12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20240212000.2
Conversion to TSMC 0.6/0.5um Hybrid Process
Change Notification / Sample Request

Date: February 16, 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 of the 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

20240212000.2
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
OPA2348AQDRQ1	NULL

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

PCN Number:	20240212000.2	PCN Date:	February 16, 2024
Title:	Conversion to TSMC 0.6/0.5um Hybrid Process		
Customer Contact:	Change Management team	Dept:	Quality Services
Proposed 1st Ship Date:	August 14, 2024	Sample requests accepted until:	March 17, 2024*

***Sample requests received after March 17, 2024 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:

This change notification is to announce the conversion from the current TSMC 0.6um back end metallization/REB Etch Back process to the TSMC 0.5um Tungsten plug back end process for the selected devices listed in the "Product Affected" section.

Change From	Change To
0.6um TSMC Backend Process IMD layer: PEOX + SOG DEP+ PEOX Metal: Ti / AlSiCu / TiN	0.5um TSMC Backend Process IMD layer: PEOX+SACVD-OX+PEOX+SOG dep. & Etch back+PEOX Metal: Via Plug TiN/WCVD/AlCu /TiN

Reason for Change:

Quality Improvement.

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

None.

Changes to product identification resulting from this notification:

None.

Product Affected:

OPA2348AQDRQ1

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

Product Attributes

Attributes	Qual Device: OPA2348AQDRQ1	QBS Package Reference: UCC28C56HQDRQ1	QBS Process Reference: OPA356AQDBVRQ1	QBS Package Reference: TLV2314QDRQ1	QBS Package Reference: SN65HVD1781AQDRQ1	QBS Product Reference: OPA348AQDRQ1	QBS Package Reference: SN74AHCT244QDWRQ1	QBS Package Reference: SN65HVDA1040AQDRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Product Function	Signal Chain	Power Management	Signal Chain	Signal Chain	Interface	Signal Chain	Logic	Power Management
Wafer Fab Supplier	TSMC-WF2	RFAB	TSMC-WF2	AIZU	DP1DM5	TSMC-WF2	SH-BIP-1	DL-LIN
Assembly Site	MLA	MLA	TFME	MLA	MLA	MLA	MLA	MLA
Package Group	SOIC	SOIC	SOT	SOIC	SOIC	SOIC	SOIC	SOIC
Package Designator	D	D	DBV	D	D	D	DW	D
Pin Count	8	8	5	8	8	8	20	8

- QBS: Qual By Similarity
- Qual Device OPA2348AQDRQ1 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: OPA2348AQDRQ1	QBS Package Reference: UCC28C56HQDRQ1	QBS Process Reference: OPA356AQDBVRQ1	QBS Package Reference: TLV2314QDRQ1	QBS Package Reference: SN65HVD1781AQDRQ1	QBS Product Reference: OPA348AQDRQ1	QBS Package Reference: SN74AHCT244QDWRQ1
Test Group A - Accelerated Environment Stress Tests														
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	1/Pass	1/Pass	-	1/Pass	3/Pass	-	3/Pass
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	-	-	-	3/Pass	-	-	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	1/77/0	1/77/0	3/77/0	1/77/0	3/231/0	1/77/0	-
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	1/77/0	3/77/0	1/77/0	3/231/0	-	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	1/77/0	3/77/0	1/77/0	3/231/0	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	1/5/0	1/5/0	1/5/0	1/5/0	1/50/0	1/30/0	3/15/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-	4/308/0	-	-	-	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	175C	500 Hours	1/45/0	-	1/45/0	1/45/0	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	3/77/0	1/77/0	2/154/0	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	140C	480 Hours	-	-	-	-	1/77/0	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	300 Hours	1/77/0	-	-	-	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	125C	48 Hours	-	-	3/800/0	-	-	-	-
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	1/30/0	1/30/0	3/228/0	-	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	1/30/0	1/30/0	3/228/0	-	3/90/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	1/15/0	-	1/15/0	-	-	3/35/0
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	-	1/15/0	-	1/15/0	-	-	3/45/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	1/10/0	3/30/0	1/10/0	3/30/0	3/30/0	-	3/30/0
Test Group D - Die Fabrication Reliability Tests														

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: OPA2348AQDRQ1	QBS Package Reference: UCC28C56HQDRQ1	QBS Process Reference: OPA356AQDBVRQ1	QBS Package Reference: TLV2314QDRQ1	QBS Package Reference: SN65HVD1781AQDRQ1	QBS Product Reference: OPA348AQDRQ1	QBS Package Reference: SN74AHCT244QDWRQ1
EM	D1	JESD61	-	-	Electromigration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
Test Group E - Electrical Verification Tests														
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	16000 Volts	-	-	-	-	1/3/0	-	-
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	1/3/0	-	1/3/0	1/3/0	-	1/3/0	-
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2500 Volts	-	1/3/0	-	-	-	-	-
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	4000 Volts	-	-	-	-	1/3/0	-	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	1500 Volts	-	-	-	-	1/3/0	-	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	2000 Volts	-	1/3/0	-	-	-	-	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	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	-	1/77/0	1/6/0	1/6/0	2/12/0	1/6/0	1/6/0	-
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	1/30/0	1/90/0	3/90/0	3/90/0	3/90/0	3/90/0	-
Additional Tests														

- 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-CHG-2301-048

ZVEI ID: SEM-PW-07

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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