



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20240628013.2

**Qualification of TIPI as an additional assembly/test site for select devices
Change Notification / Sample Request**

Date: June 28, 2024

To: MOUSER PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

Texas Instruments requires acknowledgement of receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance and approval of this change. If samples or additional data are required, requests must be received within **30 days** of this notification.

The changes discussed within this PCN will not take effect any earlier than the proposed first ship date on Page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the change management team.

For sample requests or sample related questions, contact your local Field Sales Representative.

Sincerely,

Change Management Team
SC Business Services

20240628013.2

Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, you have recently purchased these devices. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
TPD2E2U06QDBZRQ1	NULL

Technical details of this Product Change follow on the next page(s).

PCN Number:	PCN#20240628013.2	PCN Date:	June 28, 2024
Title:	Qualification of TIPI as an additional assembly/Test site for select devices		
Customer Contact:	Change Management Team	Dept:	Quality Services
Proposed 1st Ship Date:	December 25, 2024	Sample requests accepted until:	July 28, 2024*
*Sample requests received after July 28, 2024 will not be supported.			
Change Type:			
<input checked="" type="checkbox"/> Assembly Site	<input type="checkbox"/> Design	<input type="checkbox"/>	Wafer Bump Material
<input checked="" type="checkbox"/> Assembly Process	<input type="checkbox"/> Data Sheet	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input type="checkbox"/>	Wafer Fab Site
<input type="checkbox"/> Mechanical Specification	<input checked="" type="checkbox"/> Test Site	<input type="checkbox"/>	Wafer Fab Material
<input checked="" type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input type="checkbox"/>	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments Incorporated is announcing the qualification of TIPI as an alternate Assembly/Test site for the list of devices below. Construction differences are as follows:

	HNA	TIPI
Bond Wire composition/diameter	Au, 0.8 mil	Cu, 1.0 mil
Mount Compound	SID#400180	4226215
Mold Compound	SID#450179	4222198
MSL	2	1

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ

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
<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
HNA	HNT	THA	Ayutthaya
TIPI	PHI	PHL	Baguio City

Sample product shipping label (not actual product label)

 TEXAS INSTRUMENTS MADE IN: Malaysia 2DC: 20: <div style="border: 1px solid black; padding: 2px;"> MSL '2 / 260C/1 YEAR SEAL DT MSL 1 / 235C/UNLIM 03/29/04 </div> <div style="display: flex; justify-content: space-between;"> OPT: ITEM: LBL: 5A (L)T0:1750 39 </div>	 	<div style="display: flex; justify-content: space-between;"> <div style="flex: 1;"> <p>(1P) SN74LS07NSR (Q) 2000 (D) 0336 (31T) LOT: 3959047MLA (4W) TKY(1T) 7523483SI2 (P) (2P) REV: (V) 0033317 <div style="border: 1px solid red; padding: 2px;"> (20L) CS0: SHE (21L) CCO:USA (22L) AS0: MLA (23L) AC0: MYS </div> </p> </div> </div>
Product Affected: TPD2E2U06QDBZRQ1		

<<< Q100 Qual memo here >>>

TI Information
Selective Disclosure



Automotive New Product Qualification Summary
(As per AEC-Q101 and JEDEC Guidelines)

TPD2E2U06QDBZRQ1 HNA to TIPI
Approve Date 24-May-2024

Product Attributes

Attributes	Qual Device:	QBS Reference:	QBS Reference:	QBS Reference:
	<u>TPD2E2U06QDBZRQ1</u>	<u>TSM24ADBZRQ1</u>	<u>TSM24CADBZRQ1</u>	<u>TPD2E2U06QDBZRQ1</u>
Automotive Grade Level	Grade 1	Grade 0	Grade 0	Grade 1
Operating Temp Range (C)	-40 to 125	-55 to 150	-55 to 150	-40 to 125
Product Function	Interface	Interface	Interface	Interface
Wafer Fab Supplier	CFAB	CFAB	CFAB	CFAB
Assembly Site	CDAT	PHI	PHI	PHI
Package Group	SOT	SOT	SOT	SOT
Package Designator	DBZ	DBZ	DBZ	DBZ
Pin Count	3	3	3	3

- QBS: Qual By Similarity
- Qual Device TPD2E2U06QDBZRQ1 is qualified at NOT CLASSIFIED 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: TPD2E2U06QDBZRQ1	QBS Reference: TSM24CADBZRQ1	QBS Reference: TPD2E2U06QDBZRQ1
Test Group A - Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	-	0	Preconditioning	MSL1 260C	1 Step	-	3/0/0	-
PC	A1	JEDEC J-STD-020 JESD22-A113	-	0	Preconditioning	MSL2 260C	1 Step	-	-	3/0/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0
HAST	A2.1	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-
HAST	A2.1.2	-	3	1	Cross Section, post bHAST, 1X	Post stress cross section	Completed	-	3/3/0	-
HAST	A2.1.3	-	3	3	Wire Bond Shear, post bHAST, 1X	Post stress	-	-	3/9/0	-
HAST	A2.1.4	-	3	3	Bond Pull over Stitch, post bHAST, 1X	Post stress	-	-	3/9/0	-
HAST	A2.1.5	-	3	3	Bond Pull over Ball, post bHAST, 1X	Post stress	-	-	3/9/0	-
HAST	A2.2	JEDEC JESD22-A110	3	70	Biased HAST	130C/85%RH	192 Hours	-	3/231/0	-
HAST	A2.2.1	-	3	22	SAM Analysis, post bHAST 2X	Review for delamination	Completed	-	3/66/0	-

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: TPD2E2U06QDBZRQ1	QBS Reference: TSM24CADBZRQ1	QBS Reference: TPD2E2U06QDBZRQ1
HAST	A2.2.2	-	3	1	Cross Section, post bHAST, 2X	Post stress cross section	Completed	-	3/3/0	-
HAST	A2.2.3	-	3	3	Wire Bond Shear, post bHAST, 2X	Post stress	-	-	3/9/0	-
HAST	A2.2.4	-	3	3	Bond Pull over Stitch, post bHAST, 2X	Post stress	-	-	3/9/0	-
HAST	A2.2.5	-	3	3	Bond Pull over Ball, post bHAST, 2X	Post stress	-	-	3/9/0	-
AC/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 6	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	-	3/231/0
TCHT	A4.1	JEDEC JESD22-A104 and Appendix 6	3	77	Temperature Cycle	-65C/150C	1000 Cycles	-	3/231/0	-
TC	A4.1	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	-
TC	A4.1.1	-	3	22	SAM Analysis, post TC 1X	Review for delamination	Completed	-	3/66/0	-
TC	A4.1.2	-	3	1	Cross Section, post TC, 1X	Post stress cross section	Completed	-	3/3/0	-
TC	A4.1.3	-	3	3	Wire Bond Shear, post TC, 1X	Post stress	-	-	3/9/0	-

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: <u>TPD2E2U06QDBZRQ1</u>	QBS Reference: <u>TSM24CADCZRQ1</u>	QBS Reference: <u>TPD2E2U06QDBZRQ1</u>
TC	A4.1.4	-	3	3	Bond Pull over Stitch, post TC, 1X	Post stress	-	-	3/9/0	-
TC	A4.1.5	-	3	3	Bond Pull over Ball, post TC, 1X	Post stress	-	-	3/9/0	-
TC	A4.2	JEDEC JESD22-A104 and Appendix 3	3	70	Temperature Cycle	-65C/150C	1000 Cycles	-	3/231/0	-
TC	A4.2.1	-	3	22	SAM Analysis, post TC, 2X	Review for delamination	Completed	-	3/66/0	-
TC	A4.2.2	-	3	1	Cross Section, post TC, 2X	Post stress cross section	Completed	-	3/3/0	-
TC	A4.2.3	-	3	3	Wire Bond Shear, post TC, 2X	Post stress	-	-	3/9/0	-
TC	A4.2.4	-	3	3	Bond Pull over Stitch, post TC, 2X	Post stress	-	-	3/9/0	-
TC	A4.2.5	-	3	3	Bond Pull over Ball, post TC, 2X	Post stress	-	-	3/9/0	-
Test Group B - Accelerated Lifetime Simulation Tests										
HTRB	B1.1	MIL-STD-750-1	3	77	High Temperature Reverse Bias	150C	1000 Hours	-	1/77/0	-
HTRB	B1.2	MIL-STD-750-1	3	77	High Temperature Reverse Bias	150C	2000 Hours	-	1/77/0	-
HTRB	B1	MIL-STD-750-1	3	77	High Temperature Reverse Bias	125C	1000 Hours	-	-	3/231/0
Test Group C - Package Assembly Integrity Tests										
DPA	C1	AEC Q101-004	-	2	Destructive Physical Analysis	Per Q101-004	1 Step	-	-	3/6/0
DPA	C2	JESD22-B100	-	10	Physical Dimensions	Cpk>1.67	1 Step	1/10/0	-	-

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: TPD2E2U06QDBZRQ1	QBS Reference: TSM24CADBZRQ1	QBS Reference: TPD2E2U06QDBZRQ1
DPA	C2	JESD22-B100	-	30	Physical Dimensions	Cpk>1.67	1 Step	-	1/30/0	1/30/0
WBP	C3	MIL-STD-750-2	-	10	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	1 Step	-	1/10/0	1/10/0
WBS	C4	AEC-Q101-003	-	10	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	1 Step	-	1/10/0	1/30/0
DS	C5	MIL-STD-750-2	-	5	Die Shear	MIL-STD-750-2 Method 2017	1 Step	-	1/5/0	1/5/0
RSH	C8	JESD22-B107	-	30	Solder Heat	260C, 10 seconds	1 Step	-	1/30/0	1/30/0
SD	C10	JEDEC J-STD-002	-	15	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	1 Step	-	-	1/10/0
SD	C10	JEDEC J-STD-002	-	15	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	1 Step	-	-	1/10/0

Test Group D - Die Fabrication Reliability Tests

Test Group E - Electrical Verification Tests

EV	E0	JESD22-B101	3	1000	Visual/Mechanical	Per JESD22-B-101	1 Step	-	-	3/3000/0
ESD	E3	AEC Q101-001	3	10	ESD HBM	Room Temp	2000 Volts	-	1/10/0	1/80/0
ESD	E4	AEC Q101-005	3	10	ESD CDM	Room Temp	750 Volts	-	1/10/0	1/60/0

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: TPD2E2U06QDBZRQ1	QBS Reference: TSM24CADBZRQ1	QBS Reference: TPD2E2U06QDBZRQ1
Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device	QBS Reference	QBS Reference

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, HTSL, and IOL, as applicable
- Passing results reflect shift analysis per Q101 requirements

Ambient Operating Temperature by Automotive Grade Level:

- Grade 0 (or E): -40C to +150C
- Grade 1 (or Q): -40C to +125C
- Grade 2 (or T): -40C to +105C
- Grade 3 (or I) : -40C to +85C

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

- Room/Hot/Cold : HTRB, ED
- Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
- Room : AC/uHAST

Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

TI Qualification ID: R-CHG-2311-076

<<< Q006 Qual memo here >>>

**Automotive New Product Qualification Summary
(As per AEC-Q100, AEC-Q006, and JEDEC Guidelines)**

TSM24ADBZRQ1 & TSM24CADBZRQ1 device qual for TIPI
Approve Date 20-October-2023

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: <u>TSM24ADBZRQ1</u>	Qual Device: <u>TSM24CADBZRQ1</u>	QBS Reference (Process, Product, Package): <u>ESD2CAN24DBZRQ1</u>
Test Group A - Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	-	Performed	Performed
PC	A1.1	-	3	22	SAM Precon Pre	Review for delamination	-	-	3/66/0	3/66/0
PC	A1.2	-	3	22	SAM Precon Post	Review for delamination	-	-	3/66/0	3/66/0
HAST	A2.2	JEDEC JESD22-A110	3	70	Biased HAST	130C/85%RH	192 Hours	-	3/231/0	3/231/0
HAST	A2.2.1	-	3	22	SAM Analysis, post bHAST 2X	Review for delamination	Completed	-	3/66/0	3/66/0

HAST	A2.2.2	-	3	1	Cross Section, post bHAST, 2X	Post stress cross section	Completed	-	3/3/0	3/3/0
HAST	A2.2.3	-	3	30	Wire Bond Shear, post bHAST, 2X	Post stress	Wires	-	3/9/0	3/9/0
HAST	A2.2.4	-	3	30	Bond Pull over Stitch, post bHAST, 2X	Post stress	Wires	-	3/9/0	3/9/0
HAST	A2.2.5	-	3	30	Bond Pull over Ball, post bHAST, 2X	Post stress	Wires	-	3/9/0	3/9/0
TC	A4.1	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	1000 Cycles	-	3/231/0	3/231/0
TC	A4.2.1	-	3	22	SAM Analysis, post TC, 2X	Review for delamination	Completed	-	3/66/0	3/66/0
TC	A4.2.2	-	3	1	Cross Section, post TC, 2X	Post stress cross section	Completed	-	3/3/0	3/3/0
TC	A4.2.3	-	3	30	Wire Bond Shear, post TC, 2X	Post stress	Wires	-	3/9/0	3/9/0
TC	A4.2.4	-	3	30	Bond Pull over Stitch, post TC, 2X	Post stress	Wires	-	3/9/0	3/9/0
TC	A4.2.5	-	3	30	Bond Pull over Ball, post TC, 2X	Post stress	Wires	-	3/9/0	3/9/0

Test Group C - Package Assembly Integrity Tests

- QBS: Qual By Similarity
- Qual Device TSM24ADBZRQ1 is qualified at MSL1 260C
- Qual Device TSM24CABDBZRQ1 is qualified at MSL1 260C
- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Ambient Operating Temperature by Automotive Grade Level:

- Grade 0 (or E): -40C to +150C
- Grade 1 (or Q): -40C to +125C
- Grade 2 (or T): -40C to +105C
- Grade 3 (or I) : -40C to +85C

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

Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

TI Qualification ID: R-NPD-2303-115

ZVEI IDs: SEM-PA-07, SEM-PA-08, SEM-PA-11, SEM-PA-18, SEM-PS-02, SEM-PS-04, SEM-TF-01

For questions regarding this notice, e-mails can be sent to the Change Management team or your local Field Sales Representative.

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