PCN Number:	20230928001.1	PCN Date:	September 28, 2023
Title:	Qualification of RFAB using qualified Process Technology, Die Revision and additional Assembly site/BOM options for select devices		
Customer Contact:	Change Management Team	Dept:	Quality Services
Proposed 1st Ship Date:	Dec 29, 2023	Sample requests accepted until:	Oct 29, 2023*

***Sample requests received after Oct 29, 2023 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 addition of RFAB using the LBC9 qualified process technology and BOM options and additional Assembly site (TI Malaysia) for select devices listed below in the product affected section.

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
DMOS5	HPA07	200 mm	RFAB	LBC9	300 mm

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

Construction differences are as follows:

Group 1 Device:

	Current	Proposed
Wire type	0.96mil Au	0.8mil Cu

Group 2 Device:

	ASESH	TI Malaysia
Mount compound	EY1000063	4147858
Mold compound	EN2000508	4211471
Lead finish	Matte Sn	NiPdAu

Qual details are provided in the Qual Data Section.

Reason for Change:

Continuity of supply.

1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties
2) Maximize flexibility within our Assembly/Test production sites.
3) Cu is easier to obtain and stock

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
DMOS5	DM5	USA	Dallas
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

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

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
ASESH	ASH	CHN	Shanghai
TI Malaysia	**MLA**	**MYS**	**Kuala Lumpur**

Sample product shipping label (not actual product label)

Group 1 Product Affected: Wafer fab site, BOM

TLV6004IPWR

Group 2 Product Affected: Assembly site

LM2902LVIPWR	MCP6294IPWT	TLV9054IPWR	TSV914AIPWT
LM324LVIPWR	SN1708039IPWR	TLV9064IPWR	
LMV324AIPWR	SN1805023IPWR	TLV9064IPWT	
MCP6294IPWR	TLV9004IPWR	TSV914AIPWR	

Group 1 Qualification Report

Approve Date 13-JANUARY -2023

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	#	Test Name	Condition	Duration	Qual Device: TLV9004IPWR	QBS Reference: TLV7031QDCKRQ1	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: OPA4991QPWRQ1	QBS Reference: TLV9004QPWRQ1
HAST	A2	Biased HAST	110C/85%RH	264 Hours	-	-	-	1/77/0	-
HAST	A2	Biased HAST	110C/85%RH	264 Hours	-	-	-	2/154/0	-
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0	-	1/77/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	3/231/0	3/231/0	1/77/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/231/0	3/135/0	3/135/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	3/231/0	3/231/0	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	3/2400/0	-	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	1/15/0	-	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	1/15/0	1/15/0	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	3/30/0	1/10/0	-
ESD	E2	ESD CDM	-	500 Volts	-	1/3/0	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	1/3/0	1/3/0	-	-
LU	E4	Latch-Up	Per JESD78	-	-	1/6/0	1/6/0	3/18/0	1/6/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	3/90/0	3/90/0	3/90/0

QBS: Qual By Similarity
Qual Device TLV9004IPWR 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
Quality and Environmental data is available at TI's external Web site: http://www.ti.com/
Green/Pb-free Status: Qualified Pb-Free(SMT) and Green

Group 2 Qualification Report

Approve Date 26-JULY -2023

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	#	Test Name	Condition	Duration	Qual Device: TLV9064IPWR	Qual Device: TLV9054IPWR	QBS Reference: SN74HCS74QPWRQ1	QBS Reference: TLV9064QDRQ1	QBS Reference: TLV9054IDR	QBS Reference: OPA4991QPWRQ1
HAST	A2	Biased HAST	110C/85%RH	264 Hours	-	-	-	-	-	1/77/0
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	3/231/0	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	3/231/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0	3/231/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	3/231/0	2/154/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/135/0	3/135/0	-	1/45/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	3/231/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	3/231/0	1/77/0	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	3/231/0
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	3/2400/0	3/2400/0	-	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	1/15/0	1/15/0	-	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	1/15/0	1/15/0	-	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	3/30/0	3/30/0	-	1/10/0
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	-	-	1/3/0
ESD	E2	ESD CDM	-	250 Volts	-	-	-	-	1/3/0	-
ESD	E2	ESD CDM	-	500 Volts	-	-	1/3/0	1/3/0	-	-
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	-	1/3/0	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	1/3/0	1/3/0	-	-
ESD	E2	ESD HBM	-	4000 Volts	-	-	-	-	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	-	1/6/0	1/6/0	1/6/0	3/18/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	-	1/30/0	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	3/90/0	3/90/0	-	3/90/0

QBS: Qual By Similarity
Qual Device TLV9064IPWR is qualified at MSL1 260C
Qual Device TLV9054IPWR 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
Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

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