PCN Number:	20230110000.2	**PCN Date:**	January 10, 2023
Title:	Qualification of TFME as an additional Assembly & Test site for select devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Jul 9, 2023	**Sample Requests accepted until:**	Feb 10, 2023*

***Sample requests received after Feb 10, 2023 will not be supported.**

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 the qualification of TFME as an additional Assembly and test site for set of devices listed below. Construction differences are as follows:

What	GTBF	TFME
Mold Compound	SID#EN0000054	SID#R-37
Mount Compound	SID#EY0000006	SID# A-06
Lead finish	NiPdAu	Matte Sn
Device symbolization format for lot traceability	YM	YMLLLLS

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 ***standard part number*** For example; ***TPS7B8333QDCYRQ1*** – can ship with both Matte Sn and NiPdAu.
Example:

- Customer order for 7500 units of TPS7B8333QDCYRQ1 with 2500 units SPQ (Standard Pack Quantity per Reel).

- TI can satisfy the above order in one of the following ways.
  I. 3 Reels of NiPdAu finish.
  II. 3 Reels of Matte Sn finish
  III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish.
  IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish.

Reason for Change:

Supply continuity

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

None

Impact on Environmental Ratings

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.

RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

Changes to product identification resulting from this PCN:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
GTBF	GTF	CHN	Sci. Park PhaseII Shatin
TFME	**NFM**	**CHN**	**Economic Development Zone**

Sample product shipping label (not actual product label)

TEXAS INSTRUMENTS
MADE IN: Malaysia
2DC: 2Q:
MSL 2 /260C/1 YEAR SEAL DT
MSL 1 /235C/UNLIM 03/29/04
OPT:
ITEM: 39
LBL: 5A (L)TO:1750
G4
(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T)LOT: 3959047MLA
(4W) TKY(1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CSO:SHE (21L) CCO:USA
(22L) ASO:MLA (23L) ACO:MYS

Product Affected:

TPS7B8333QDCYRQ1	TPS7B8350QDCYRQ1	TPS7B8433QDCYRQ1	TPS7B8450QDCYRQ1

TI Information
Selective Disclosure

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

TPS7B83XXQDCYRQ1M3 Assembly Transfer from GTBF to TFME
Approved 08-Dec-2022

Product Attributes

Attributes	Qual Device: TPS7B8350QDCYRQ1M3	QBS Product Reference: TPS7B8433QDCYRQ1	QBS Product Reference: TPS7B8450QDCYRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Power Management	Power Management	Power Management	Power Management
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB
Die Revision	A	A	A	A
Assembly Site	TFME	GTBF	GTBF	TAI
Package Type	SOT-223	SOT-223	SOT-223	TSSOP
Package Designator	DCY	DCY	DCY	PWP
Ball/Lead Count	4	4	4	28

- QBS: Qual By Similarity
- Qual Device TPS7B8350QDCYRQ1M3 is qualified at Level2-260C
- Concurrently qualifies TPS7B83XXQDCYRQ1M3 family of devices.

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: TPS7B8350QDCYRQ1M3	QBS Product Reference: TPS7B8433QDCYRQ1	QBS Product Reference: TPS7B8450QDCYRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
Test Group A – Accelerated Environment Stress Tests											
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 2-260C	3/693/0	-	3/1368/0	-
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 3-260C	-	-	-	3/693/0
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-	3/231/0	3/231/0
	ACLV	A3	JEDEC JESD22-A102	3	77	Unbiased HAST 121C/15psig	96 Hours	-	-	-	3/231/0
	UHAST	A3	JEDEC JESD22-A118	3	77	Unbiased HAST 130C/85%RH	96 Hours	3/231/0	-	3/231/0	-
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	3/231/0	3/231/0
	TC-WBP	A4	MIL-STD883 Method 2011	1	30	Post Temp Cycle Bond Pull	Wires	3/90/0	-	1/30/0	-
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	1/45/0	-	1/50/0	1/45/0
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	-	-	3/231/0
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	1/45/0	-	3/231/0	-
Test Group B – Accelerated Lifetime Simulation Tests											
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	3/231/0	-
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 140C	480 Hours	-	-	-	3/231/0
	EFR	B	AECQ100-008	3	77	Early Life, 150C	24 Hours	-	-		3/2400/0

	Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TPS7B8350QDCYRQ1M3	QBS Product Reference: TPS7B8433QDCYRQ1	QBS Product Reference: TPS7B8450QDCYRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	-	-	3/231/0	-
Test Group C – Package Assembly Integrity Tests											
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk>1.67	Wires	3/90/0	-	3/90/0	-
	WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull, Cpk>1.67	Wires	3/90/0	-	3/90/0	-
	SD	C3	JEDEC JESD22-B102	1	15	Pb Free Solderability - Dip and Look	4 Hours/155C	1/15/0	-	1/15/0	-
	SD	C3	JEDEC JESD22-B102	1	15	Pb Solderability - Dip and Look	4 Hours/155C	1/15/0	-	1/15/0	-
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Auto Physical Dimensions	Cpk>1.67	3/30/0	-	3/30/0	-
	SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Post HTSL/Bump	N/A for pkg	N/A for pkg	N/A for pkg	-
	SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Solder Balls	N/A for pkg	N/A for pkg	N/A for pkg	-
	LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	-	-	1/22/0	-
Test Group D – Die Fabrication Reliability Tests											
	EM	D1	JESD61	-	-	Electromigration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements

	Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TPS7B8350QDCYRQ1M3	QBS Product Reference: TPS7B8433QDCYRQ1	QBS Product Reference: TPS7B8450QDCYRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
Test Group E – Electrical Verification Tests											
	HBM	E2	AEC Q100-002	1	3	ESD – HBM	3000 V	1/3/0	-	1/3/0	1/3/0
	HBM	E2	AEC Q100-002	1	3	ESD – HBM	4000 V	-	-	-	1/3/0
	CDM	E3	AEC Q100-011	1	3	ESD - CDM	1500 V	1/3/0	-	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
	ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67	3/90/0	1/30/0	3/90/0	3/90/0
Miscellaneous											
	FTY	-	Final Test Yield and Bin Summary (Test MQ)	1	1	-	-	2/2/0 (Note A)	-	-	-

Note:
A – Final Test Yield and Bin Summary performed on TPS7B8333QDCYRQ1M3 and TPS7B8350QDCYRQ1M3.

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

TI Qualification ID: R-CHG-2201-056

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

TPS7B84XXQDCYRQ1M3 Assembly Transfer from GTBF to TFME
Approved 14-Dec-2022

Product Attributes

Attributes	Qual Device: TPS7B8450QDCYRQ1M3	QBS Product Reference: TPS7B8350QDCYRQ1M3	QBS Product Reference: TPS7B8433QDCYRQ1	QBS Product Reference: TPS7B8450QDCYRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Power Management	Power Management	Power Management	Power Management	Power Management
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB
Die Revision	A	A	A	A	A
Assembly Site	TFME	TFME	GTBF	GTBF	TAI
Package Type	SOT-223	SOT-223	SOT-223	SOT-223	TSSOP
Package Designator	DCY	DCY	DCY	DCY	PWP
Ball/Lead Count	4	4	4	4	28

- QBS: Qual By Similarity
- Qual Device TPS7B8450QDCYRQ1M3 is qualified at Level2-260C
- Concurrently qualifies TPS7B84XXQDCYRQ1M3 family of devices.

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: TPS7B8450QDCYRQ1M3	QBS Product Reference: TPS7B8350QDCYRQ1M3	QBS Product Reference: TPS7B8433QDCYRQ1	QBS Product Reference: TPS7B8450QDCYRQ1	QBS Process Reference: TLC6C5816QPWPRQ1
Test Group A – Accelerated Environment Stress Tests											
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 2-260C	1/154/0	3/783/0	-	3/1368/0	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 3-260C	-	-	-	-	3/693/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-	3/231/0	3/231/0
ACLV	A3	JEDEC JESD22-A102	3	77	Unbiased HAST 121C/15psig	96 Hours	-	-	-	-	3/231/0
UHAST	A3	JEDEC JESD22-A118	1	77	Unbiased HAST 130C/85%RH	96 Hours	1/77/0	3/231/0	-	3/231/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	1	77	Temperature Cycle, -65/150C	500 Cycles	1/77/0	3/231/0	-	3/231/0	3/231/0
TC-WBP	A4	MIL-STD883 Method 2011	1	30	Post Temp Cycle Bond Pull	Wires	1/30/0	3/90/0	-	1/30/0	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	-	1/45/0	-	1/50/0	1/45/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	3/231/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	1/45/0	-	3/231/0	-
Test Group B – Accelerated Lifetime Simulation Tests											
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	-	3/231/0	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 140C	480 Hours	-	-	-	-	3/231/0
EFR	B	AECQ100-008	3	77	Early Life, 150C	24 Hours	-	-	-		3/2400/0
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	-	-	-	3/231/0	-

Test Group C – Package Assembly Integrity Tests												
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk>1.67	Wires	1/30/0	3/90/0	-	3/90/0	-
	WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull, Cpk>1.67	Wires	1/30/0	3/90/0	-	3/90/0	-
	SD	C3	JEDEC JESD22-B102	1	15	Pb Free Solderability - Dip and Look	4 Hours/155C	1/15/0	1/15/0	-	1/15/0	-
	SD	C3	JEDEC JESD22-B102	1	15	Pb Solderability - Dip and Look	4 Hours/155C	1/15/0	1/15/0	-	1/15/0	-
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Auto Physical Dimensions	Cpk>1.67	1/10/0	3/30/0	-	3/30/0	-
	SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Post HTSL/Bump	N/A for pkg	N/A for pkg	N/A for pkg	N/A for pkg	-
	SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Solder Balls	N/A for pkg	N/A for pkg	N/A for pkg	N/A for pkg	-
	LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	-	-	-	1/22/0	-
Test Group D – Die Fabrication Reliability Tests												
	EM	D1	JESD61	-	-	Electromigration	-	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	SM	D5	-	-	-	Stress Migration	-	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements

Test Group E – Electrical Verification Tests												
	HBM	E2	AEC Q100-002	1	3	ESD – HBM	3000 V	1/3/0	1/3/0	-	1/3/0	1/3/0
	HBM	E2	AEC Q100-002	1	3	ESD – HBM	4000 V	-	-	-	-	1/3/0
	CDM	E3	AEC Q100-011	1	3	ESD - CDM	1500 V	1/3/0	1/3/0	-	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	1/30/0	3/90/0	1/30/0	3/90/0	3/90/0
Miscellaneous												
	FTY	-	Final Test Yield and Bin Summary (Test MQ)	1	1	-	-	2/2/0 (Note A)	2/2/0 (Note A)	-	-	-

Note:
A – Final Test Yield and Bin Summary performed on TPS7B8433QDCYRQ1M3 and TPS7B8450QDCYRQ1M3

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

TI Qualification ID: R-CHG-2202-047

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	PCN_ww_admin_team@list.ti.com

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