PCN Number:	20150731000			**PCN Date:**	03/16/2016
Title:	Design and Datasheet update for TPS65300-Q1				
Customer Contact:	PCN Manager	**PCN Type:**	180 day	**Dept:**	Quality Services
Proposed 1st Ship Date:	9/09/2016	**Estimated Sample Availability:**	Date provided at sample request		

Change Type:					
☐	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 a design and datasheet change for TPS65300-Q1 device family.

A metal Die revision to Change Resistor Tap points on LDO feedback loop to Re-center 1.2V LDO rail to 1.234V.

The product datasheet(s) is updated as seen in the change revision history below:

TEXAS INSTRUMENTS

TPS65300-Q1

SLVSBB6F – MARCH 2012 – REVISED JULY 2015 www.ti.com

Changes from Revision E (March 2014) to Revision F **Page**

- Changed the word *terminal* back to *pin* throughout the document 3
- Changed the MIN, TYP, and MAX values for the 1.2VSENSE output voltage in the *Electrical Characteristics* table 6
- Changed the y-axis intervals for the *1.2VSENSE vs Temperature* graph..... 9

The datasheet number will be changing.

Device Family	Change From:	Change To:
TPS65300-Q1	SLVSBB6E	**SLVSBB6F**

These changes may be reviewed at the datasheet links provided.
http://www.ti.com/product/tps65300-q1

Reason for Change:

Quality Improvement

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

None

Changes to product identification resulting from this PCN:

None

Product Affected:

TPS65300QPWPRQ1 TPS65300QRHFRQ1

Qualification Data:

Automotive New Product Qualification Plan/Summary
(As per AEC-Q100 and JEDEC Guidelines)

Supplier Name:	Texas Instruments Inc.	**Wafer Fabrication Site / Process:**	Dallas, TX, USA (DMOS5)/ LBC5
Supplier Code:		**Supplier Die Rev:**	-
Supplier Part Number:	TPS65300QRHFRQ1	**Supplier Assembly/Test Site:**	Texas Instruments Inc. Malaysia
Customer Name:	Catalog	**Supplier Package/Pin:**	RHF / 24
Customer Part Number:	TPS65300QRHFRQ1	**Pb Free Lead Frame (Y/N):**	Y
Device Description:	Step-Down Regulator	**"Green" Mold Compound (Y/N):**	Y
MSL Rating:	3	**Operating Temp Range:**	-40°C to +125°C
Peak Solder Reflow Temp:	260°C	**Automotive Grade Level (1):**	Level 1
Prepared by Signature:	Wasim Faruk	**Date:**	05/06/2013

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 A113 J-STD-020	Preconditioning; SMD only; Moisture Preconditioning for THB/HAST, AC/UHST, TC, HTSL	Performed on ALL SMD devices, Prior to THB, AC, TC , PTC, HTSL			All/0	Data available for TPS65300QRHFRQ1	
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	1/77/0 3/231/0	TPS65300QRHFRQ1 QBS to SN0508066RGC	
AC or UHST	A3	JESD22 A102 or JESD22 A118	Autoclave: 121C / 15 PSIG, 96 hours Unbiased Highly Accelerated Stress Test:	3	77	231	1/77/0 3/231/0	TPS65300QRHFRQ1 QBS to SN0508066RGC	
TC	A4	JESD22 A104	Temperature Cycle: -65°C/+150°C/ 1000 cycles Post Temp Cycle Bond Pull 3 grams minimum (30 bonds Total)	3 1	77 5	231 5	1/77/0 3/231/0 1/5/0	TPS65300QRHFRQ1 QBS to SN0508066RGC TPS65300QRHFRQ1	
PTC	A5	JESD22-A105	Power Temperature Cycle:	1	45	45	1/45/0	TPS65300QRHFRQ1	

			-40ºC to +125ºC for 1000 cycles						
HTSL	A6	JESD22 A103	High Temperature Storage Life: 175°C/500 hours	1	45	45	1/45/0	QBS to SN0508066RGC	

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	QBS to TPS65300QPWPRQ1	
ELFR	B2	AEC-Q100-008	Early Life Failure Rate: 125°C/ 48hours	3	800	2400	3/2400/0	QBS to TPS65300QPWPRQ1	
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	1/30//0	TPS65300QRHFRQ1	
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	1/30/0	TPS65300QRHFRQ1	
SD	C3	JESD22 B102	Solderability: (>95% coverage) 8 hr steam age	1	15	15	1/15/0	QBS to TPS650241QRHBRQ1	
PD	C4	JESD22 B100, JESD22 B108	Physical Dimensions: (Ppk > 1.67 and Cpk > 1.33)	3	10	30	3/30/0	TPS65300QRHFRQ1	
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	SS / lot	Min Total	Results Lot/pass/fail	Comments: (N/A =Not Applicable)	Exceptions to AEC -

				(2)	(2)	(2)			Q100
EM	D 1	JESD61	Electromigration: (Only if de-rating required beyond design rules)	-	-	-		N/A	
TDDB	D 2	JESD35	Time Dependant Dielectric	-	-	-		N/A	
HCI	D 3	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	TPS65300QRHFRQ1	
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 1000V 3/0	TPS65300QRHFRQ1	
LU	E4	AEC-Q100-004	Latch-Up:	1	6	6	1/6/0	QBS to TPS65300QPWPRQ1	
ED	E5	AEC-Q100-009	Electrical Distributions: (Test across recommended operating temperature range) (Cpk > 1.67 , Ppk > 1.67) 25°C, 125°C, -40°C	3	30	90	1/30/0 3/90/0	TPS65300QRHFRQ1 Rev. A7 TPS65300QRHFRQ1 earlier versions	

(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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