

<b>PCN Number:</b>	20210416002.1B	<b>PCN Date:</b>	July 8, 2021
<b>Title:</b>	Qualification of alternate BOM items for select devices		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Aug. 12, 2021	<b>Estimated Sample Availability:</b>	Date provided at sample request
<b>Change Type:</b>			
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Site
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Site
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Materials
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process
<b>PCN Details</b>			
<b>Description of Change:</b>			
<p><b>Revision B</b> is to announce the <u>addition</u> of new devices that were not included on the original PCN notification. These new devices are highlighted and <b>bolded</b> in the device list below and added to Group 2. The expected first shipment date for these new devices will be 90 days from this notice for these newly added devices only.</p>			
<p>This PCN is to inform of an alternative BOM items for the devices in the product affected section as follows:</p>			
<b>Group 1 change description</b>			
<b>Current Bond wire process &amp; Diameter</b>		<b>Additional Bond wire process &amp; diameter</b>	
All bond wires - Au, 0.96 mils		Inter die - Au, 0.96 mils, Die to Leadframe - Cu, 1.0 mils	
<b>Group 2 change description</b>			
<b>Current Bond wire/diameter – die to lead</b>		<b>Additional Bond wire process &amp; diameter – die to lead</b>	
Au/0.96 mils		Cu/1.0 mils	
<b>Group 3 change description</b>			
	<b>Current</b>	<b>Additional bond wire, diameter</b>	
<b>Bond Wire, diameter</b>	Au, 0.8 mils	Cu, 0.8 mils	
<b>Mold Compound</b>	4208625 or SID#445161	4222198	
<b>Group 4 change description</b>			
<b>Current Bond wire, Diameter</b>		<b>Additional Bond wire, diameter</b>	
Au, 1 mil		Cu, 0.96 mil	
<b>Group 5 change description</b>			
<b>Current Bond wire, Diameter</b>		<b>Additional Bond wire, diameter</b>	
Au, 0.9 mil		Cu, 0.96 mil	

**Group 6 change description**

Current Bond wire, Diameter	Additional Bond wire, diameter
Au, 1 mil	Cu, 0.8 mil

**Group 7 change description**

What	Current Bond wire, Diameter	Additional Bond wire, diameter
Die to die bonding	Au, 0.96 mil	Cu, 0.8 mil

**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

**Anticipated impact on Material Declaration**

<input type="checkbox"/>	No Impact to the Material Declaration	<input checked="" type="checkbox"/>	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained at the site link below <a href="http://www.ti.com/quality/docs/materialcontentsearch.tsp">http://www.ti.com/quality/docs/materialcontentsearch.tsp</a>
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**Changes to product identification resulting from this PCN:**

None

**Product Affected:****Group 1 Device list:**

SN21220ADR	UCC21540ADWR	UCC5310MCD	UCC5350MCDR
SN21220DR	UCC21540DW	UCC5310MCDR	UCC5350MCDWV
UCC21220AD	UCC21540DWK	UCC5310MCDWV	UCC5350MCDWVR
UCC21220ADR	UCC21540DWKR	UCC5310MCDWVR	UCC5350SBD
UCC21220D	UCC21540DWR	UCC5320ECD	UCC5350SBDR
UCC21220DR	UCC21541DW	UCC5320ECDR	UCC5390ECD
UCC21222D	UCC21541DWR	UCC5320SCD	UCC5390ECDR
UCC21222DR	UCC21542ADWKR	UCC5320SCDR	UCC5390ECDWV
UCC21530DWK	UCC21542DWKR	UCC5320SCDWV	UCC5390ECDWVR
UCC21530DWKR	UCC21542DWR	UCC5320SCDWVR	UCC5390SCD
UCC21540ADWK	UCC5304DWV	UCC5350MCD	UCC5390SCDR
UCC21540ADWKR	UCC5304DWVR		

**Group 2 Device list:**

<b>ISO7710DW</b>	ISO7731FDW	ISO7762DW	ISO7821LLSDWR
<b>ISO7710DWR</b>	ISO7731FDWR	ISO7762DWR	ISO7830DW
<b>ISO7710FDW</b>	ISO7740DW	ISO7762FDW	ISO7830DWR
<b>ISO7710FDWR</b>	ISO7740DWR	ISO7762FDWR	ISO7830FDW
<b>ISO7720DW</b>	ISO7740FDW	ISO7763DW	ISO7830FDWR
<b>ISO7720DWR</b>	ISO7740FDWR	ISO7763DWR	ISO7831DW
<b>ISO7720FDW</b>	ISO7741BDW	ISO7763FDW	ISO7831DWR
<b>ISO7720FDWR</b>	ISO7741BDWR	ISO7763FDWR	ISO7831FDW
<b>ISO7721BDW</b>	ISO7741DW	<b>ISO7810DW</b>	ISO7831FDWR
<b>ISO7721BDWR</b>	ISO7741DWR	<b>ISO7810DWR</b>	ISO7840DW
<b>ISO7721DW</b>	ISO7741FBDW	<b>ISO7810FDW</b>	ISO7840DWR
<b>ISO7721DWR</b>	ISO7741FBDWR	<b>ISO7810FDWR</b>	ISO7840FDW
<b>ISO7721FBDW</b>	ISO7741FDW	<b>ISO7820DW</b>	ISO7840FDWR
<b>ISO7721FBDWR</b>	ISO7741FDWR	<b>ISO7820DWR</b>	ISO7841DW
<b>ISO7721FDW</b>	ISO7742DW	<b>ISO7820FDW</b>	ISO7841DWR
<b>ISO7721FDWR</b>	ISO7742DWR	<b>ISO7820FDWR</b>	ISO7841FDW
ISO7730DW	ISO7742FDW	ISO7820LLDW	ISO7841FDWR
ISO7730DWR	ISO7742FDWR	ISO7820LLDWR	ISO7842DW
ISO7730FDW	ISO7760DW	<b>ISO7821DW</b>	ISO7842DWR
ISO7730FDWR	ISO7760DWR	<b>ISO7821DWR</b>	ISO7842FDW
ISO7731BDW	ISO7760FDW	<b>ISO7821FDW</b>	ISO7842FDWR
ISO7731BDWR	ISO7760FDWR	<b>ISO7821FDWR</b>	<b>SN005721DW</b>
ISO7731DW	ISO7761DW	ISO7821LLDW	<b>SN005721DWR</b>
ISO7731DWR	ISO7761DWR	ISO7821LLDWR	SN1506011DW
ISO7731FBDW	ISO7761FDW	ISO7821LLSDW	SN1506011DWR
ISO7731FBDWR	ISO7761FDWR		

**Group 3 Device list:**

TPS23880RTQR	TPS23881ARTQT	TPS23882RTQR	TPS2388RTQR
TPS23880RTQT	TPS23881RTQR	TPS23882RTQT	TPS2388RTQT
TPS23881ARTQR	TPS23881RTQT		

**Group 4 Device list:**

LM70CIMM-3	LM70CIMMX-3/NOPB	LM75BIMM-5/NOPB	LM77CIMM-3/NOPB
LM70CIMM-3/NOPB	LM70CIMMX-5/NOPB	LM75BIMMX-3/NOPB	LM77CIMM-5/NOPB
LM70CIMM-5	LM75BIMM-3	LM75BIMMX-5/NOPB	LM77CIMMX-3/NOPB
LM70CIMM-5/NOPB	LM75BIMM-3/NOPB		

**Group 5 Device list:**

LM74CIM-3	LM74CIMX-5/S7001825	LM75BIMX-5	LM77CIM-5/NOPB
LM74CIM-3/NOPB	LM75BIM-3	LM75BIMX-5/NOPB	LM77CIMX-3/NOPB
LM74CIM-5	LM75BIM-3/NOPB	LM76CHM-5	LM77CIMX-5/NOPB
LM74CIM-5/NOPB	LM75BIM-5	LM76CHM-5/NOPB	LM92CIM
LM74CIMX-3	LM75BIM-5/NOPB	LM76CHMX-5/NOPB	LM92CIM/NOPB

LM74CIMX-3/NOPB	LM75BIMX-3	LM77CIM-3	LM92CIMX/NOPB
LM74CIMX-5/NOPB	LM75BIMX-3/NOPB	LM77CIM-3/NOPB	

**Group 6 Device list:**

LM26LVCISD-050/NOPB	LM26LVCISD-115/NOPB	LM57BISDX-10/NOPB	LM95233CISD
LM26LVCISD-060/NOPB	LM26LVCISD-120/NOPB	LM57BISDX-5/NOPB	LM95233CISD/NOPB
LM26LVCISD-065/NOPB	LM26LVCISD-125/NOPB	LM57CISD-10/NOPB	LM95233CISDX/NOPB
LM26LVCISD-070/NOPB	LM26LVCISD-135/NOPB	LM57CISD-5/NOPB	LM95234CISD/NOPB
LM26LVCISD-075/NOPB	LM26LVCISD-140/NOPB	LM57CISDX-10/J7002636	LM95234CISDX/NOPB
LM26LVCISD-080/NOPB	LM26LVCISD-145/NOPB	LM57CISDX-10/NOPB	LM96063CISD/NOPB
LM26LVCISD-085/NOPB	LM26LVCISD-150/NOPB	LM57CISDX-5/NOPB	LM96063CISDX/NOPB
LM26LVCISD-090/NOPB	LM26LVCISDX-060/NOPB	LM71CISD/NOPB	LM96163CISD/NOPB
LM26LVCISD-095/NOPB	LM26LVCISDX-120/NOPB	LM95213CISD/NOPB	LM96163CISDX/NOPB
LM26LVCISD-100/NOPB	LM57BISD-10/NOPB	LM95214CISD/NOPB	LM96194CISQ/NOPB
LM26LVCISD-105/NOPB	LM57BISD-5/NOPB	LM95214CISDX/NOPB	LM96194CISQX/NOPB
LM26LVCISD-110/NOPB			

**Group 7 device List:**

DRV91680RGZR	DRV91690RGZR	DRV91690RGZT
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**Group 1 Qual Memo:**



TI Information  
Selective Disclosure

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: UCC21220DR	Qual Device: UCC5304DWVR	Qual Device: UCC5390ECDWVR	QBS Package Reference: UCC21520ADWR	QBS Package Reference: UCC23513DWY PG1.0	QBS Package Reference: UCC23513DWY PG2.0
AC	Autoclave 121C	96 Hours	-	-	-	3/231/0	3/231/0	1/77/0
CDM	ESD - CDM	1500 V	-	-	-	-	1/3/0	1/3/0
ED	Electrical Characterization	Per Datasheet Parameters	1/30/0	1/30/0	1/30/0	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0	3/231/0	1/77/0
HBM	ESD - HBM	4000 V	-	-	-	-	1/3/0	1/3/0
HTOL	Life Test, 125C	1000 Hours	-	-	-	1/77/0	3/231/0	1/77/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	3/231/0	3/231/0	-
LU	Latch-up	(per JESD78)	-	-	-	-	1/6/0	1/6/0
TC	Temperature Cycle, - 65/150C	500 Cycles	1/77/0	1/77/0	-	3/231/0	3/231/0	1/77/0
WBS	Wire Bond Shear	76 Wires	Pass	Pass	Pass	-	-	-
WBP	Wire Bond Pull	76 Wires	Pass	Pass	Pass	-	-	-

- 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 Qual Memo:**



**TI Information  
Selective Disclosure**

**Approve Date 22-Feb-2021**

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: ISO7763DW	Qual Device: ISO7841FDW	QBS Package Reference: UCC21520ADWR	QBS Package Reference: ISO7741FQDWQ1
AC	Autoclave 121C	96 Hours	1/77/0	1/77/0	3/231/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-
HTOL	Life Test, 125C	1000 Hours	-	-	1/77/0	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	1/77/0	1/77/0	3/231/0	-
WBP	Bond Pull	Wires	1/76/0	1/76/0	-	-
WBS	Ball Bond Shear	Wires	1/76/0	1/76/0	-	-

- QBS: Qual By Similarity
  - Qual Devices ISO7841FDW and ISO7763DW are qualified at LEVEL2-260C
  - Devices ISO7763DW and ISO7841FDW contain multiple dies.
  - 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 (Rev B) Qual Memo:**



TI Information  
Selective Disclosure

**Qualification Report**

**Approve Date 12-May-2021**

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: ISO7721DW	QBS Package Reference: UCC21520ADWR	QBS Package Reference: ISO7741FQDWQ1
AC	Autoclave 121C	96 Hours	1/77/0	3/231/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-
HTOL	Life Test, 125C	1000 Hours	-	1/77/0	3/231/0
HTSL	High Temp Storage Bake 170C	420	-	3/231/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	1/77/0	3/231/0	-
WBP	Bond Pull	Wires	1/76/0	-	-
WBS	Ball Bond Shear	Wires	1/76/0	-	-

- QBS: Qual By Similarity
  - Qual Device ISO7721DW is qualified at LEVEL2-260C
  - Device ISO7721DW contains multiple dies.
  - 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 3 Qual Memo:**



TI Information  
Selective Disclosure

**Qualification Report**  
Approve Date 04-Mar-2021

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: TPS23881ARTQ / TPS23881RTQ	QBS Product Reference: TPS23881ARTQ / TPS23881RTQ	QBS Product Reference: TPS2388RTQ	QBS Product Reference: TPS2388RTQ	QBS Process Reference: SN96019PFP	QBS Package Reference: ADS8548SRGCR	QBS Package Reference: TMP461AIRUN	QBS Package Reference: TPS51217DS CR
ACLV	Autoclave 121C	96 Hours	3/231/0	-	-	-	3/240/0	3/231/0	-	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	3/Pass	Pass	Pass	Pass	Pass	-	Pass	-
CDM	ESD - CDM	1500 V	-	1/3/0	1/3/0	1/3/0	3/9/0	-	-	-
HBM	ESD - HBM	2500 V	-	1/3/0	-	1/3/0	-	-	1/3/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-	1/77/0	-	3/240/0	3/231/0	-	-
HAST	Biased HAST, 130C/85%RH	192 Hours	3/231/0	-	-	-	-	-	-	-
HTOL	Life Test, 145C	400 Hours	-	-	1/77/0	1/77/0	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	3/239/0	-	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	-	-	3/231/0
HTSL	High Temp Storage Bake 150C	1000 Hours	3/231/0	-	-	-	-	-	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	1/77/0	-	3/240/0	3/231/0	-	3/231/0
LU	Latch-up	(per JESD78)	-	1/6/0	1/6/0	1/6/0	1/6/0	-	1/6/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	1/77/0	1/77/0	3/231/0	3/231/0	3/231/0	3/231/0
TPI	Thermal Path Integrity (Cu Wire)	(per the appropriate pkg level)	1/12/0	-	-	-	-	-	-	-
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	1/77/0	-	-	-	3/231/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site)	3/Pass	-	-	-	-	-	-	-

  

Type	Test Name / Condition	Duration	Qual Device: TPS23881ARTQ / TPS23881RTQ	QBS Product Reference: TPS23881ARTQ / TPS23881RTQ	QBS Product Reference: TPS2388RTQ	QBS Product Reference: TPS2388RTQ	QBS Process Reference: SN96019PFP	QBS Package Reference: ADS8548SRGCR	QBS Package Reference: TMP461AIRUN	QBS Package Reference: TPS51217DS CR
		specification)								
BPS	Wire Pull	30 wires minimum of 5 units	3/90/0	-	-	-	-	-	-	-
BPS	Bond Shear	30 wires minimum of 5 units	3/90/0	-	-	-	-	-	-	-
YLD	FTY and BIN Analysis	3/90/0	4/Pass (A)	Pass	Pass	Pass	-	-	-	-

- QBS: Qual By Similarity  
- Qual Device TPS23881RTQ and TPS23881ARTQ are qualified at LEVEL3-260C

Note:  
A – FTY and Bin Analysis were performed on 4 products - TPS23880RTQ, TPS23881ARTQ, TPS23881RTQ, TPS2388RTQ

- 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 4 Qual Memo:



TI Information  
Selective Disclosure

### Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: LMV852MMX	Qual Device: LMC6482IMM
PC	PreCon Level 1	Level 1-260C	3/462/0	3/462/0
HAST	Biased HAST, 130C/85%RH	96/hrs. @130C	-	-
AC	Autoclave 121C	96HRS	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	TMCL500X	3/231/0	3/231/0
HTSL	High Temp Storage Bake 150C	1000 hrs. @150C	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass
DPA	Destructive Physical Analysis Post 500 Temp Cycle	x-section and de process to examine assembly robustness, Check for stich bond and bond pad integrity	3/15/0	3/15/0
YLD	FTY and Bin Summary	Compare against baseline	Pass	Pass

- 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 5 Qual Memo:**



TI Information  
Selective Disclosure

**Approved on 11-Nov-2013**

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: DS90CP22MXA1CL	Qual Device: LMV324MX	Qual Device: LP2995MXNOPB	Qual Device: LMC6482AIM/NOPB
PC	PreCon Level 1	Level 1-260C	3/462/0	-	3/462/0	3/693/0
HAST	Biased HAST, 130C/85%RH	96/hrs. @130C	-	-	-	3/231/0
AC	Autoclave 121C	96HRS	3/231/0	-	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	TMCL500X	3/231/0	-	3/231/0	3/231/0
HTSL	High Temp Storage Bake 150C	1000 hrs. @150C	-	-	-	1/77/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	-	Pass	Pass	Pass
DPA	Destructive Physical Analysis Post 500 Temp Cycle	x-section and de process to examine assembly robustness, Check for stich bond and bond pad integrity	3/15/0	-	3/15/0	3/15/0
YLD	FTY and Bin Summary	Compare against baseline	-	Pass	Pass	Pass

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- 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 6 Qual Memo:**

**Approved on 23-Sep-2014**

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: DP83848T SQ	Qual Device: DS91M040TSQ AW	Qual Device: DS100DX410E L16	Qual Device: DS80PCI402A 2TT	Qual Device: LMH0366SQEN OPB	Qual Device: LMH0394SQ/N OPB
PC	PreCon Level 1	Level 1-260C					3/720/0	
PC	PreCon Level 2	Level 2-260C	3/1079/0		-	3/720/0	-	-
PC	PreCon Level 3	Level 3-260C	-	1/255/0	3/720/0	-	-	3/231/0
HAST	Biased HAST, 130C/85%RH	96hrs. @130C	-	-	-	-	-	3/231/0
AC	Autoclave 121C	96HRS	3/231/0	1/77/0	3/231/0	3/231/0	3/231/0	-
UHAST	Unbiased HAST 130C/85%RH	unHAST-96 HRS/-	3/231/0	1/77/0	3/231/0	3/231/0	3/231/0	-
TC	Temperature Cycle, -65/150C	TMCL500 X	3/231/0	1/77/0	3/231/0	3/231/0	3/231/0	-
HTSL	High Temp Storage Bake 170C	420 hrs. @170C	3/231/0	-	-	3/231/0	-	-
ED	Side By Side Electrical Characterization	Per Datasheet Parameters	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	Pass	Pass
MSL	Thermal Path Integrity	Level 2-260C	3/30/0	1/22/0	3/66/0	3/66/0	3/66/0	-
DPA	Destructive Physical Analysis Post 500 Temp Cycle	x-section and de process to examine assembly robustness, Check for stitch bond and bond pad integrity	3/3/0	-	3/15/0	3/15/0	3/15/0	1/5/0 Post 96 hours HAST
YLD	FTY and Bin Summary	Compare against baseline	Pass	Pass	Pass	Pass	Pass	Pass

- QBS: Qual By Similarity
- Qual Device DS100DX410EL16 is qualified at LEVEL3-260C
- Qual Device DS80PCI402A2TT is qualified at LEVEL2-260C
- Qual Device LMH0366SQENOPB is qualified at LEVEL1-260C
- Qual Device LMH0394SQ/NOPB is qualified at -
- Qual Device LMH0394SQ/NOPB REV A is qualified at LEVEL3-260C

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- 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/>

**Group 7 Qual Memo:**



TI Information  
Selective Disclosure

**Qualification Report**

**Approve Date 19-Apr-2021**

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: DRV91680RGZR	QBS Product Reference: DRV91680RGZR	QBS Process Reference: SN74SSTUB3286ZWL	QBS Process Reference: TPS62110R3A	QBS Package Reference: SH686ACC0RGCRG4 CU WIRE	QBS Package Reference: TPS61020DRC CU WIRE
-	Manufacturability (assembly)	(per mfg. Site specification)	-	1/Pass	-	-	-	-
AC	Autoclave 121C	240 Hours	-	-	-	3/231/0	3/231/0	3/231/0
AC	Autoclave 121C	96 Hours	-	1/77/0	-	3/231/0	3/231/0	3/231/0
CDM	ESD - CDM	1500 V/-	-	1/3/0	-	-	-	-
CDM	ESD - CDM	250V	-	-	1/3/0	-	-	-
CDM	ESD - CDM	400V	-	-	1/3/0	-	-	-
CDM	ESD-CDM	500 V	-	-	-	3/9/0	-	-
DS	Die Shear	--	-	-	-	-	3/30/0	3/30/0
ED	Electrical Characterization	-	-	1/30/0	-	-	-	-
ELFR	Early Life Failure Rate, 140C	48 Hours	-	-	-	3/1881/0	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0	3/231/0	-
HBM	ESD - HBM	2500 V	-	1/3/0	-	-	-	-
HBM	ESD-HBM	1000 V	-	-	-	3/9/0	-	-
HBM	ESD-HBM	1500 V	-	-	-	3/9/0	-	-
HBM	ESD-HBM	2000 V	-	-	-	3/9/0	-	-
HBM	ESD-HBM	500 V	-	-	-	3/9/0	-	-
HTOL	Life Test, 125C	1000 Hours	-	3/239/0	3/348/0	-	3/421/0	-
HTOL	Life Test, 140C	480 Hours	-	-	-	3/231/0	-	-
HTSL	High Temp Storage Bake 150C	500	-	1/77/0	-	-	-	-

Type	Test Name / Condition	Duration	Qual Device: DRV91680RGZR	QBS Product Reference: DRV91680RGZR	QBS Process Reference: SN74SSTUB3286ZWL	QBS Process Reference: TPS62110RSA	QBS Package Reference: SH6966ACC0RGCRG4 CU WIRE	QBS Package Reference: TPS61020DRC CU WIRE
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0	3/231/0	3/231/0	3/231/0
HTSL	High Temp Storage Bake 170C	600 Hours	-	-	3/231/0	-	-	-
LU	Latch-up	(per JESD78)	-	2/12/0	-	3/15/0	-	-
MISC	Salt Atmosphere	24 Hours	-	-	-	-	3/66/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	3/Pass	-	1/76/0	-	-	-
MQ	Manufacturability (MIHO)	(per mfg. Site specification)	-	1/Pass	-	-	-	-
MQ	Manufacturability (TSMC)	(per mfg. Site specification)	-	1/Pass	-	-	-	-
MQ	Manufacturability (Wafer Fab)	(per mfg. Site specification)	-	-	-	1/Pass	-	-
MQ	Manufacturability, Assembly	(per mfg. Site specification)	-	-	-	-	3/Pass	3/Pass
MSL	Thermal Path Integrity	Level 2-260C	-	-	-	-	-	3/36/0
MSL	Thermal Path Integrity	Level 3-260C	1/12/0	2/24/0	-	-	3/66/0	-
PD	Physical Dimensions	--	-	-	-	-	3/15/0	3/15/0
SD	Solderability	8 Hours Steam Age	-	-	-	-	3/66/0	-
TC	Temperature Cycle, -65/150C	1000 Cycles	-	1/77/0	3/231/0	3/231/0	3/239/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	3/231/0	3/231/0	3/256/0	3/261/0
UHAST	Unbiased HAST 130C/85%RH	240 Hours	-	-	3/231/0	-	-	-
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	3/231/0	-	-	-
VM	Visual / Mechanical	(per mfg. Site specification)	-	-	-	-	3/Pass	3/Pass
WBP	Bond Pull	76 Wires, 3 units min	3/228/0	-	3/228/0	-	3/228/0	3/228/0
WBS	Ball Bond Shear	76 balls, 3 units min	3/228/0	-	-	-	3/228/0	3/228/0
XRAY	X-ray	(top side only)	-	-	-	-	3/15/0	3/15/0

Type	Test Name / Condition	Duration	Qual Device: DRV91680RGZR	QBS Product Reference: DRV91680RGZR	QBS Process Reference: SN74SSTUB3286ZWL	QBS Process Reference: TPS62110RSA	QBS Package Reference: SH6966ACC0RGCRG4 CU WIRE	QBS Package Reference: TPS61020DRC CU WIRE
YLD	Final Test Yield	Approved	-	-	-	-	3/Pass	3/Pass

- 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

- QBS: Qual By Similarity

- Qual Device DRV91680RGZR is qualified at LEVEL3-260CG

- Device DRV91680RGZR contains multiple dies.

## Group 8 Qual Memo:

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	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
Europe	<a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>
Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
WW PCN Team	<a href="mailto:PCN_ww_admin_team@list.ti.com">PCN_ww_admin_team@list.ti.com</a>

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