PCN Number:	20160816001	PCN Date:	Nov. 4, 2016
Title:	TLV700XXQ1_FIX and Move TLV70028QDDCRQ1/TLV70032QDDCRQ1 to separate Datasheet (SBVS292)		
Customer Contact:	PCN Manager	PCN Type: 180 day	Dept: Quality Services
Proposed 1st Ship Date:	May 4, 2017	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:

Group A devices:
This notification is to inform of a design change to the TLV70xxxQ1 family of devices. Metal 3 change to eliminate cold temp bandgap startup failures.

Group B devices:
This notification is to inform of a design and datasheet change to TLV70028QDDCRQ1 and TLV70032QDDCRQ1 devices.
Design change: Metal 3 change to eliminate cold temp bandgap startup failures
Datasheet change:
TLV70028QDDCRQ1 and TLV70032QDDCRQ1 will move to a separate datasheet using Literature # SBVS292.

TEXAS INSTRUMENTS

TLV700xx-Q1

SBVS292A – JULY 2016 – REVISED SEPTEMBER 2016 www.ti.com

Changes from Original (July 2016) to Revision A **Page**

- Released to production; note that TLV70028QDDCRQ1 and TLV70032QDDCRQ1 were previously listed in SLVSA61 1

TEXAS INSTRUMENTS

TLV700xx-Q1

SBVS292B – JULY 2016 – REVISED OCTOBER 2016 www.ti.com

Changes from Revision A (September 2016) to Revision B **Page**

- Changed maximum specification of V_{EN} parameter in *Absolute Maximum Ratings* table 3
- Changed I_{OUT} parameter name in *Recommended Operating Conditions* table 4

Device Family	Change From:	Change To:
TLV700-Q1	SLVSA61G	**SBVS292A**

TLV700-Q1	SBVS292A	**SBVS292B**

http://www.ti.com/lit/ds/symlink/tlv700xx-q1.pdf

Reason for Change:

Design change:
Improved product performance.

Datasheet change:
New datasheet

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

Positive: false failures addressed.

Changes to product identification resulting from this PCN:

None

Product Affected:

Group A devices:

TLV70012QDDCRQ1	TLV70218QDSERQ1	TLV70230QDSERQ1
TLV70018QDDCRQ1	TLV70225QDSERQ1	TLV70231QDSERQ1
TLV702125QDSERQ1	TLV702285QDSERQ1	TLV70232QDSERQ1
TLV70212QDSERQ1	TLV70228QDDCRQ1	TLV70233QDSERQ1
TLV70215QDSERQ1	TLV70228QDSERQ1	TLV70236QDSERQ1
TLV70229QDSERQ1		

Group B devices:

TLV70028QDDCRQ1
TLV70032QDDCRQ1

Automotive New Product Qualification Summary

(As per AEC-Q100 and JEDEC Guidelines)

Minor Die Rev LTLV702AINZ and LTLV702AIZ (fix false bandgap cold temp failures) impacts DDC and DSE materials in LP and MSA

Approved 08-Jun-2016

Updated 08/02/2016-Added QBS Data

Product Attributes

Attributes	Minor Die Rev LTLV702AINZ/LTLV702AIZ Qual Device: TLV70028QDDCRQ1	QBS Product Reference: TLV70033QDDCRQ1	QBS Product Reference: TLV70225QDSERQ1/ TLV70228DSERQ1	QBS Process Reference: SN0406082PW-B1	QBS Package Reference: TPS3702CX50QDDCRQ1	QBS Package Reference: TPS79918QDDCRQ1	QBS Package Reference: REG71055IDDCRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 3
Operating Temp Range	-40 to +125 deg C C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +85 C
Product Function	Power Management	Power Management	Power Management	Power Management	Power Management	Power Management	Power Management
Die Attributes	-	-	-	-	-	-	-
Wafer Fab Supplier	MIHO-8	MIHO-8	MIHO-8	MIHO8	RFAB	FFAB	TSMC FAB2
Wafer Diameter (mm)	200	200	200	200	300	200	150
Wafer Process Technology	BiCMOS	BiCMOS	BiCMOS	Power BiCMOS	BiCMOS	BiCMOS	CMOS
Wafer Process ID	LBC7	LBC7	LBC7	LBC7	LBC7	3370A12X3	0.6um CMOS
Die Revision	A	A	A	B1	A	A	-
Die Size (L,W) (mm)	0.8 X 0.67	800 X 672	0.8 X 0.67	2.06 X 2.06	1.29 X 0.785	1.01 X 1.38	0.69 X 1.37
Die Size (H) (mils)	8.0	8.0	8.0	28	7.5	8.0	8
Number of Metal Layers	3	3	3	3	3	3	2
Metal Composition	TiN-AlCu-TiN	TiN-AlCu-TiN	TiN-AlCu-TiN	TiN-AlCu-TiN	TiN/Ti Al Cu	TiW/Al-Cu	Ti/TiN- AlSi-Cu
Die Passivation Material and Thickness	Nitride - 10kA	Nitride - 10kA	Nitride - 10kA	10kACN	10kA Nitride	Nitride 10kA	2k OX/7kA Nitride 9kA
Final Polyimide	None	None	None	None	None	None	None
Backgrind	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical
Die Separation Method	Saw	Saw	Saw	Saw	Saw	Saw	Saw
Package Attributes	-	-	-	-	-	-	-
Assembly Site	NS2 (UTAC)	NSE (UTAC)	NSE (UTAC)	TAI	NS2 (UTAC)	NSE/NS2	UTAC -THAILAND
Package Type	SOT	SOT	WSON	TSSOP	SOT	SOT	SOT
Package Designator	DDC	DDC	DSE	PW	DDC	DDC	DDC
Ball/Lead Count	5	5	6	16	6	5	6
Package Size (mils)	62.99 X 114.17	62.99 X 114.17	59.05 X 59.05	173.23 X 196.85	62.99 X 114.17	62.99 X 114.17	62.99 X 114.17
Body Thickness (mils)	34.25	34.25	29.53	39.37	34.25	34.25	34.25
Ball/Lead Pitch (mils)	37.4	37.4	19.68	25.59	37.4	37.4	37.4
Die Attach Material ID	SID#PZ0013	SID#PZ0013	SID# PZ0037	4042500	SID#PZ0013	SID#PZ0013	SID#PZ0013
Die Attach Method	Epoxy Dispense	Epoxy Dispense	Epoxy Dispense	Epoxy Dispense	Epoxy Dispense	Epoxy Dispense	Epoxy Dispense
Mold Compound ID	SID#CZ0096	SID#CZ0096	SID# CZ0141	4206193	SID#CZ0096	SID#CZ0096	SID#CZ0096
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wire Bond Material	Au	Au	Au	Au	Au	Au	Au
Wire Bond Diameter (mils)	1.0	0.8	1.0	1.3	1.0	1.3	1.0
Type of Wire Bond	Thermo-Sonic	Thermo-Sonic	Thermo-Sonic	Thermo-Sonic	Thermo-Sonic	Thermo-Sonic	Thermo-Sonic
Lead Frame Pad Size (mils)	48 X 66	48 X 66	35.4 X 35.4	104 X 146	41 X 72	48 X 66	41 X 72
Lead Frame Material	CU	CU	Cu	Cu	Cu	Cu Alloy	Cu-Alloy
Leadframe Plating Composition	NIPDAU	NIPDAU	NiPdAu	NiPdAu	NiPdAu	NiPdAu	NiPdAu

- QBS: Qual By Similarity
- Qual Device TLV70028QDDCRQ1 is qualified at LEVEL2-260CG

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	Minor Die Rev LTLV702AINZ/LTLV702AIZ Qual Device: TLV70028QDDCRQ1	QBS Product Reference: TLV70033QDDCRQ1	QBS Product Reference: TLV70225QDSERQ1/ TLV70228DSERQ1	QBS Process Reference: SN0406082PW-B1	QBS Package Reference: TPS3702CX50QDDCRQ1	QBS Package Reference: TPS79518QDDCRQ1	QBS Package Reference: REG71055IDDCRQ1
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 1-260C	1/196/0	-	3/844/0	-	-	-	3/Pass
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 2	Level 2-260C	-	1/250/0	-	-	1/350/0	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	1/77/0	3/231/0	3/231/0	1/77/0	3/231/0	-
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	1/77/0	3/230/0	3/230/0	1/77/0	3/231/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle , -65/150C	500 Cycles	1/77/0	-	3/231/0	3/231/0	1/77/0	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp. Cycle Bond Pull	per MIL-STD 883 Method 2011	-	-	1/30/0	1/5/0	1/5/0	-	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	-	-	1/45/0	1/45/0	-	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp. Storage Bake, 150C	2000 Hours	-	-	1/45/0	-	-	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp. Storage Bake, 170C	500 Hours	-	-	-	1/45/0	-	1/45/0	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp. Storage Bake, 175C	500 Hours	-	1/45/0	1/45/0	-	1/45/0	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 140C	480 Hours	-	-	-	3/229/0	-	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	408 Hours	-	-	3/231/0	-	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 140C	48 Hours	-	-	-	3/2409/0	-	-	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	-	3/231/0	-	-	-	-
WBS	C1	AEC Q100-001	1	30	Bond Shear (Cpk>1.67)	Wires	1/30/0	-	1/30/0	-	-	-	1/76/0
WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull (Cpk>1.67)	Wires	1/30/0	-	1/30/0	-	-	-	1/76/0
SD	C3	JEDEC JESD22-B102	1	15	Solderability (>95% coverage)	8 Hours Steam Age	-	-	-	-	-	-	1/22/0
SD	C3	JEDEC JESD22-B102	1	15	Solderability (>95% coverage)	Pb Free	-	-	1/30/0	-	1/15/0	-	1/22/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	--	1/10/0	-	1/30/0	-	-	1/30/0	1/10/0
SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Post HTSL/Bump	N/A	-	-	-	-	-	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	Leads	N/A	-	-	-	-	-	-
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-	-	-	-	-	-
TDDB	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	-	-	-	-	-	-
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	-	-	-	-	-	-
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	-	-	-	-	-	-
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	-	-	-	-	-	-
HBM	E2	AEC Q100-002	1	3	ESD - HBM	4000 V	1/3/0	-	-	1/3/0	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM	1500 V	1/3/0	-	-	1/3/0	-	-	-
LU	E4	AEC Q100-004	1	6	Latch-up	(per AEC-Q100-004)	1/6/0	-	1/6/0	1/6/0	1/6/0	-	-
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0	-	3/90/0	3/90/0	1/30/0	-	1/30/0
YLD		Test Program	1	1	Yield Evaluation		1/Pass						

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