12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20211123000.2
Qualification of a new BOM for select devices in the SOIC package

Change Notification / Sample Request

Date: December 28, 2021
To: TOKYO ELECTRON DEVICE (DSTR) 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 additional data is 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 PCN Team (PCN_ww_admin_team@list.ti.com). For sample requests or sample related questions, contact your local Field Sales Representative.

Sincerely,

PCN Team
SC Business Services

20211123000.2
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past sixty (60) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
SN65HVD1050AQDRQ1	null
SN65HVDA1040AQDRQ1	null
SN65HVDA1050AQDRQ1	null
SN65HVD1050QDRQ1	null

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

PCN Number:	20211123000.2	**PCN Date:**	December 28, 2021
Title:	Qualification of a new BOM for select devices in the SOIC package		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	June 28 2022	**Estimated Sample Availability:**	Date provided at sample request

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:

This PCN is to inform of the qualification of a new BOM for the devices in the product affected section as follows:

What	Current	New
Mount Compound	**4042500**	**4147858**
Mold Compound	**4205694**	**4211880**
Leadframe Prep	**Non-Roughened**	**Roughened**

Reason for Change:

Continuity of supply

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:

None

Product Affected:

MLA00149DR	SN65HVD1040AQDRQ1	SN65HVD1050AQDRQ1	SN65HVDA1040AQDRQ1
MLA00312DR	SN65HVD1040QDRQ1	SN65HVD1050QDRQ1	SN65HVDA1050AQDRQ1

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

SOIC/SOP/SSOP Automotive UBOM Enterprise Qualification in TITL
Approved 03-Dec-2018

Product Attributes

Attributes	Qual Device: LT1014DMDW	Qual Device: SN0302035DWRG4	Qual Device: TPIC6A595DWR
Automotive Grade Level	-	Grade 1	Grade 1
Operating Temp Range	-55 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Signal Chain	Signal Chain	Power Management
Wafer Fab Supplier	SFAB	DFAB	DFAB
Die Revision	J	C	C
Assembly Site	TAI	TAI	TAI
Package Type	SOIC	SOIC	SOIC
Package Designator	DW	DW	DW
Ball/Lead Count	16	20	24

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL1-260CG: LT1014DMDW and TPIC6A595DWR
- Qual Device qualified at LEVEL3-260CG: SN0302035DWRG4
- Device LT1014DMDW contains multiple dies.

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LT1014DMDW	Qual Device: SN0302035DWRG4	Qual Device: TPIC6A595DWR
Test Group A – Accelerated Environment Stress Tests										
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 1-260C	No Fails	-	No Fails
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 3-260C	-	No Fails	-
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	2/154/0	3/231/0	3/231/0
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -55/125C	1000 Cycles	2/153/0 (1)	-	-
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -55/150C	1000 Cycles	-	3/228/0 (2)	3/231/0
	TC-BP	A4	MIL-STD883 Method 2011	1	30	Post TC Bond Pull	Wires	2/60/0	3/90/0	3/90/0
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	N/A
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	2/90/0	-	-
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	3/135/0	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests										
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A
Test Group C – Package Assembly Integrity Tests										
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	2/60/0	3/90/0	3/90/0
	WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	2/60/0	3/90/0	3/90/0
	SD	C3	JEDEC JESD22-B102	1	15	Solderability	>95% Lead Coverage	2/30/0	3/45/0	3/45/0
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	2/20/0	3/30/0	3/30/0
	LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	-	-	-

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 Dependant 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

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

Note (1): 1 unit was missing/lost before test.
Note (2): 3 units were missing/lost before test.

TI Qualification ID: 20180507-125733

TEXAS INSTRUMENTS

TI Information
Selective Disclosure

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

Enterprise Qualification (Automotive) - SOIC Gen 2 Hyde D with Consolidated Leadframe
Approved 13-Sep-2021

Product Attributes

Attributes	Qual Device: CD4093BQM96Q1	Qual Device: K3HVD1781QDRQ1	Qual Device: SE555DR	Qual Device: SN103592DR	Qual Device: SN74HCS08QDRQ1	Qual Device: TCAN1043GDRQ1	Qual Device: TCAN1044VDRQ1	Qual Device: TLC5916QDRQ1	Qual Device: TMS3705DDRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 3
Operating Temp Range	-40 to +125 C	-40 to +125 C	-55 to +125 C	-40 to +125 C	-40 to +125 C	-55 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +85 C
Product Function	Signal Chain	Signal Chain	Signal Chain	Power Management	Signal Chain	Signal Chain	Signal Chain	Power Management	Logic
Wafer Fab Supplier	SH-BIP-1	DP1DM5	SH-BIP-1	SH-BIP-1	RFAB	MH8	RFAB	MH8	DL-LIN
Die Revision	-	-	B	C	B0	C	PG2.0	-	C
Assembly Site	FMX	MLA	TAI	TAI	MLA	FMX	MLA	FMX	TAI
Package Type	SOIC	SOIC	SOIC	SOIC	SOIC	SOIC	SOIC	SOIC	SOIC
Package Designator	D	D	D	D	D	D	D	D	D
Ball/Lead Count	14	8	8	8	14	14	8	16	16

- QBS: Qual By Similarity
- Qual Devices CD4093BQM96Q1, K3HVD1781QDRQ1, SE555DR, SN103592DR, SN74HCS08QDRQ1, TCAN1043GDRQ1, TCAN1044VDRQ1,TLC5916QDRQ1 are qualified at LEVEL1-260CG
- Qual Device TMS3705DDRQ1 is qualified at LEVEL3-260CG

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: CD4093BQM96Q1	Qual Device: K3HVD1781QDRQ1	Qual Device: SE555DR	Qual Device: SN103592DR	Qual Device: SN74HCS08QDRQ1	Qual Device: TCAN1043GDRQ1	Qual Device: TCAN1044VDRQ1	Qual Device: TLC5916QDRQ1	Qual Device: TMS3705DDRQ1
Test Group A – Accelerated Environment Stress Tests															
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	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	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Test Group B – Accelerated Lifetime Simulation Tests															
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Test Group C – Package Assembly Integrity Tests															
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0
WBP	C2	MIL-STD883 Metho	1	30	Wire Bond Pull (Cpk>1.67)	-	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: CD4093BQM96Q1	Qual Device: K3HVD1781QDRQ1	Qual Device: SE555DR	Qual Device: SN103592DR	Qual Device: SN74HCS08QDRQ1	Qual Device: TCAN1043GDRQ1	Qual Device: TCAN1044VDRQ1	Qual Device: TLC5916QDRQ1	Qual Device: TMS3705DDRQ1
			d 2011													
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	PB-Free Solder	3/45/0	3/45/0	3/45/0	3/45/0	3/45/0	3/45/0	3/45/0	3/45/0	3/45/0
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	3/30/0	3/30/0	3/30/0	3/30/0	3/30/0	3/30/0	3/30/0	3/30/0	3/30/0
	SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Solder Balls	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	LI	C6	JEDEC JESD22-B105	1	50	Lead Fatigue	Leads	3/66/0	3/66/0	3/66/0	3/66/0	3/66/0	3/66/0	3/66/0	3/66/0	3/66/0
	LI	C6	JEDEC JESD22-B105	1	50	Lead Pull	Leads	3/72/0	3/72/0	3/72/0	3/72/0	3/72/0	3/72/0	3/72/0	3/72/0	3/72/0
Test Group D – Die Fabrication Reliability Tests																
	EM	D1	JESD 61	-	-	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	TDDB	D2	JESD 35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology	Completed Per Process Technology Requirements	Completed Per Process Technology	Completed Per Process Technology	Completed Per Process Technology Requirements	Completed Per Process Technology	Completed Per Process Technology	Completed Per Process Technology	Completed Per Process Technology

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: CD4093BQM96Q1	Qual Device: K3HVD1781QDRQ1	Qual Device: SE555DR	Qual Device: SN103592DR	Qual Device: SN74HCS08QDRQ1	Qual Device: TCAN1043GDRQ1	Qual Device: TCAN1044VDRQ1	Qual Device: TLC5916QDRQ1	Qual Device: TMS3705DDRQ1
								Requirements		Requirements	Requirements		Requirements	Requirements	Requirements	Requirements
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	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	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	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements

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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: 20201023-136790

For questions regarding this notice, e-mails can be sent to the contacts shown below or your local Field Sales Representative.

Location	E-Mail
USA	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
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