PCN Number:	20140305001			**PCN Date:**	03/13/2014
Title:	Qualification of Cu wire for TI Taiwan HTSSOP BOAC devices with 4211649 mold compound and 4208458 die attach - CMS C1309105				
Customer Contact:	PCN_ww_admin_team@list.ti.com	**Phone:**	+1(214)480-6037	**Dept:**	Quality Services
Proposed 1st Ship Date:	09/13/2014	**Estimated Sample Availability:**	Date provided at sample request		
Change Type:	Assembly Materials				

☐	Assembly Site	☐	Design	☐	Wafer Bump Site
☐	Assembly Process	☐	Data Sheet	☐	Wafer Bump Material
☒	Assembly Materials	☐	Part number change	☐	Wafer Bump Process
☐	Mechanical Specification	☐	Test Site	☐	Wafer Fab Site
☐	Packing/Shipping/Labeling	☐	Test Process	☐	Wafer Fab Materials
				☐	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments Incorporated is announcing the change to the use of copper wire for TAI HTSSOP BOAC family of devices with 4211649 as mold compound 4208458 as die attach.

- 4208458 is current die attached and remains unchanged.

	From	To
Die Attach	4208458	4208458
Mold Compound	4205443	4211649
Bond Wire	Au	CU

Reason for Change:

Continuity of supply.

1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties.
2) Maximize flexibility within our Assembly/Test production sites
3) Copper wire is easier to obtain and stock.

Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):

Improved delamination performance with 4211649.

Changes to product identification resulting from this PCN:

None

Product Affected:

SN0307056PWPR	TPIC84000TPWPRQ1	TPS54610QPWPRG4Q1
SN0307056PWPR	TPS54110QPWPRQ1	TPS54612QPWPRQ1
SN211060PWPRG4	TPS54310QPWPRQ1	TPS54614QPWPRQ1
TLC5941QPWPRQ1	TPS54312QPWPRQ1	TPS54615QPWPRQ1
TPIC74100BQPWPRRB	TPS54315QPWPRDN	TPS54616QPWPRQ1
TPIC74100QPWPRCT	TPS54316QPWPRQ1	TPS55065QPWPRQ1
TPIC74100QPWPRLRD	TPS54372QPWPRDN	TPS65100QPWPRQ1
TPIC74100QPWPRQ1	TPS54372QPWPRQ1	TPS65140IPWPRQ1
TPIC74101QPWPRQ1	TPS54380QPWPRQ1	TPS65145IPWPRQ1

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)

Supplier Name:	Texas Instruments Inc.	**Supplier Wafer Fabrication Site:**	TI Dallas DMOS5
Supplier Code:		**Supplier Die Rev.**	A0
Supplier Part Number:	TPS65300QPWPRQ1	**Supplier Assembly/Test Site:**	TI Taiwan
Customer Name:	All customers	**Supplier Package/Pin:**	24/PWP
Customer Part Number:	N/A	**Pb-Free Lead Frame (Y/N):**	Y
Device Description:	Basic Switch Multiple Linear Supply	**"Green" Mold Compound (Y/N):**	Y
MSL Rating:	Level3@260C	**Operating Temp Range:**	-40C to +125C
Peak Solder Reflow Temp:	260C	**Automotive Grade Level (1):**	1
Prepared by:	Colin Martin	**Date:**	4/12/2012

Test	#	Reference	Test Conditions	Min Lots (2)	SS / lot (2)	Min Total (2)	Results Lot/pass/ fail	Comments: (N/A =Not Applicable)	Exceptions to AEC - Q100
TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS (3)									
PC	A1	JESD22-113 J-STD-020	Preconditioning: SMD only; Moisture Preconditioning for THB/HAST, AC/UHST, TC, HTSL, and HTOL	Performed on ALL SMD devices prior to THB/HAST, AC/UHST, TC and 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 or 110°C/85%/264 hours	3	77	231	3/231/0		
AC or UHST	A3	JESD22-A102 JESD22-A118	Autoclave: 121°C/15 psig/96 hours Unbiased Highly Accelerated Stress Test: 130°C/85%/96 hours or 110°C/85%/264 hours	3	77	231	3/231/0		
TC	A4	JESD22-A104	Temperature Cycle: -65°C/+150°C/500 cycles	3	77	231	3/231/0		
PTC	A5	JESD22-A105	Power Temperature Cycling: -40°C/+125°C/1000 cycles	1	45	45	1/45/0		
HTSL	A6	JESD22-A103	High Temperature Storage Life: 150°C/1000 hours or 175°C/500 hours	1	45	45	1/45/0		
TEST GROUP B – ACCELERATED LIFETIME SIMULATION TESTS (3)									
HTOL	B1	JESD22-A108	High Temp Operating Life: 125°C/1000 hours 150°C/408 hours	3	77	231	3/231/0		
ELFR	B2	AEC-Q100-008	Early Life Failure Rate:	3	800	2400	3/2400/0		
TEST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS (3)									
WBS	C1	AEC-Q100-001	Wire Bond Shear Test: (Cpk > 1.67)	30 bonds	5 parts min.	30 bonds	Pass		
WBP	C2	Mil-Std-883 Method 2011	Wire Bond Pull: Each bonder used (Cpk > 1.67)	30 bonds	5 parts min.	30 bonds	Pass		
SD	C3	JESD22-B102	Solderability: (>95% coverage) 8 hr steam age (1 hour for Au-plated leads)	1	15	15	Pass		
PD	C4	JESD22-B100 JESD22-B108	Physical Dimensions: (Cpk > 1.67)	1	10	10	Pass		
SBS	C5	AEC-Q100-010	Solder Ball Shear: (Cpk > 1.67)	5 balls	10 parts min.	50	N/A		
LI	C6	JESD22-B105	Lead Integrity:	10 leads	5 parts min.	50	Pass		

TEST GROUP E- ELECTRICAL VERIFICATION

TEST	E1	User/Supplier Specification	Pre and Post Stress Electrical Test:	All	All	All	Pass		
HBM	E2	AEC-Q100-002	Electrostatic Discharge, Human Body Model: (2kV - H2 or better)	1	3	3	Pass		
MM	E2	AEC-Q100-003	Electrostatic Discharge, Machine Model: (200V – M3 or better)	1			N/A		
CDM	E3	AEC-Q100-101	Electrostatic Discharge, Charged Device Model: (750V corner leads, 500V for all other pins)	1	3	3	Pass		
LU	E4	AEC-Q100-004	Latch-Up:	1	6	6	Pass		
ED	E5	AEC-Q100-009	Electrical Distributions: (Cpk > 1.67)	3	30	90	Pass		

(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.

Quality and Reliability Data Disclaimer

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customer should provide adequate design and operating safeguards. Quality and reliability data provided by Texas Instruments is intended to be an estimate of product performance based upon history only. It does not imply that any performance levels reflected in such data can be met if the product is operated outside the conditions expressly stated in the latest published data sheet or agreed-to customer specification for a device.

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

Additional Product Level Qualification Planned

MATERIAL	PIN_PKG	MOIST DATA - 01		AC	HAST	TC	HTSL	TPI	PTC	HTOL	ELFR	ESD	LU	CHAR	Notes
TPS65300QPWPRQ1	24/PWP	LEVEL3-260CG		3	3	3	1		1	3	3	1	1	3	Qual complete
TPA3111D1QPWPRQ1	28/PWP	LEVEL3-260CG		3	3	3	1		1	3		1	1	3	Qual complete
TPS65321QPWPRQ1	14/PWP	LEVEL3-260CG		1	1	1	1	1	1	1		1	1	3	Qual complete
TPS92602QPWPRQ1	28/PWP	LEVEL3-260CG		1		1		1	1	3		1	1	3	Qual complete
TPS7B6701QPWPRQ1	20/PWP	LEVEL3-260CG				1		1		3		1	1	3	Qual complete
TPIC74100QPWPR	20/PWP	LEVEL2-260CG		1	1	1		1	1	3				1	
TPS54610QPWPRG4Q1	28/PWP	LEVEL2-260CG		1	1	1	1	1						1	
TPS65150QPWPRQ1	24/PWP	LEVEL3-260CG		1	1	1		1						1	

For questions regarding this notice, e-mails can be sent to the regional contacts shown below or your local Field Sales Representative.

Location	E-Mail
USA	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com