

<b>PCN Number:</b>	20230217000.2	<b>PCN Date:</b>	February 17, 2023
<b>Title:</b>	Qualification of new CDAT as an additional Assembly and Test site with a new die revision for some of the devices		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Aug 16, 2023	<b>Sample requests accepted until:</b>	Mar 17, 2023*
<b>*Sample requests received after Mar 17, 2023 will not be supported.</b>			
<b>Change Type:</b>			
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process
<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification
<input checked="" type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Wafer Fab Materials
		<input type="checkbox"/>	Part number change
<b>PCN Details</b>			
<b>Description of Change:</b>			
Texas Instruments is pleased to announce the qualification of a Assembly and Test site (CDAT) including a new die revision for some of the devices. Construction differences are noted below:			
Construction differences are as follows:			
	<b>UTL1</b>	<b>CDAT</b>	
Mount Compound	SID#PZ0035	4207123	
Bond wire composition, diameter	Cu, 1.3 mil	Cu, 0.96 mil	
Lead finish	Matte Sn	NiPdAu	
ECAT	G3	G4	
A minor metal change was performed to avoid overstress during OVST			
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ			
Upon expiry of this PCN, there will be a transition period where TI will combine lead free solutions in a single <b><u>standard part number</u></b> . For example; <b><u>TPS6503320BRGERQ1</u></b> – can ship with both Matte Sn and NiPdAu.			
Example:			
<ul style="list-style-type: none"> <li>- Customer order for 7500 units of TPS6503320BRGERQ1 with 2500 units SPQ (Standard Pack Quantity per Reel).</li> <li>- TI can satisfy the above order in one of the following ways. <ul style="list-style-type: none"> <li>I. 3 Reels of NiPdAu finish.</li> <li>II. 3 Reels of Matte Sn finish</li> <li>III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish.</li> <li>IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish.</li> </ul> </li> </ul>			
<b>Reason for Change:</b>			
Supply Continuity			
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>			
None			
<b>Impact on Environmental Ratings</b>			
Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.			

<b>RoHS</b>	<b>REACH</b>	<b>Green Status</b>	<b>IEC 62474</b>
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change

**Changes to product identification resulting from this PCN:**

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
UTL1	NSE	THA	Bangkok
<b>CDAT</b>	<b>CDA</b>	<b>CHN</b>	<b>Chengdu</b>

Sample product shipping label (not actual product label)

**Product Affected:**

**Group 1 devices (Assembly/Test Site (CDAT) qualification only):**

TPS6503200CRGERQ1	TPS6503320AARGERQ1	TPS65033300QRGERQ1	TPS65033104RGERQ1
TPS65033201RGETQ1	TPS65033000QRGETQ1	TPS6503320DRGERQ1	TPS6503320FRGERQ1
TPS65033203RGERQ1	TPS65033304RGERQ1	TPS6503320GRGERQ1	TPS65033007RGETQ1
TPS65033000QRGERQ1	TPS6503320BRGERQ1	TPS65033007RGERQ1	TPS6503200BRGERQ1
TPS65033000RGERQ1	TPS65032006RGERQ1	TPS6503320HARGERQ1	TPS6503320CRGERQ1
TPS65032008QRGERQ1	TPS65033207RGERQ1	TPS65032002QRGERQ1	TPS65033302RGERQ1

**Group 2 device: (Assembly/Test Site (CDAT) & Die revision qualification):**

TPS65033205QRGERQ1	TPS6503200AQRGETQ1	TPS6503300IQRGETQ1	TPS6503300DRGERQ1
TPS65033209QRGETQ1	TPS65032018ARGERQ1	TPS65033208RGERQ1	TPS65032018ARGETQ1
TPS65033209QRGERQ1	TPS6503300ERGERQ1	TPS6503300IQRGERQ1	TPS65033206RGERQ1
TPS65033201RGERQ1	TPS6503200AQRGERQ1	TPS65033303RGERQ1	TPS65033205QRGETQ1

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

**TPS65033xxx (Fedora): Automotive Grade 1 Q100 Camera PMIC P2.1  
Approved 21-Oct-2021**

**Product Attributes**

Attributes	Qual Device: TPS65033000QRGERQ1	QBS Product Reference: TPS65033000QRGERQ1
Automotive Grade Level	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C
Product Function	Power Management	Power Management
Wafer Fab Supplier	RFAB	RFAB
Die Revision	B1	B0
Assembly Site	UTL1	UTL1
Package Type	QFN	QFN
Package Designator	RGE	RGE
Ball/Lead Count	24	24

- QBS: Qual By Similarity  
- Qual Device TPS65033000QRGERQ1 is qualified at LEVEL3-260C

**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: TPS65033000QRGERQ1	QBS Product Reference: TPS65033000QRGERQ1
<b>Test Group A – Accelerated Environment Stress Tests</b>								
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	(MSL 3 / 260C)	-	No fails
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 hours	-	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 cycles	-	3/231/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 cycles	-	1/45/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	1000 hours	-	3/135/0
<b>Test Group B – Accelerated Lifetime Simulation Tests</b>								
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 hours	-	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 hours	1/800/0	3/2400/0
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	-	(1)
<b>Test Group C – Package Assembly Integrity Tests</b>								
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Cpk>1.67	-	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Cpk>1.67	-	3/90/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Free Solder (Post-Bake)	-	1/15/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Solder (Post- Bake)	-	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	3/30/0
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	-	-

Test Group D – Die Fabrication Reliability Tests								
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-
TDDDB	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	-
Test Group E – Electrical Verification Tests								
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	4000 V	1/3/0	1/3/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 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
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold test	1/30/0	3/90/0
Additional Tests								
YLD			-	-	Yield Evaluation	(per mfg. Site specification)	1/Pass	-

**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

TI Qualification ID: 20210107-137686

Affected ZVEI IDs: SEM-DE-02, SEM-PA-04, SEM-PA-07, SEM-PA-08, SEM-PA-18, SEM-TF-01

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

Location	E-Mail
WW Change Management Team	<a href="mailto:PCN_ww_admin_team@list.ti.com">PCN_ww_admin_team@list.ti.com</a>

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