

PCN Number:	20160309000	PCN Date:	03/30/2016
Title:	TPS62231TDRYRQ1 and TPS622314TDRYRQ1 LLGA to etch and Datasheet update for TPS62231-Q1/TPS622314-Q1		
Customer Contact:	PCN Manager	PCN Type:	180 day
Dept:	Quality Services		
Proposed 1st Ship Date:	09/30/2016	Estimated Sample Availability:	Date provided at sample request
Change Type:			
<input type="checkbox"/> Assembly Site	<input type="checkbox"/> Design	<input type="checkbox"/> Wafer Bump Site	
<input type="checkbox"/> Assembly Process	<input checked="" type="checkbox"/> Data Sheet	<input type="checkbox"/> Wafer Bump Material	
<input checked="" type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input type="checkbox"/> Wafer Bump Process	
<input type="checkbox"/> Mechanical Specification	<input type="checkbox"/> Test Site	<input type="checkbox"/> Wafer Fab Site	
<input type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input type="checkbox"/> Wafer Fab Materials	
		<input type="checkbox"/> Wafer Fab Process	

PCN Details

Description of Change:

Texas Instruments Incorporated is announcing the qualification to convert leadframe from LLGA (Lead-frame Land Grid Array) to etch and change Die Attach/Mold Compound as seen in the below table.

Datasheet is also changing per updated thermal model data.

Description	From	To
Mold Compound	SID#CZ0140	SID#CZ0297
LeadFrame	SID#FO0003	SID#FU0148
Die Attach	SID#PZ0039	SID#PZ0037

The product datasheet is being updated as summarized below. The following change history provides further details.



TPS62231-Q1, TPS622314-Q1

SLVSB63A – DECEMBER 2011 – REVISED MARCH 2016

www.ti.com

Changes from Original (December 2011) to Revision A

Page

• Added <i>Pin Configuration and Functions</i> section, <i>ESD Ratings</i> table, <i>Thermal Information</i> table, <i>Feature Description</i> section, <i>Device Functional Modes, Application and Implementation</i> section, <i>Power Supply Recommendations</i> section, <i>Layout</i> section, <i>Device and Documentation Support</i> section, and <i>Mechanical, Packaging, and Orderable Information</i> section	1
• Changed the <i>Applications</i> list	1
• Deleted the <i>Ordering Information</i> table	1
• Deleted references to devices and voltage options that are not available as automotive grade	1
• Added minimum and maximum recommended values for output inductance and output capacitance in the <i>Recommended Operating Conditions</i> table for clarity	4
• Deleted the <i>Dissipation Ratings</i> table and added a more detailed <i>Thermal Information</i> table	4
• Deleted the <i>Parameter Measurement Information</i> section	7

The datasheet number will be changing.

Device Family	Change From:	Change To:
TPS62231-Q1/TPS622314-Q1	SLVSB63	SLVSB63A

These changes may be reviewed at the datasheet links provided. The electrical parameter and characteristics will not change.

<http://www.ti.com/product/tps62231-q1>

<http://www.ti.com/product/tps622314-q1>

Reason for Change:

- Proactively improved device package delamination performance.
- Update thermal model data in the datasheet to reflect the change in leadframe.

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

None.

Changes to product identification resulting from this PCN:

None.

Product Affected:

TPS622314TDRYRQ1, TPS62231TDRYRQ1



TI Confidential
NDA Restrictions

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

Approved 15-Dec-2015

Product Attributes

Attributes	Qual Device: TPS62231TDRYRQ1	Qual Device: TPS62237TDRYRQ1	Qual Device: TPS62239TDRYRQ1
Assembly Site	UTAC	UTAC	UTAC
Package Type	USON	USON	USON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	DMOS5	DMOS5	DMOS5
Wafer Process ID	LBC7	LBC7	LBC7

- QBS: Qual By Similarity

- Qual Device TPS62231TDRYRQ1 is qualified at LEVEL2-260C

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPS62231TDRYRQ 1	Qual Device: TPS62237TDRYRQ 1	Qual Device: TPS62239TDRYRQ 1
Test Group A – Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 2	260C peak	3/all/0	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 hrs	1/77/0	-	-
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 hrs	1/77/0	-	-
TC	A4	JEDEC JESD22-A104 and Appendi	3	77	Temperature Cycle, -65/150C	500 cycles	1/77/0	-	-

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPS62231TDRYRQ 1	Qual Device: TPS62237TDRYRQ 1	Qual Device: TPS62239TDRYRQ 1
		x 3							
			1	5	Wire Pull	Post TC	1/5/0	-	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	N/A
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 cycles	1/77/0	-	-
Test Group B – Accelerated Lifetime Simulation Tests									
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	408 hrs	-	-	1/77/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hrs	-	-	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A
Test Group C – Package Assembly Integrity Tests									
WBS	C 1	AEC Q100-001	1	30	Wire Bond Shear	Cpk>1.67	1/30/0		
WBP	C 2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Cpk>1.67	1/30/0	-	-
SD	C 3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	>95% Lead Coverage	1/15/0	-	-
PD	C 4	JEDEC JESD22-B100 and B108	3	10	Auto Physical Dimensions	Cpk>1.67	1/10/0	-	-
SBS	C 5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Post HTSL/Bump	NA	NA	NA
SBS	C 5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Solder Balls	NA	NA	NA
LI	C 6	JEDEC JESD22-B105	1	50	Lead Integrity	-	NA	NA	NA
Test Group E – Electrical Verification Tests									
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2000 V	1/3/0	-	-
CDM	E3	AEC Q100-	1	3	ESD - CDM - Q100	500 V (all pins)	1/3/0	-	-

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPS62231TDRYRQ 1	Qual Device: TPS62237TDRYRQ 1	Qual Device: TPS62239TDRYRQ 1
		011				750 V (corner pins)			
						1000 V (all pins) For information only	1/3/0	-	-
LU	E4	AEC Q100-004	1	6	Latch-up	105 C	1/6/0	-	-
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	1/30/0	1/30/0	1/30/0

A1 (PC): Preconditioning:

Performed for THB, Biased HAST, AC, uHAST & TC samples, as applicable.

Junction Operating Temperature by Automotive Grade Level:

Grade 0 (or E): -40°C to +150°C

Grade 1 (or Q): -40°C to +125°C

Grade 2 (or T): -40°C to +105°C

Grade 3 (or I) : -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):

Room/Hot/Cold : HTOL, ED

Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU

Room : AC/uHAST

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

TI Qualification ID: 20150721-114721

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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.

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

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