12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20250618009.2
Qualification of RFAB using qualified Process Technology, Die revision, CD-PR & TIEM-PR as Probe site and TI Philippines as an additional Assembly/Test option for select devices
Change Notification / Sample Request

Date: June 18, 2025
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 60 days of the date of this notice. Lack of acknowledgement of this notice within 60 days constitutes acceptance and approval of this change. If samples or additional data are required, requests must be received within 60 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.

TI values customer engagement and feedback related to TI changes. Customers should contact TI if there are questions or concerns regarding a change notification.

Change Management Team
SC Business Services

20250618009.2
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
TMP102AQDRLRQ1	TMP102AQDRLRQ1
TMP112AQDRLRQ1	TMP112AQDRLRQ1

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

PCN Number:	20250618009.2	PCN Date:	June 18, 2025
Title:	Qualification of RFAB using qualified Process Technology, Die revision, CD-PR & TIEM-PR as Probe site and TI Philippines as an additional Assembly/Test option for select devices		
Customer Contact:	Change Management Team	Dept:	Quality Services
Proposed 1st Ship Date:	December 15, 2025	Sample requests accepted until:	August 17, 2025*

***Sample requests received after August 17, 2025 will not be supported.**

Change Type:

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

PCN Details

Description of Change:

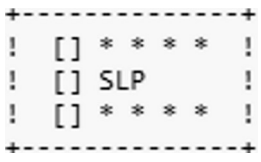
Texas Instruments is pleased to announce the qualification of its RFAB fabrication facility as an additional Wafer Fab option, Die revision, CD-PR & TIEM-PR as probe and TI Philippines (PHI) as an additional Assembly/Test Site for the devices listed below.

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
AIZU	33HPA07	200 mm	RFAB	LBC9	300 mm

The die was also changed as a result of the process change.

	Current	New
Probe Test site	None	CD-PR, TIEM-PR

Construction differences are as follows:

	Curent A/T Site	Additional A/T Site
	HNA	PHI
Wire bond diam/type	0.8mil Au	0.8mil Cu
Mount compound	SID#400194	4226215
Mold compound	SID#450214	4222198
Lead finish	NiPdAuAg	NiPdAu
Wafer thickness	635um	770um
Topside marking		

Qual details are provided in the Qual Data Section.
Test coverage, insertions, conditions will remain consistent with current testing

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:

Fab Site Information:

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
AIZU	CU2	JPN	Aizuwakamatsu-shi
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

Current	**New**
Die Rev [2P]	**Die Rev [2P]**
E	**A**

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
Hana	HNT	THA	Autthaya
TI Philippines	**PHI**	**PHL**	**Baguio city**

Sample product shipping label (not actual product label):

Product Affected:

TMP102AQDRLRQ1	TMP112AQDRLRQ1

Qualification Report

Automotive Qualification Summary
(As per AEC-Q100 Rev. J and JEDEC Guidelines)

Approve Date 21-AUGUST -2024

Product Attributes

Attributes	Qual Device: TMP102AQDRLRQ1	QBS Process Reference: SN74HCS74QPWRQ1	QBS Package, Process Reference: OPA4991QDYYRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125
Product Function	Signal Chain	Logic	Signal Chain
Wafer Fab Supplier	RFAB	RFAB	RFAB
Assembly Site	PHI	MLA	PHI
Package Group	SOT	TSSOP	SOT
Package Designator	DRL	PW	DYY
Pin Count	6	14	14

QBS: Qual By Similarity, also known as Generic Data
Qual Device TMP102AQDRLRQ1 is qualified at MSL1 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: TMP102AQDRLRQ1	QBS Process Reference: SN74HCS74QPWRQ1	QBS Package, Process Reference: OPA4991QDYYRQ1
Test Group A - Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	1/0/0	-	3/0/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	110C/85%RH	264 Hours	-	-	3/231/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	1/77/0	-	-
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	-	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	1/77/0	-	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	1/5/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	1/45/0	-	3/135/0
Test Group B - Accelerated Lifetime Simulation Tests										

HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	125C	1000 Hours	1/77/0	3/231/0	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	408 Hours	-	-	1/77/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-
Test Group C - Package Assembly Integrity Tests										
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	3/90/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	1/15/0	-	1/15/0
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	1/15/0	-	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	1/10/0	-	3/30/0
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	-	-

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: TMP102AQDRLRQ1	QBS Process Reference: SN74HCS74QPWRQ1	QBS Package, Process Reference: OPA4991QDYYRQ1
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements	-	-
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	-	-
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	-	-
Test Group E - Electrical Verification Tests										
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	1/3/0	-	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	1000 Volts	1/3/0	-	-
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	1/3/0	-	-
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	3/90/0	-	-

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-2302-148

Qualification Report

Automotive Qualification Summary
(As per AEC-Q100 Rev. J and JEDEC Guidelines)

Approve Date 19-AUGUST -2024

Product Attributes

Attributes	Qual Device: TMP112AQDRLRQ1	QBS Process Reference: SN74HCS74QPWRQ1	QBS Package, Process Reference: OPA4991QDYYRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125
Product Function	Signal Chain	Logic	Signal Chain
Wafer Fab Supplier	RFAB	RFAB	RFAB
Assembly Site	PHI	MLA	PHI
Package Group	SOT	TSSOP	SOT
Package Designator	DRL	PW	DYY
Pin Count	6	14	14

QBS: Qual By Similarity, also known as Generic Data
Qual Device TMP112AQDRLRQ1 is qualified at MSL1 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: TMP112AQDRLRQ1	QBS Process Reference: SN74HCS74QPWRQ1	QBS Package, Process Reference: OPA4991QDYYRQ1
Test Group A - Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	1/308/0	-	3/924/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	110C/85%RH	264 Hours	-	-	3/231/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	1/77/0	-	-
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	-	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	1/77/0	-	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	1/5/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	1/45/0	-	3/135/0
Test Group B - Accelerated Lifetime Simulation Tests										

HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	125C	1000 Hours	1/77/0	3/231/0	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	408 Hours	-	-	1/77/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-
Test Group C - Package Assembly Integrity Tests										
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	1/30/0	-	3/90/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	1/15/0	-	1/15/0
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	1/15/0	-	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	1/10/0	-	3/30/0
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 Carrier Injection	-	-	Completed Per Process Technology Requirements	-	-
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	-	-
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	-	-
Test Group E - Electrical Verification Tests										
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	1/3/0	-	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	1000 Volts	1/3/0	-	-
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	1/3/0	-	-
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	3/90/0	-	-

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-2302-149

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

Q006 Summary for 0.8 PCC Wire LBC9 Al Bond Pads
(Grade 1, -40/125C)
Approved 29-Sep-2021

Product Attributes

Attributes	Qual Device: OPA4991QDYYRQ1
Operating Temp Range	-40 to +125 C
Automotive Grade Level	Grade 1
Product Function	Signal Chain
Wafer Fab Supplier	RFAB
Assembly Site	PHI
Package Type	SOT23-THN
Package Designator	DYY
Ball/Lead Count	14

- QBS: Qual By Similarity
- Qual Device OPA4991QDYYRQ1 is qualified at LEVEL1-260C

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: OPA4991QDYYRQ1
Test Group A – Accelerated Environment Stress Tests							
PC	A1	-	3	22	SAM Analysis, Pre Stress	Completed	3/66/0
PC	**A1**	**JEDEC J-STD-020 JESD22-A113**	3	**77**	**Preconditioning**	**Level 1-260C**	**No fails**
PC	A1	-	3	22	SAM Analysis, Post Precon	Completed	3/66/0
HAST	**A2**	**JEDEC JESD22-A110**	3	**77**	**Biased HAST, 110C/85%RH**	**264 Hours**	**3/231/0**
HAST	A2	-	3	1	Cross Section, Post bHAST 264 Hours	Completed	-
HAST	A2	-	3	30	Wire Bond Shear, Post bHast, 264 Hours	Wires	-
HAST	A2	-	3	30	Bond Pull over Stitch, post bHAST, 264 Hours	Wires	-
HAST	A2	-	3	30	Bond Pull over Ball, Post bHAST, 264 Hours	Wires	-
HAST	**A2**	**JEDEC JESD22-A110**	3	**77**	**Biased HAST, 110C/85%RH**	**528 Hours**	**3/210/0**
HAST	A2	-	3	1	Cross Section, Post bHAST 528 Hours	Completed	3/3/0
HAST	A2	-	3	22	SAM Analysis, Post bHAST, 528 Hours	Completed	3/66/0
HAST	A2	-	3	30	Wire Bond Shear, Post bHast, 528 Hours	Wires	3/90/0
HAST	A2	-	3	30	Bond Pull over Stitch, post bHAST, 528 Hours	Wires	3/90/0
HAST	A2	-	3	30	Bond Pull over Ball, Post bHAST, 528 Hours	Wires	3/90/0
TC	**A4**	**JEDEC JESD22-A104 and Appendix 3**	3	**77**	**Temperature Cycle, -65/150C**	**500 Cycles**	**3/231/0**
TC	A4	-	3	1	Cross Section, Post T/C 500 Cycles	Completed	-

TC	A4	-	3	22	SAM Analysis, Post T/C, 500 Cycles	Completed	3/66/0
TC	A4	-	3	30	Wire Bond Shear, Post T/C 500 Cycles	Wires	-
TC	A4	-	3	30	Bond Pull over Stitch Post T/C 500 Cycles	Wires	-
TC	A4	-	3	30	Bond Pull over Ball Post T/C 500 Cycles	Wires	-
TC	**A4**	**JEDEC JESD22-A104 and Appendix 3**	**3**	**77**	**Temperature Cycle, -65/150C**	**1000 Cycles**	**3/210/0**
TC	A4	-	3	1	Cross Section, Post T/C 1000 Cycles	Completed	3/3/0
TC	A4	-	3	22	SAM Analysis, Post T/C, 1000 Cycles	Completed	3/66/0
TC	A4	-	3	30	Wire Bond Shear, Post T/C 1000 Cycles	Wires	3/90/0
TC	A4	-	3	30	Bond Pull over Stitch, Post T/C, 1000 Cycles	Wires	3/90/0
TC	A4	-	3	30	Bond Pull over Ball, Post T/C, 1000 Cycles	Wires	3/90/0
PTC	**A5**	**JEDEC JESD22-A105**	**1**	**45**	**Power Temperature Cycle - 40/125C**	**1000 Cycles**	**N/A**
PTC	**A5**	**JEDEC JESD22-A105**	**1**	**45**	**Power Temperature Cycle - 40/125C**	**2000 Cycles**	**N/A**
HTSL	**A6**	**JEDEC JESD22-A103**	**3**	**45**	**High Temp Storage Bake 150C**	**1000 Hours**	**3/135/0**
HTSL	A6	-	3	1	Cross Section, Post HTSL 1000 Hours	Completed	-
HTSL	**A6**	**JEDEC JESD22-A103**	**3**	**44**	**High Temp Storage Bake 150C**	**2000 Hours**	**3/132/0**
HTSL	A6	-	3	1	Cross Section, Post HTSL 2000 Hours	Completed	3/3/0
Test Group C – Package Assembly Integrity Tests							
WBS	C1	AEC Q100-001	3	30	Wire Bond Shear, Cpk>1.67	Wires	3/90/0
WBP	C2	MIL-STD883 Method 2011	3	30	Bond Pull over Ball, Cpk >1.67	Wires	3/90/0

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST & TC samples, as applicable.
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
Green/Pb-free Status:
Qualified Pb-Free(SMT) and Green
TI Qualification ID: 20200214-132986

ZVEI ID: SEM-DE-03, SEM-DE-01, SEM-PW-13, SEM-PW-09, SEM-PW-02,SEM-PW-09, SEM-PW-03, SEM-PA-05, SEM-PA-07, SEM-PA-08, SEM-PA-11, SEM-PA-13, SEM-PA-18, SEM-TF-01, SEM-QG-01

In performing change qualifications, Texas Instruments follows integrated circuit industry standards in performing defect mechanism analysis and failure mechanism-based accelerated environmental testing to ensure wafer fab process, assembly process and product quality and reliability. As encouraged by these standards, TI uses both product-specific and generic (family) data in qualifying its changes. For devices to be categorized as a 'product qualification family' for generic data purposes, they must share similar product, wafer fab process and assembly process elements. The applicability of generic data (also known at TI as Qualification by Similarity (QBS)) is determined by the Reliability Engineering function following these industry standards. Generic data is shown in the qualification report in columns titled "QBS Process" (for wafer fab process), "QBS Package" (for assembly process) and "QBS Product" (for product family).

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