PCN Number:	20210820000.2B	PCN Date:	November 15, 2021
Title:	Qualification of TI Chengdu as an additional Assembly and Test site for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Mar 1, 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:

Revision B is to announce the addition of new devices that was not included on the original PCN notification. The new devices are highlighted and **bolded** in the device list below under Group 1. The expected first shipment date for the new devices will be 180 days from this notice (May 18, 2022) for the newly added devices only. The proposed 1st ship date of Mar 01, 2022 still applies for the original set of devices.

Texas Instruments is pleased to announce the qualification of TI Chengdu as additional Assembly and Test Site for Select Devices listed in the "Product Affected" Section. Material differences are as follows.

Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City
UTAC	NSE	THA	Bangkok
TI Chengdu	CDA	CHN	Chengdu

Group 1 Material Differences:

	UTAC	TI Chengdu
Mount Compound	PZ0035	4207123
Lead finish	Matte Sn	NiPdAu

Group 2 Material Differences:

	UTAC	TI Chengdu
Mount Compound	PZ0035	4207123
Wire diameter	2.0 mil Cu	1.3mil Cu
Lead finish	Matte Sn	NiPdAu

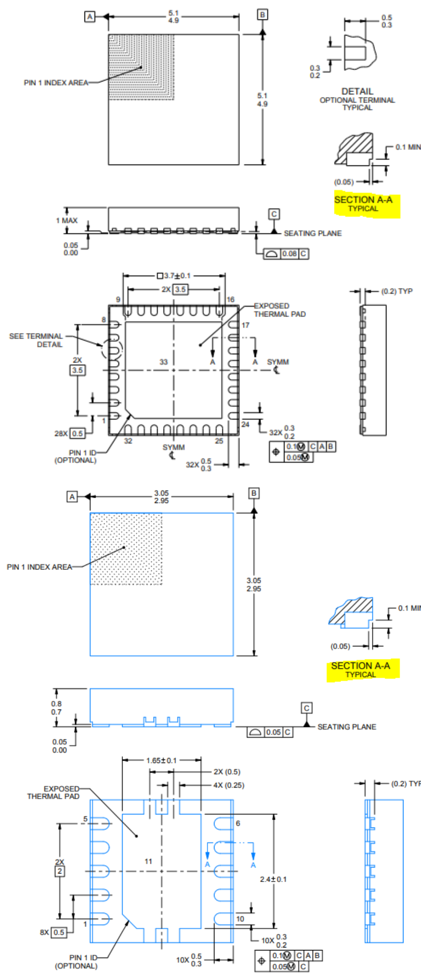
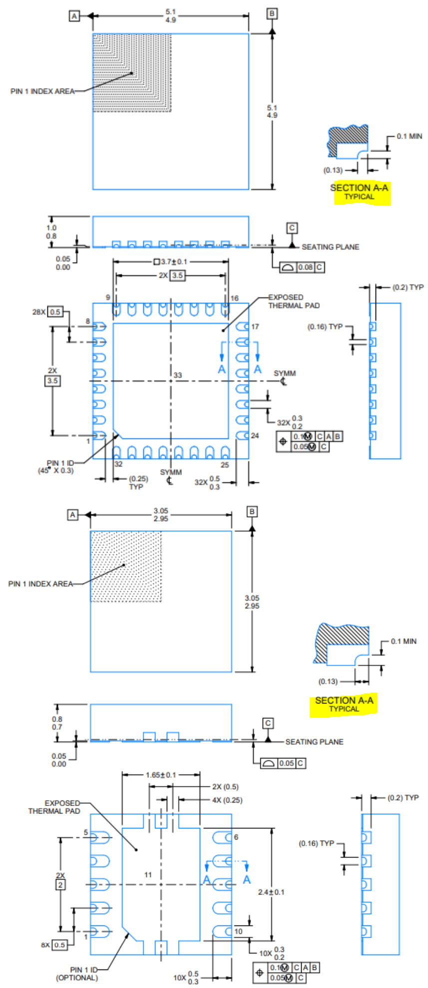
Group 3 Material Differences:

	UTAC	TI Chengdu
Mount Compound	PZ0035	4207123
Wire type	1mil, 1.3mil Au	0.8mil, 1mil Cu
Lead finish	Matte Sn	NiPdAu

Test coverage, insertions, conditions will remain consistent with current testing.

Package Outline Drawing Differences:

	UTAC	TI Chengdu

Package Drawing		
Wettable Flank design	Step Cut	Dimple

Reason for Change:

Continuity of supply.

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

None

Impact on Environmental Ratings

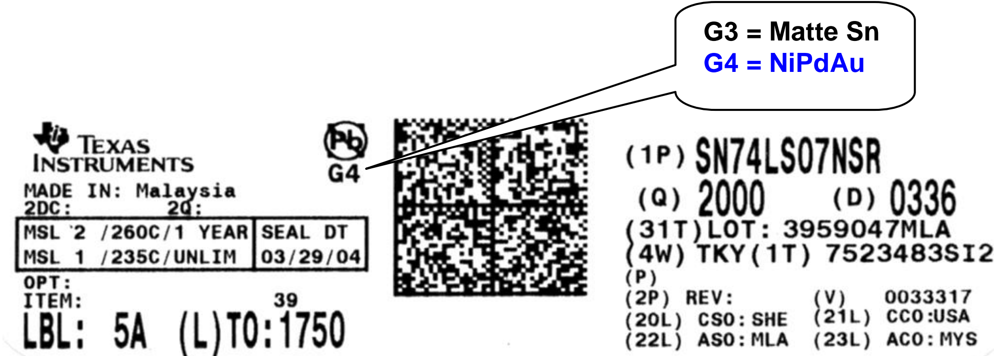
Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

Changes to product identification resulting from this PCN:

Assembly Site		
UTAC	Assembly Site Origin (22L)	ASO: NSE
CDAT	Assembly Site Origin (22L)	ASO: CDA

Sample product shipping label (not actual product label)



Group 1 Product Affected:

DS90UB935TRHBRQ1	LM53600LQDSXRRB	**TCAN1043DMTRQ1**	TCAN1046DMTRQ1
DS90UB935TRHBTQ1	LM53600LQDSXTRB	**TCAN1043DMTTQ1**	TCAN1046VDMTRQ1
DS90UB951TRHBRQ1	LM53600NQDSXRRB	**TCAN1043GDMTRQ1**	TLIN1022ADMTRQ1
DS90UB951TRHBTQ1	LM53601AQDSXRRB	**TCAN1043GDMTTQ1**	TLIN1022DMTRQ1
DS90UB953ATRHBRQ1	LM53601LQDSXRRB	**TCAN1043HDMTRQ1**	TLIN1022DMTTQ1
DS90UB953ATRHBTQ1	LM53601LQDSXTRB	**TCAN1043HDMTTQ1**	TLIN2022DMTRQ1
DS90UB953TRHBRQ1	LM53601NQDSXRRB	**TCAN1043HGDMTRQ1**	TLIN2022DMTTQ1
DS90UB953TRHBTQ1	SN191046VDMTRQ1	**TCAN1043HGDMTTQ1**	

Group 2 Product Affected:

LM536003QDSXRQ1	LM53601AQDSXRQ1	LM53600LQDSXRQ1	LM536013QDSXRQ1
LM536003QDSXTQ1	LM53601AQDSXTQ1	LM53600LQDSXTQ1	LM53601MQDSXRQ1
LM536005QDSXRQ1	LM53601AQWDSXTQ1	LM53600LQWDSXRQ1	LM53601MQDSXTQ1
LM536005QDSXTQ1	LM53601LQDSXRQ1	LM53600LQWDSXTQ1	LM53601NQDSXRQ1
LM53600AQDSXRQ1	LM53601LQDSXTQ1	LM53600MQDSXRQ1	LM53601NQDSXTQ1
LM536013QDSXTQ1	LM53601LQWDSXRQ1	LM53600MQDSXTQ1	
LM536015QDSXRQ1	LM53601LQWDSXTQ1	LM53600NQDSXRQ1	
LM536015QDSXTQ1	LM53600AQDSXTQ1	LM53600NQDSXTQ1	

Group 3 Product Affected:

LM25141QRGERQ1	TPS3850G09QDRCRQ1	TPS3850G33QDRCRQ1	TPS3850H18QDRCRQ1
LM25141QRGETQ1	TPS3850G12QDRCRQ1	TPS3850G50QDRCRQ1	TPS3850H25QDRCRQ1
LM5141QRGERQ1	TPS3850G18QDRCRQ1	TPS3850H01QDRCRQ1	TPS3850H30QDRCRQ1
LM5141QRGETQ1	TPS3850G25QDRCRQ1	TPS3850H09QDRCRQ1	TPS3850H33QDRCRQ1
TPS3430WQDRCRQ1	TPS3850G30QDRCRQ1	TPS3850H12QDRCRQ1	TPS3850H50QDRCRQ1

Group 1 and 2 Qualification Report

Qualification Report (TCAN1043xxx)

Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)
Approved 04-Nov-2021

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: TCAN1043DMTRQ1 (MFAB)	Qual Device: TCAN1043DMTRQ1 (MH8)	QBS Product Reference: TCAN1043DMTQ1	QBS Process Reference: TCAN1042HVDRQ1_MFAB	QBS Process Reference: TCAN1042HVDRQ1	QBS Process Reference: TCAN1051VDRQ1	QBS Package Reference: CAXC8T245QRHLRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: UCC27282QDRCQ1
Test Group A – Accelerated Environment Stress Tests																
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 1-260C	-	-	-	No Fails	No Fails	No Fails	No Fails	-	-
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 2-260C	No Fails	No Fails	No Fails	-	-	-	-	No Fails	No Fails
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	1/77/0	3/231/0	3/231/0	2/154/0	1/77/0	3/231/0	3/231/0	3/231/0
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	1/77/0	3/231/0	3/231/0	2/154/0	1/77/0	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	1/77/0	1/77/0	3/231/1 (1)	3/231/0	2/154/0	1/77/0	3/231/0	3/231/0	3/231/0

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TCAN1043DMTRQ1 (MFAB)	Qual Device: TCAN1043DMTRQ1 (MH8)	QBS Product Reference: TCAN1043DMTQ1	QBS Process Reference: TCAN1042HVDRQ1_MFAB	QBS Process Reference: TCAN1042HVDRQ1	QBS Process Reference: TCAN1051VDRQ1	QBS Package Reference: CAXC8T245QRHLRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: UCC27282QDRCQ1
TC-WBP	A 4	MIL-STD883 Method 2011	1	30	Bond Pull Post T/C 500 Cycles	Wires	1/30/0	1/30/0	3/90/0	3/90/0	2/60/0	1/30/0	3/90/0	3/90/0	3/90/0
PTC	A 5	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
HTSL	A 6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	1/45/0	-	3/135/0	-	-	3/135/0	1/77/0	-
HTSL	A 6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	-	3/135/0	-	2/90/0	1/45/0	-	-	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests															
HTOL	B 1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	3/231/0	-	-	-	3/231/0	-	-
HTOL	B 1	JEDEC JESD22-A108	3	77	Life Test, 150C	1000 Hours	-	-	-	-	-	-	-	-	3/231/0
HTOL	B 1	JEDEC JESD22-A108	3	77	Life Test, 150C	300 Hours	-	-	-	3/231/0	2/154/1 (2)	1/77/0	-	-	-
ELFR	B 2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	-	3/2400/0	2/1600/0	1/800/0	-	-	-
ELFR	B 2	AEC Q100-008	3	800	Early Life Failure Rate, 140C	48 Hours	-	-	-	-	-	-	-	-	3/2400/0
EDR	B 3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	-	-	-	-	-	-	-	-	-
Test Group C – Package Assembly Integrity Tests															
WBS	C 1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	1/30/0	1/30/0	3/90/0	3/228/0	2/60/0	1/30/0	3/90/0	3/90/0	3/90/0
WBP	C 2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	1/30/0	1/30/0	3/90/0	3/228/0	2/60/0	1/30/0	3/90/0	3/90/0	3/90/0
SD	C 3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Free Solder	-	-	1/15/0	1/15/0	-	-	-	1/15/0	-
SD	C 3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Solder	-	-	1/15/0	1/15/0	-	-	-	1/15/0	-
PD	C 4	JEDEC JESD22-B100	3	10	Physical Dimensions	Cpk> 1.67	1/10/0	1/10/0	3/30/0	3/30/0	-	-	3/90/0	3/30/0	3/30/0

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TCAN1043DMTRQ1 (MFAB)	Qual Device: TCAN1043DMTRQ1 (MH8)	QBS Product Reference: TCAN1043DMTQ1	QBS Process Reference: TCAN1042HVDRQ1_MFAB	QBS Process Reference: TCAN1042HVDRQ1	QBS Process Reference: TCAN1051VDRQ1	QBS Package Reference: CAXC8T245QRHLRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: UCC27282QDRCQ1
		and B108													
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 Integrity	Leads	-	-	-	3/66/0	-	-	-	-	-
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	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 Dependant 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	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	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

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TCAN1043DMTRQ1 (MFAB)	Qual Device: TCAN1043DMTRQ1 (MH8)	QBS Product Reference: TCAN1043DMTQ1	QBS Process Reference: TCAN1042HVDRQ1_MFAB	QBS Process Reference: TCAN1042HVDRQ1	QBS Process Reference: TCAN1051VDRQ1	QBS Package Reference: CAXC8T245QRHLRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: UCC27282QDRCQ1
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
Test Group E – Electrical Verification Tests															
HBM	E2	AEC Q100-002	1	3	ESD - HBM	4000 V	-	-	1/3/0	-		-	-	1/3/0	3/9/0
HBM	E2	AEC Q100-002	1	3	ESD - HBM	6000 V	-	-	-	-	1/3/0	1/3/0	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM	1500 V	-	-	1/3/0	-	2/6/0	1/3/0	-	1/3/0	3/9/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM	1000 V	-	-	-	-	-	-	1/3/0	-	-
LU	E4	AEC Q100-004	1	6	Latch-up	Per AEC Q100-004	-	-	1/6/0	-	2/12/0	1/6/0	1/6/0	1/6/0	2/12/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk> 1.67	1/30/0	1/30/0	3/90/0	-	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device TCAN1043DMTRQ1 (MFAB/MH8) is qualified at LEVEL2-260C

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

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

Approved 10-Aug-2021

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: DS90UB935TRHBRQ1 DS90UB953ATRHBRQ1 DS90UB951TRHBRQ1	Qual Device DP83TG720S-Q1	QBS Process Reference: DS90UH949TRGCRQ1	QBS: Device Reference: DS90UB953ATRHBRQ1
Test Group A – Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 3-260C	-	No Fails	No Fails	No Fails
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0	3/231/0
UHAST	A3	JEDEC JESD22-A110	3	77	Unbiased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0	3/135/0
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
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Post Temp Cycle Bond Pull	Wires	-	3/90/0	1/30/0	3/90/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	-	NA	NA	N/A
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	3/135/0	3/135/0	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests										
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	3/231/0	3/231/0	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	24 Hours	-	-	3/2400/0	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational	--	-	-	NA	NA

					Life					
Test Group C – Package Assembly Integrity Tests										
WBS	C 1	AEC Q100-001	1	30	Bond Shear (Cpk>1.67)	Wires	3/90/0	3/90/0	3/90/0	3/90/0
WBP	C 2	MIL-STD883 Method 2011	1	30	Bond Pull (Cpk>1.67)	Wires	3/90/0	3/90/0	3/90/0	3/90/0
SD	C 3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Solder	1/15/0	3/45/0	3/45/0	1/15/0
SD	C 3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Free Solder	1/15/0	3/45/0	3/45/0	1/15/0
PD	C 4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)		3/30/0	3/30/0	3/30/0	3/30/0
Test Group D – Die Fabrication Reliability Tests										
EM	D 1	JESD61	-	-	Electromigration	--	--	Completed Per Process Technology Requirements	-	Completed Per Process Technology Requirements
TDDB	D 2	JESD35	-	-	Time Dependant Dielectric Breakdown	--	--	Completed Per Process Technology Requirements	-	Completed Per Process Technology Requirements
HCI	D 3	JESD60 & 28	-	-	Hot Injection Carrier	--	--	Completed Per Process Technology Requirements	-	Completed Per Process Technology Requirements
NBTI	D 4	-	-	-	Negative Bias Temperature Instability	--	--	Completed Per Process Technology Requirements	-	Completed Per Process Technology Requirements
SM	D 5	-	-	-	Stress Migration	--	--	Completed Per Process Technology Requirements	-	Completed Per Process Technology Requirements
Test Group E – Electrical Verification Tests										
HBM	E 2	AEC Q100-002	1	3	ESD - HBM	4000V	-	1/3/0	1/3/0	1/3/0
CDM	E 3	AEC Q100-011	1	3	ESD - CDM	500 V	-	1/3/0	1/3/0	1/3/0
LU	E 4	AEC Q100-004	1	6	Latch-up-25C	(Per AEC Q100-004)	-	1/6/0	1/6/0	1/6/0
LU	E 4	AEC Q100-004	1	6	Latch-up-125C	(Per AEC Q100-004)	-	1/6/0	1/6/0	3/90/0
ED	E 5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67	3/90/0	3/90/0	3/90/0	3/90/0
ESD	E 6	ESD-IEC Air Gap	1	6	ESD-IEC Air Gap	18KV	-	-	-	1/6/0
ESD	E	ESD-	1	6	ESD-IEC Air	8KV	-	-	-	1/6/0

	7	IEC Air Contact			Contact					
ESD	E 8	ESD-ISO Contact	1	6	ESD-ISO Contact	8KV	-	-	-	1/6/0
ESD	E 9	ESD-ISO Air Gap	1	6	ESD-ISO Air Gap	18KV	-	-	-	1/6/0

- QBS: Qual By Similarity
- Qual Device DS90UB935TRHBRQ1,DS90UB953ATRHBRQ1, DS90UB951TRHBRQ1 are qualified at LEVEL3-260C

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

Qualification Report

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

Approved 19-Aug-2021

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: LM53600LQDSXRRB	Qual Device: LM53600LQDSXRRB	QBS Process Reference: LM43603QPWPQ1	QBS Process Reference: TPS653853QDCARQ1	QBS Package Reference: DRV8703QRHBRQ1 DRV8702QRHBRQ1	QBS Package Reference: LM63625DQDRRQ1	QBS Package Reference: TPS7B8550QWDRCRQ1
Test Group A – Accelerated Environment Stress Tests													
PC	A 1	JEDEC J-STD-020 JESD 22-A113	3	77	Preconditioning	Level 2-260C	No Fails	-	No Fails	No Fails	No Fails	No Fails	No Fails
HAST	A 2	JEDEC JESD 22-A110	3	77	Biased HAST, 130C/85 %RH	96 Hours	-	-	3/231/0	3/231/0	3/231/0	3/231/0	1/77/0
AC	A 3	JEDEC JESD 22-A102	3	77	Autoclave 121C	96 Hours	-	-	3/231/0	3/231/0	3/231/0	-	-
UHAST	A 3	JEDEC JESD 22-A102	3	77	Unbiased HAST 130C/85 %RH	96 Hours	-	-	-	-	-	3/231/0	3/231/0

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: LM53600LQDSXRRB	Qual Device: LM53600LQDSXRRB	QBS Process Reference: LM43603QPWPQ1	QBS Process Reference: TPS653853QDCARQ1	QBS Package Reference: DRV8703QRHBRQ1 DRV8702QRHBRQ1	QBS Package Reference: LM63625DQDRRQ1	QBS Package Reference: TPS7B8550QWDRCRQ1
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	1/77/0	-	3/231/0	3/231/0	3/231/0	-	3/231/0
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull Post T/C 500 Cycles	Wires	1/60/0	-	1/60/0	1/60/0	-	-	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	N/A	N/A	-	1/45/0	-	-	1/45/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	-	Covered in EDR	-	3/135/0	-	3/231/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	-	-	Covered in EDR	-	3/145/0	-
Test Group B – Accelerated Lifetime Simulation Tests													
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	-	3/231/0	1/77/0	-	1/77/0
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	408 Hours	-	-	3/231/1 (3)	-	-	1/77/0	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours			-	3/2400/0	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 Hours	-	-	3/2400/4 (3)	-	-	-	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	3/231/1 (3)	3/231/0	-	-	1/77/0
Test Group C – Package Assembly Integrity Tests													

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: LM53600LQDSXRRB	Qual Device: LM53600LQDSXRRB	QBS Process Reference: LM43603QPWPQ1	QBS Process Reference: TPS653853QDCARQ1	QBS Package Reference: DRV8703QRHBRQ1 DRV8702QRHBRQ1	QBS Package Reference: LM63625DQDRRQ1	QBS Package Reference: TPS7B8550QWDRCRQ1
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk>1.67	Wires	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull Cpk >1.67	Wires	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0
SD	C3	JEDEC JESD22-B102	1	15	Solderability >95% Lead Coverage	Pb Free Solder	-	-	1/15/0	1/15/0	1/15/0	-	1/15/0
SD	C3	JEDEC JESD22-B102	1	15	Solderability >95% Lead Coverage	Pb Solder	-	-	-	-	1/15/0	-	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	1/30/0	-	1/15/0	3/30/0	3/30/0	3/30/0	3/90/0
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
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	N/A	N/A	-	-	N/A	N/A	N/A
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	Completed Per Process Technology Requirements	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	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 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

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: LM53600LQDSXRRB	Qual Device: LM53600LQDSXRRB	QBS Process Reference: LM43603QPWPQ1	QBS Process Reference: TPS653853QDCARQ1	QBS Package Reference: DRV8703QRHBRQ1 DRV8702QRHBRQ1	QBS Package Reference: LM63625DQDRRQ1	QBS Package Reference: TPS7B8550QWDRCRQ1
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
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													
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2000 V	-	-	-	1/3/0	-	-	1/3/0
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2500 V	-	-	1/3/0	-	-	1/3/0	-
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	4000 V	-	-	-	-	1/3/0	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	500 V	-	-	-	1/3/0	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	750 V (corner pins)	-	-	-	1/3/0	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 V	-	-	1/3/0	-	-	1/3/0	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	-	-	-	1/3/0	-	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	(Per AEC-Q100-004)	-	-	1/6/0	1/6/0	1/6/0	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold test	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device LM53600LQDSXRRB is qualified at LEVEL2-260C

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

Notes:
1) LM53600LQDSXRRB QBS's to LM43603QPWPQ1 (DMOS5), TPS653853QDCARQ1 (RFAB) and DRV8702QRHBRQ1, DRV8703QRHBRQ1, LM63625DQDRRQ1,TPS7B8550QWDRCRQ1 reliability tests
2) DSX Devices listed in PCN Product Affected will QBS to the Qual devices die and package attributes which have been verified to be similar to Qual Devices
3) Fails discounted. Root cause EOS Driver board exceeded Vin caused ESD diode (EN/Vin) to turn on and EOS damaged during ATE (not seated properly in socket)

Qualification Report

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

Approved 05-Aug-2021

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: TCAN1046DMTRQ1	Qual Device: TCAN1046VDMTRQ1	Qual Device: TLIN1022ADMTRQ1	Qual Device: TLIN1022DMTRQ1	QBS Process Reference: TLC6C5816QPWPRQ1	QBS Process Reference: TPS61378QWRTERQ1	QBS Package Reference: TLIN2027DRBRQ1	QBS Package Reference: TCAN1046AVDMTRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: TLIN10283DRBRQ1	QBS Package Reference: TLIN10285DRBRQ1
Test Group A – Accelerated Environment Stress Tests																	
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 3	Level 3-260C	-	-	-	-	No Fails	-	-	-	-	-	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 2-260C	-	-	-	-	-	No Fails	No Fails	No Fails	No Fails	No Fails	No Fails
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85 %RH	96 Hours	-	-	-	-	3/231/0	3/231/0	3/231/0	1/77/0	3/231/0	1/77/0	2/154/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	-	-	-	3/231/0	-	3/231/0	3/231/0	3/231/0	1/77/0	2/154/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -55/150C	1000 Cycles	-	-	-	-	-	-	1/77/0	-	-	-	1/77/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	-	-	-	3/231/0	3/231/0	2/154/0	3/231/0	3/231/0	1/77/0	1/77/0
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull Post T/C 500 Cycles	Wires	-	-	-	-	1/60/0	1/60/0	1/60/0	3/90/0	1/60/0	-	1/60/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature	1000 Cycles	N/A	N/A	N/A	N/A	N/A	1/45/0	-	-	-	-	1/45/0

	Type	#	Test Spec	Min Lot Qty	SS /Lot	Test Name / Condition	Duration	Qual Device: TCAN1046DMTRQ1	Qual Device: TCAN1046VDMTRQ1	Qual Device: TLIN1022ADMTRQ1	Qual Device: TLIN1022DMTRQ1	QBS Process Reference: TLC6C5816QPWPRQ1	QBS Process Reference: TPS61378QWRTERQ1	QBS Package Reference: TLIN2027DRBRQ1	QBS Package Reference: TCAN1046AVDMTRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: TLIN10283DRBRQ1	QBS Package Reference: TLIN10285DRBRQ1
						Cycle, -40/125C												
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	3/231/0	-	1/45/0	3/135/0	1/77/0	1/77/0	2/154/0
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	-	-	-	-	3/231/0	-	-	-	-	-
Test Group B – Accelerated Lifetime Simulation Tests																		
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test 140C	480 Hours	-	-	-	-	3/231/0	3/231/0	-	-	-	-	-
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	-	-	-	-	3/231/0	-	-	-	-
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	1000 Hours	-	-	-	-	-	-	-	1/77/0	-	1/77/0	2/154/0
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	-	-	-	-	-	-	-	-	-
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 Hours	-	-	-	-	3/2400/0	3/2400/0	-	-	-	-	-
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A	N/A	-	3/231/0	-	-	-	-	(3)

	Type	#	Test Spec	Min Lot Qty	SS /Lot	Test Name / Condition	Duration	Qual Device: TCAN1046DMTRQ1	Qual Device: TCAN1046VDMTRQ1	Qual Device: TLIN1022ADMTRQ1	Qual Device: TLIN1022DMTRQ1	QBS Process Reference: TLC6C5816QPWPRQ1	QBS Process Reference: TPS61378QWRTERQ1	QBS Package Reference: TLIN2027DRBRQ1	QBS Package Reference: TCAN1046AVDMTRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: TLIN10283DRBRQ1	QBS Package Reference: TLIN10285DRBRQ1
Test Group C – Package Assembly Integrity Tests																		
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk>1.67	Wires	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	1/30/0	2/60/0
	WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull Cpk >1.67	Wires	1/30/0	1/30/0	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0	1/30/0	2/60/0
	SD	C3	JEDEC JESD22-B102	1	15	Solderability >95% Lead Coverage	Pb Free Solder	-	-	-	-	-	1/15/0	1/15/0	-	1/15/0	-	1/15/0
	SD	C3	JEDEC JESD22-B102	1	15	Solderability >95% Lead Coverage	Pb Solder	-	-	-	-	-	1/15/0	1/15/0	-	1/15/0	-	1/15/0
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	1/10/0	1/10/0	1/10/0	1/10/0	1/10/0	3/30/0	3/30/0	-	3/30/0	1/10/0	2/20/0
	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	N/A	N/A
	LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	N/A	N/A	N/A	N/A	N/A	-	-	N/A	-	-	-
Test Group D – Die Fabrication Reliability Tests																		
	EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol	Completed Per Process Technol

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TCAN1046DMTRQ1	Qual Device: TCAN1046VDMTRQ1	Qual Device: TLIN1022ADMTRQ1	Qual Device: TLIN1022DMTRQ1	QBS Process Reference: TLC6C5816QPWPRQ1	QBS Process Reference: TPS61378QWRTERQ1	QBS Package Reference: TLIN2027DRBRQ1	QBS Package Reference: TCAN1046AVDMTRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: TLIN10283DRBRQ1	QBS Package Reference: TLIN10285DRBRQ1
								ogy Requirements	ogy Requirements	ogy Requirements	ogy Requirements	ogy Requirements	ogy Requirements	ogy Requirements	ogy Requirements	ogy Requirements	ogy Requirements	ogy 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	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 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	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	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	Test Group E – Electrical Verification Tests																	
	HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	3000 V	-	-	-	-	-	2/6/0	-	-	-	-	-
	HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	4000 V	-	-	-	-	1/3/0	-	1/3/0	1/3/0	1/3/0	-	-

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TCAN1046DMTRQ1	Qual Device: TCAN1046VDMTRQ1	Qual Device: TLIN1022ADMTRQ1	Qual Device: TLIN1022DMTRQ1	QBS Process Reference: TLC6C5816QPWPRQ1	QBS Process Reference: TPS61378QWRTERQ1	QBS Package Reference: TLIN2027DRBRQ1	QBS Package Reference: TCAN1046AVDMTRQ1	QBS Package Reference: TCAN1146DMTRQ1	QBS Package Reference: TLIN10283DRBRQ1	QBS Package Reference: TLIN10285DRBRQ1
	HBM	E2	AEC Q100-002	1	3	ESD - HBM (Pins 6,7)	9000 V	-	-	-	-	-	-	1/3/0	-	-	-	-
	HBM	E2	AEC Q100-002	1	3	ESD - HBM (Pins 9, 10, 12, 13)	9000 V	-	-	-	-	-	-	-	1/3/0		-	-
	HBM	E2	AEC Q100-002	1	3	ESD - HBM (Bus Pins)	12000 V	-	-	-	-	-	-	-	1/3/0	-	-	-
	CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 V	-	-	-	-	1/3/0	2/6/0	-	-	-	-	-
	CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	-	-	-	-	-	1/3/0	1/3/0	1/3/0	-	-
	LU	E4	AEC Q100-004	1	6	Latch-up	Per AEC Q100-004	-	-	-	-	1/6/0	2/12/0	1/6/0	1/6/0	1/6/0	-	-
	ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, Hot, and Cold	-	-	-	-	3/90/0	3/90/0	3/90/0	-	3/90/0	2/60/0	2/60/0

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
Notes:
1) TCAN1046DMTRQ1, TCAN1046VDMTRQ, TLIN1022ADMTRQ1, TLIN1022DMTRQ1 QBS to Process and Package Devices
2) Devices listed in PCN Product Affected will QBS to the Qual devices die and package attributes which have been verified to be similar to Qual Devices
3) Performed during HTSL

Group 3 Qualification Report

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

Approved 26-Jul-2021

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: TPS3430WQDRCRQ1	Qual Device: TPS3850H33QDRCRQ1	QBS Process Reference: TPS2546QRTERQ1	QBS Package Reference: TPS7B8550QWDRCRQ1	QBS Package Reference: UCC27282QDRCQ1
Test Group A – Accelerated Environment Stress Tests											
PC	A 1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 2-260C	-	-	No Fails	No Fails	No Fails
HAST	A 2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	1/77/0	3/231/0
AC	A 3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	-	3/231/0	-	3/231/0
UHAST	A 3	JEDEC JESD22-A102	3	77	Unbiased HAST 130C/85%RH	96 Hours	-	-	-	3/231/0	-
TC	A 4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/0	3/231/0
TC-WBP	A 4	MIL-STD883 Method 2011	1	30	Post Temp Cycle Bond Pull	Wires	-	-	3/90/0	3/90/0	3/90/0
PTC	A 5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40C/125C	1000 Cycles	-	-	-	1/45/0	-
HTSL	A 6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	-	3/135/0	3/231/0	-
HTSL	A 6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	-	-	-	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests											
HTOL	B 1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	-	1/77/0	-
HTOL	B 1	JEDEC JESD22-A108	3	77	Life Test, 150C	1000 Hours	-	-	-	-	3/231/0
HTOL	B 1	JEDEC JESD22-	3	77	Life Test, 150C	408 Hours	-	-	3/231/0	-	-

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TPS3430WQDRCRQ1	Qual Device: TPS3850H33QDRCRQ1	QBS Process Reference: TPS2546QRTERQ1	QBS Package Reference: TPS7B8550QWDRCRQ1	QBS Package Reference: UCC27282QDRCQ1
		A108									
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 140C	48 Hours	-	-	-	-	3/2400/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 Hours	-	-	1/800/0	-	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	1000 Hours/150C	-	-	-	(3)	-
Test Group C – Package Assembly Integrity Tests											
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Free Solder	-	-	3/45/0	1/15/0	1/15/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Solder	-	-	3/45/0	1/15/0	-
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	1/30/0	1/30/0	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 - QFN	N/A - QFN	N/A - QFN	N/A - QFN	N/A - QFN
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	N/A - QFN	N/A - QFN	N/A - QFN	N/A - QFN	N/A - QFN
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	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	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	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
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
Test Group E – Electrical Verification Tests											
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2000 V	-	-	1/3/0	1/3/0	1/3/0
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	4000 V	-	-	1/3/0	-	1/3/0

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TPS3430WQDRCRQ1	Qual Device: TPS3850H33QDRCRQ1	QBS Process Reference: TPS2546QRTERQ1	QBS Package Reference: TPS7B8550QWDRCRQ1	QBS Package Reference: UCC27282QDRCQ1
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	500 V	-	-	1/3/0	1/3/0	1/3/0 (HV pins)
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 V	-	-	1/3/0	1/3/0	1/3/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	-	-	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	Per AEC Q100-004	-	-	1/6/0	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Devices TPS3430WQDRCRQ1 and TPS3850H33QDRCRQ1 are qualified at LEVEL2-260C

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

Notes:
(1) TPS3430WQDRCRQ1 and TPS3850H33QDRCRQ1 QBS to TPS2546QRTERQ1, TPS7B8550QWDRCRQ1, UCC27282QDRCQ1 Reliability tests
(2) Devices listed in PCN Product Affected will QBS to the Qual devices die and package attributes which have been verified to be similar to Qual Devices
(3) Performed during HTSL

Qualification Report

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

Approved 12-Aug-2021

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: LM25141QRGERQ1	Qual Device: LM25141QRGERQ1	QBS Process Reference: LM5141QRGERQ1	QBS Process Reference: UCC27282QDRCQ1	QBS Package Reference: DRV8889QWRGERQ1	QBS Package Reference: PCM6260QRTVRQ1	QBS Package Reference: TCA9548ARGEQ1
Test Group A – Accelerated Environment Stress Tests													
PC	A1	JEDEC J-	3	77	Preconditioning	Level 2-260	-	No Fails	No Fails	No Fails	No Fails	No Fails	No Fails

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LM25141QRGERQ1	Qual Device: LM25141QRGERQ1	QBS Process Reference: LM5141QRGERQ1	QBS Process Reference: UCC27282QDRCQ1	QBS Package Reference: DRV8889QWRGERQ1	QBS Package Reference: PCM6260QRTVRQ1	QBS Package Reference: TCA9548ARGEQ1
		STD-020 JESD22-A113				C							
THB	A2	JEDEC JESD22-A101	3	77	Biased Temperature and Humidity, 85C/85%RH	1000 Hours	-	-	3/231/0	-	-	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85% RH	96 Hours	-	-	-	3/231/0	3/231/0	3/231/0	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	-	-	3/231/0	3/231/0	-	3/231/0
UHAST	A3	JEDEC JESD22-A102	3	77	Unbiased HAST 110C/85% RH	264 Hours	-	-	3/231/0	-	-	3/231/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	1/77/0	3/231/0	3/231/0	3/230/1 (3)	3/231/0	3/231/0
TC-WBP	A4	MIL-STD 883 Method 2011	1	60	Post Temp Cycle Bond Pull	Wires	-	1/60/0	-	-	3/90/0	-	1/60/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	-	-	-	-	1/45/0	-	-
HT	A6	JEDEC	1	45	High Temp Storage	1000 Hour	-	-	-	3/135/0	3/135/0	3/135/0	1/45/0

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LM25141QRGERQ1	Qual Device: LM25141QRGERQ1	QBS Process Reference: LM5141QRGERQ1	QBS Process Reference: UCC27282QDRCQ1	QBS Package Reference: DRV8889QWRGERQ1	QBS Package Reference: PCM6260QRTVRQ1	QBS Package Reference: TCA9548ARGEQ1
SL		JESD22-A103			Bake 150C	s							
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	-	1/45/0	-	-	-	-
Test Group B – Accelerated Lifetime Simulation Tests													
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	3/231/0	-	1/77/0	3/231/0	3/231/0
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	1000 Hours	-	-	-	3/231/0	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/0		-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 140C	48 Hours	-	-	-	3/2400/0	-	1/800/0	-
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
Test Group C – Package Assembly Integrity Tests													
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk>1.67	Wires	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0
WBP	C2	MIL-STD 883 Method 2011	1	30	Bond Pull over Ball, Cpk >1.67	Wires	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0
SD	C3	JEDEC JESD22-B102	1	15	Solderability >95% Lead Coverage	Pb Free Solder	-	-	-	1/15/0	-	-	1/15/0
S	C	JED	1	1	Solderabilit	Pb	-	-	-	-	-	-	1/15/0

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name / Condition	Duration	Qual Device: LM25141QRGERQ1	Qual Device: LM25141QRGERQ1	QBS Process Reference: LM5141QRGERQ1	QBS Process Reference: UCC27282QDRCQ1	QBS Package Reference: DRV8889QWRGERQ1	QBS Package Reference: PCM6260QRTVRQ1	QBS Package Reference: TCA9548ARGEQ1
D	3	EC JESD22-B102		5	y >95% Lead Coverage	Solder							
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk >1.67	1/30/0	1/30/0	3/90/0	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
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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	Completed Per Process Technology Requirements	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	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 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
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
SM	D5	-	-	-	Stress Migration	-	Completed Per	Completed Per	Completed Per	Completed	Completed Per	Completed Per Process	Completed Per Process

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name / Condition	Duration	Qual Device: LM25141QRGERQ1	Qual Device: LM25141QRGERQ1	QBS Process Reference: LM5141QRGERQ1	QBS Process Reference: UCC27282QDRCQ1	QBS Package Reference: DRV8889QWRGERQ1	QBS Package Reference: PCM6260QRTVRQ1	QBS Package Reference: TCA9548ARGEQ1
							Process Technology Requirements	Process Technology Requirements	Process Technology Requirements	Per Process Technology Requirements	Process Technology Requirements	Technology Requirements	Technology Requirements
Test Group E – Electrical Verification Tests													
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2000 V	-	-	1/3/0	-	-	1/3/0	1/3/0
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	4000 V	-	-	-	1/3/0	1/3/0	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	500 V	-	-	1/3/0	-	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	500 V (HV pins)	-	-	-	1/3/0	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	750 V Corner pins	-	-	1/3/0	-	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 V	-	-	-	-	-	1/3/0	1/3/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	-	-	-	1/3/0	-	-
LU	E4	AEC Q100-004	1	6	Latch-up	(Per AEC - Q100-004)	-	-	1/6/0	1/6/0	1/6/0	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk >1.67 Room, hot, and cold test	1/30/0	1/30/0	3/90/0	3/90/0	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device LM25141QRGERQ1 is qualified at LEVEL2-260C

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

Notes
(1) LM25141QRGERQ1 QBS's to LM5141QRGERQ1, UCC27282QDRCTQ1, DRV8889QWRGERQ1, PCM6260QRTVRQ1, TCA9548ARGERQ1 Reliability tests
(2) RGE Devices listed in PCN Product Affected will QBS to the Qual devices die and package attributes which have been verified to be similar to Qual Devices
(3) DRV8889QWRGERQ1 had 1 TC fail due to voltage spike due to test program error, 8D available.

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

AlCu with 1.0 Cu Wire in CDAT 10DRC and 24RGE Package
(Q100H, Q006, Grade 1, -40/125C)
Approved 16-Dec-2020, 12-Aug-2020, 06-Dec-2019

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: TPS7B8550QWDRCRQ1	Qual Device: UCC27282QDRCQ1	Qual Device: DRV8889WRGEQ1
Test Group A – Accelerated Environment Stress Tests									
PC	A1	-	3	22	SAM Analysis, Pre Stress	Completed	3/66/0	3/66/0	3/66/0
PC	**A1**	**JEDEC J-STD-020 JESD22-A113**	**3**	**77**	**Preconditioning**	**Level 2-260C**	**No fails**	**No fails**	**No fails**
PC	A1	-	3	22	SAM Analysis, Post Precon	Completed	3/66/0	3/66/0	3/66/0
HAST	**A2**	**JEDEC JESD22-A110**	**3**	**77**	**Biased HAST, 130C/85%RH**	**96 Hours**	**1/77/0**	**3/231/0**	**3/231/0**
HAST	A2	-	3	1	Cross Section, Post bHAST 96 Hours	Completed	-	3/3/0	3/3/0
HAST	A2	-	3	30	Wire Bond Shear, Post bHast, 96 Hours	Wires	-	3/90/0	3/90/0
HAST	A2	-	3	30	Bond Pull over Stitch, post bHAST, 96 Hours	Wires	-	3/90/0	3/90/0
HAST	A2	-	3	30	Bond Pull over Ball, Post bHAST, 96 Hours	Wires	-	3/90/0	3/90/0
HAST	**A2**	**JEDEC JESD22-A110**	**3**	**70**	**Biased HAST, 130C/85%RH**	**192 Hours**	1/77/0	3/210/0	3/210/0
HAST	A2	-	3	1	Cross Section, Post bHAST 192 Hours	Completed	1/3/0	3/3/0	3/3/0

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TPS7B8550QWDRCRQ1	Qual Device: UCC27282QDRCQ1	Qual Device: DRV8889WRGEQ1
HAST	A2	-	3	22	SAM Analysis, Post bHAST, 192 Hours	Completed	1/22/0	3/66/0	3/66/0
HAST	A2	-	3	30	Wire Bond Shear, Post bHast, 192 Hours	Wires	1/30/0	3/90/0	3/90/0
HAST	A2	-	3	30	Bond Pull over Stitch, post bHAST, 192 Hours	Wires	1/30/0	3/90/0	3/90/0
HAST	A2	-	3	30	Bond Pull over Ball, Post bHAST, 192 Hours	Wires	1/30/0	3/90/0	3/90/0
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**
TC	A4	-	3	1	Cross Section, Post T/C 500 Cycles	Completed	-	3/3/0	3/3/0
TC	A4	-	3	22	SAM Analysis, Post T/C, 500 Cycles	Completed	-	3/66/0	3/66/0
TC	A4	-	3	30	Wire Bond Shear, Post T/C 500 Cycles	Wires	-	3/90/0	3/90/0
TC	A4	-	3	30	Bond Pull over Stitch Post T/C 500 Cycles	Wires	-	3/90/0	3/90/0
TC	A4	-	3	30	Bond Pull over Ball Post T/C 500 Cycles	Wires	-	3/90/0	3/90/0
TC	**A4**	**JEDEC JESD22-A104 and Appendix 3**	**3**	**70**	**Temperature Cycle, -65/150C**	**1000 Cycles**	**3/231/0**	**3/231/0**	**3/210/0**
TC	A4	-	3	1	Cross Section, Post T/C 1000 Cycles	Completed	3/3/0	3/3/0	3/3/0
TC	A4	-	3	22	SAM Analysis, Post T/C, 1000 Cycles	Completed	3/66/0	3/66/0	3/66/0
TC	A4	-	3	30	Wire Bond Shear, Post T/C 1000 Cycles	Wires	3/90/0	3/90/0	3/90/0
TC	A4	-	3	30	Bond Pull over Stitch, Post T/C, 1000 Cycles	Wires	3/90/0	3/90/0	3/90/0
TC	A4	-	3	30	Bond Pull over Ball, Post T/C, 1000 Cycles	Wires	3/90/0	3/90/0	3/90/0
PTC	**A5**	**JEDEC JESD22-A105**	**1**	**45**	**Power Temperature Cycle -40/125C**	**1000 Cycles**	1/45/0	N/A	N/A
PTC	**A5**	**JEDEC**	**1**	**45**	**Power**	**2000**	1/45/0	N/A	N/A

Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: TPS7B8550QWDRCRQ1	Qual Device: UCC27282QDRCQ1	Qual Device: DRV8889WRGEQ1
		JESD22-A105			**Temperature Cycle -40/125C**	**Cycles**			
HTSL	**A6**	**JEDEC JESD22-A103**	**3**	**45**	**High Temp Storage Bake 150C**	**1000 Hours**	**3/135/0**	**3/135/0**	**3/145/0**
HTSL	A6	-	3	1	Cross Section, Post HTSL 1000 Hours	Completed	-	3/3/0	3/3/0
HTSL	**A6**	**JEDEC JESD22-A103**	**3**	**44**	**High Temp Storage Bake 150C**	**2000 Hours**	**1/45/0**	**3/132/0**	**3/132/0**
HTSL	A6	-	3	1	Cross Section, Post HTSL 2000 Hours	Completed	1/1/0	3/3/0	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	3/90/0	3/90/0
WBP	C2	MIL-STD883 Method 2011	3	30	Bond Pull Cpk >1.67	Wires	3/90/0	3/90/0	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

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

AlCu with 0.8 Cu Wire in CDAT 32RTV Package (Q100H, Q006, Grade 1, -40/125C)

Approved 19-Nov-2020

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: PCM6260QRTVRQ1
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 2-260C**	**No fails**
PC	A1	-	3	22	SAM Analysis, Post Stress	Completed	3/66/0
HAST	A2	JEDEC	3	77	**Biased HAST,**	**96 Hours**	**3/231/0**

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: PCM6260QRTVRQ1
		JESD22-A110			**130C/85%RH**		
HAST	A2	-	3	30	Wire Bond Shear, Post bHast, 96 Hours	Wires	3/90/0
HAST	A2	-	3	30	Bond Pull over Stitch, post bHAST, 96 Hours	Wires	3/90/0
HAST	A2	-	3	30	Bond Pull over Ball, Post bHAST, 96 Hours	Wires	3/90/0
HAST	A2	JEDEC JESD22-A110	3	70	**Biased HAST, 130C/85%RH**	**192 Hours**	**3/210/0**
HAST	A2	-	3	30	Wire Bond Shear, Post bHast, 192 Hours	Wires	3/90/0
HAST	A2	-	3	30	Bond Pull over Stitch, post bHAST, 192 Hours	Wires	3/90/0
HAST	A2	-	3	30	Bond Pull over Ball, Post bHAST, 192 Hours	Wires	3/90/0
HAST	A2	-	3	1	Cross Section, Post bHAST 192 Hours	Completed	3/3/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	**Temperature Cycle, -65/150C**	**500 Cycles**	**3/231/0**
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	3/90/0
TC	A4	-	3	30	Bond Pull over Stitch Post T/C 500 Cycles	Wires	3/90/0
TC	A4	-	3	30	Bond Pull over Ball Post T/C 500 Cycles	Wires	3/90/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	70	**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
HTSL	A6	JEDEC JESD22-A103	3	45	**High Temp Storage Bake 150C**	**1000 Hours**	**3/135/0**
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	1	30	Auto Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Minimum of 5 devices, 30 wires Cpk>1.67	3/90/0

- QBS: Qual By Similarity
- Qual Device PCM6260QRTVRQ1 is qualified at LEVEL2-260C

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

For questions regarding this notice, e-mails can be sent to the regional 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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