PCN Number:	20180425000.2	PCN Date:	April 30 2018

Title:	Qualification of a new Bump Site plus addition of Polyimide for select devices

Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Oct 30 2018	Estimated Sample Availability:	Provided upon Request

Change Type:

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

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of a new bump site as well as the introduction of Polyimide:

	Current	New
Wafer Bump Site	HBUMP	**DBUMP**
Die Coating	None	**Polyimide**

Reason for Change:

HBUMP facility has closed

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

None

Anticipated impact on Material Declaration

☐	No Impact to the Material Declaration	☒	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained from the TI ECO website.

Changes to product identification resulting from this PCN:

Not Applicable

Product Affected

TPS650001TRTERQ1	TPS650002TRTERQ1	TPS65000TRTERQ1

TI Information
Selective Disclosure

Automotive New Product Qualification Summary

(As per AEC-Q100 and JEDEC Guidelines)

TPS65000TRTERQ1 Bump site offload from HBUMP to DBUMP

Approved 19-Apr-2018

Product Attributes

Attributes	Qual Device: TPS65000TRTERQ1	QBS Product and Package References: TPS57114QRTERDN	QBS Process Reference: TPS55340QPWPRQ1	QBS Package Reference: DS90UB921
Operating Temp Range	-40 to +105 C	-40 to +125 C	-40 to +125 C	105 C
Automotive Grade Level	Grade 2	Grade 1	Grade 1	-
Product Function	Power Management	Power Management	Power Management	Signal Chain
Wafer Fab Supplier	MIHO	MIHO	MIHO	MFAB
Die Revision	C (PG1.2)	A3	PG2.0	A
Assembly Site	TIM	TIM	TITL	TIEM
Package Type	QFN	QFN	HTSSOP	QFN
Package Designator	RTE	RTE	PWP	RHS
Ball/Lead Count	16	16	14	48

- QBS: Qual By Similarity
- Qual Device TPS65000TRTERQ1 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	Qual Device: TPS65000TRTERQ1	QBS Product and Package References: TPS57114QRTERDN	QBS Process Reference: TPS55340QPWPRQ1	QBS Package Reference: DS90UB921
Test Group A – Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 2-260C	All pass	-	All pass	All pass
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 3-260C	-	All pass	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0	1/81/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	1/77/0	3/231/0	3/231/0	1/77/0
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
TC-BP	A4	MIL-STD883 Method 2011	1	60	Post Temp. Cycle Bond Pull	per MIL-STD 883 Method 2011	1/5/0	3/15/0	3/15/0	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 175C	500 Hours	1/45/0	1/45/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp. Storage Bake, 150C	1000 Hours	-	-	1/50/0	1/45/0
Test Group B – Accelerated Lifetime Simulation Tests										
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	3/231/0	3/231/0	1/77/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/0	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	--	N/A	-	-	-
Test Group C – Package Assembly Integrity Tests										
WBS	C1	AEC Q100-001	1	30	Bond Shear (Cpk>1.67)	Wires	1/30/0	-	-	-
WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull (Cpk>1.67)	Wires	1/30/0	-	-	-
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage, steam aging	--	-	-	-	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	--	3/30/0	-	-	-
SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Post HTSL/Bump	-	-	-	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	Leads	-	-	-	-
Test Group D – Die Fabrication Reliability Tests										
EM	D1	JESD61	-	-	Electromigration	--	Completed Per Process Technology Requirements	-	-	-
TDDB	D2	JESD35	-	-	Time Dependent 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	-	-	-
Test Group E – Electrical Verification Tests										
HBM	E2	AEC Q100-002	1	3	ESD - HBM	2000 V	1/3/0	1/3/0	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM	1000 V	1/3/0	1/3/0	-	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	T_max	1/6/0	1/6/0	1/6/0	2/12/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, Hot, & Cold	3/90/0	3/90/0	3/90/0	-

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Ambient 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

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
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