Code:		Supplier Die Rev:	Dual die – Die Rev “C” and Die Rev “F”
Supplier Part Number:	AMC1200STDUBRQ1	Supplier Assembly/Test Site:	Assembly - HNT , Thailand Final test - HNT , Thailand
Customer Name:	Catalog	Supplier Package/Pin:	DUB / 8 (SOP)
Customer Part Number:		Pb Free Lead Frame (Y/N):	Y
Device Description:	Fully-Differential Isolation Amplifier	“Green” Mold Compound (Y/N):	Y
MSL Rating:	3	Operating Temp Range:	-40°C to +105°C
Peak Solder Reflow Temp:	260°C	Automotive Grade Level (1):	2
Prepared by Signature:	ItHong Tan	Date:	1/03/2013

Test	#	Reference	Test Conditions	Min Lots (2)	SS / lot (2)	Min Total (2)	Results Lot/pass/fail	Generic Family Part / Comments	Exceptions to AEC -Q100
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TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS (3)

PC	A1	JESD22 A113 J-STD-020	Preconditioning: SMD only; Moisture Preconditioning for THB/HAST, AC/UHST, TC, HTSL, & HTOL	Performed on <u>ALL</u> SMD devices, Prior to THB, AC, TC & PTC					
THB or HAST	A2	JESD22 A101 JESD22 A110	Temperature Humidity Bias: 85°C/85% 1000 hours Highly Accelerated Stress Test: 130°C/85% 96 hours	3	77	231	3/231/0	MSPREL.12.AMC12.00.05002 MSPREL.12.AMC12.00.06003 MSPREL.12.AMC12.00.06004	
AC or UHST	A3	JESD22 A102 or JESD22 A118	Autoclave: 121C / 96 hours Unbiased Highly Accelerated Stress Test:	3	77	231	3/231/0	MSPREL.12.AMC12.00.05002 MSPREL.12.AMC12.00.06003 MSPREL.12.AMC12.00.06004	
TC	A4	JESD22 A104	Temperature Cycle: -65°C/+150°C/ 500 cycles Post Temp Cycle Bond Pull 3 grams minimum (30 bonds Total)	3 1	77 5	231 5	3/231/0 1/5/0	MSPREL.12.AMC12.00.05002 MSPREL.12.AMC12.00.06003 MSPREL.12.AMC12.00.06004	
PTC	A5	JESD22-A105	Power Temperature Cycle: -40°C to +125°C for 1000 cycles	1	45	45	NA	NA	
HTSL	A6	JESD22 A103	High Temperature Storage Life: 175°C/500 hours	1	45	45	1/45/0	MSPREL.12.AMC12.00.05002	

TEST GROUP B – ACCELERATED LIFETIME SIMULATION TESTS (3)

HTOL	B1	JESD22 A108	High Temp Operating Life: 150°C/408 hours	3	77	231	3/231/0	MSPREL.12.AMC12.00.05002 MSPREL.12.AMC12.00.06003 MSPREL.12.AMC12.00.06004 HPA07ISO process QBS MSPREL.10.ISO7421.01001 MSPREL.09.ISO7421.11015 MSPREL.09.ISO7420.11002	
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ELFR	B2	AEC-Q100-008	Early Life Failure Rate: 125°C/48hours	3	800	2400	3/2400/0	MSPREL.12.AMC12.00.05002 MSPREL.12.AMC12.00.06003 MSPREL.12.AMC12.00.06004 HPA07ISO process QBS MSPREL.10.ISO7421.02002 MSPREL.09.ISO7421.11015 MSPREL.09.ISO7420.11002	
NVM Endurance, Data Retention, and Operational Life	B3	AEC Q100-005	NVM Endurance, Data Retention, and Operational Life	3	77	231		N/A	

TEST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS (3)

WBS	C1	AEC-Q100-001	Wire Bond Shear Test: (Ppk > 1.67 and Cpk > 1.33)	30 bonds	5 parts Min.	30 bonds	1/80/0	Assembly MQ	
WBP	C2	Mil-Std-883 Method 2011	Wire Bond Pull: Each bonder used (Ppk > 1.67 and Cpk > 1.33)	30 bonds	5 parts Min.	30 bonds	1/80/0	Assembly MQ	
SD	C3	JESD22 B102	Solderability: (>95% coverage) 8 hr steam age	1	15	15	1/22/0 Pb 1/22/0 Pb Free	MSPREL.12.AMC12.00.06005	
PD	C4	JESD22 B100, JESD22 B108	Physical Dimensions: (Ppk > 1.67 and Cpk > 1.33)	3	10	30	3/30/0	PD1 PD2 and PD3	
SBS	C5	AEC-Q100-010	Solder Ball Shear: (Ppk > 1.67 and Cpk > 1.33)	50 balls	3	50		N/A to non-solder ball surface mount devices	
LI	C6	JESD22 B105 Not Required for SMT parts	Lead Integrity: (No lead cracking or breaking)	50 leads	1	50		N/A to non-solder ball surface mount devices	

TEST GROUP D – DIE FABRICATION RELIABILITY TESTS

Test	#	Reference	Test Conditions	Min Lots (2)	SS / lot (2)	Min Total (2)	Results Lot/pass/fail	Generic Family Part / Comments	Exceptions to AEC - Q100
EM	D1	JESD61	Electromigration: (Only if de-rating required beyond design rules)	-	-	-		Data available	
TDDB	D2	JESD35	Time Dependant Dielectric Breakdown:	-	-	-		N/A	
HCI	D3	JESD60 & 28	Hot Injection Carrier	-	-	-		N/A	

TEST GROUP E- ELECTRICAL VERIFICATION

TEST	E1	User/Supplier Specification	Pre and Post Stress Electrical Test.	All	All	All		100% of qualification devices	
HBM	E2	AEC-Q100-002	Electrostatic Discharge, Human Body Model	1	3	3	500V 3/0 1000V 3/0 1500V 3/0 2000V 3/0	MSPREL.12.AMC1 200.06006	
CDM	E3	AEC-Q100-011	Electrostatic Discharge, Charged Device Model; (750V corner leads, 500V for all other leads)	1	3	3	250V 3/0 500V 3/0 750V 3/0	MSPREL.12.AMC1 200.06006	
LU	E4	AEC-Q100-004	Latch-Up:	1	6	6	1/6/0	MSPREL.12.AMC1 200.06006	
ED	E5	AEC-Q100-009	Electrical Distributions: (Test across recommended operating temperature range) (Cpk > 1.67 , Ppk > 1.67)	3	30	90	3/90/0 -40°C, 25°C, 125°C	To be performed by MSA	

- (1) Grade 0 (or A): -40°C to +150°C ambient operating temperature range
- Grade 1 (or Q): -40°C to +125°C ambient operating temperature range
- Grade 2 (or T): -40°C to +105°C ambient operating temperature range
- Grade 3 (or I): -40°C to +85°C ambient operating temperature range
- Grade 4 (or C): -0°C to +150°C ambient operating temperature range

(2) These are recommended minimum lot/sample sizes. Lot/sample size may be reduced depending on available data.

(3) Generic data may be used.

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Reliability data shows characteristic failure mechanisms of the specific environmental stress as documented in the industry standards for each stress condition.

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