

Wettable Flank design	Step Cut	Dimple
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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
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> 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)

TEXAS INSTRUMENTS
MADE IN: Malaysia
2DC: 2Q:

MSL 2 /260C/1 YEAR	SEAL DT
MSL 1 /235C/UNLIM	03/29/04

OPT:
ITEM: 39
LBL: 5A (L)T0:1750

(Pb)
G4



G3 = Matte Sn
G4 = NiPdAu

(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T) LOT: 3959047MLA
(4W) TKY (1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CSO: SHE (21L) CCO:USA
(22L) ASO: MLA (23L) ACO: MYS

Group 1 Product Affected: TI Chengdu as additional Assembly & Test Site

TPS62816QWRWYRQ1

Group 2 Product Affected: CDAT-PR Probe site and TI Chengdu as additional Assembly & Test Site

TPS6281080QWRYGRQ1	TPS62811A0QWRYGRDN	TPS6281380QWRYGRQ1
TPS62810A0QWRYGRQ1	TPS6281280QWRYGRQ1	TPS62813A0QWRYGRDN
TPS6281180QWRYGRQ1	TPS62812A0QWRYGRDN	

Qualification Report

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

Approve Date 17-Nov-2021

Product Attributes

Attributes	Qual Device: TPS62816QWRWYRQ1	QBS Product Reference: TPS6281xQWRWYRQ1	Qual Device: TPS62816QWRWYRQ1	QBS Product Reference: TPS6281xQWRWYRQ1	QBS Package reference LMR33630CQRNXRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Power Management	Power Management	Power Management	Power Management	Power Management
Die Attributes	-	-	-	-	-
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	DMOS6
Package Attributes	-	-	-	-	-
Assembly Site	UTL1	UTL1	CDAT	CDAT	CDAT
Package Type	VQFN-HR	VQFN-HR	VQFN-HR	VQFN-HR	VQFN-HR
Package Designator	RWY	RWY	RWY	RWY	RNX
Ball/Lead Count	9	9	9	9	12
Package Size mm	3 x 2 mm	3 x 2 mm	3 x 2 mm	3 x 2 mm	3 x 2 mm
Leadframe Plating Composition	Matte SN	Matte SN	NiPdAu	NiPdAu	NiPdAu

- QBS: Qual By Similarity
- Qual Device TPS62816QWRWYRQ1 is qualified at LEVEL2-260C

Qualification Results

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

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPS62816QWRWYRQ1	QBS Product TPS62810QWRWYRQ1	Qual Device: TPS62816QWRWYRQ1	QBS Product Reference: TPS62810QWRWYRQ1	QBS Package reference LMR33630CQRNXRQ1
Test Group A – Accelerated Environment Stress Tests						(UTL1 Assembly)			(CDAT Assembly)		
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	MSL/260C	3 cycles	3/693/0	3/693/0	QBS	1/154/0	3/693/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	3/231/0	3/231/0			
			3	77	Biased HAST, 110C/85%RH	264 Hours			QBS	QBS	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave	96 hours	3/231/0	3/231/0			
			3	77	Biased HAST, 110C/85%RH	264 Hours			QBS	QBS	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	-65C/150C	500 cycles	3/231/0	3/231/0	QBS	1/77/0	3/231/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	N/A	N/A	1/45/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp. Storage Life 175C	500 hours	3/45/0	3/231/0	QBS	1/77/0	3/231/0
Test Group B – Accelerated Lifetime Simulation Tests											
HTOL	B1	JEDEC JESD22-A108	3	77	High Temp operational Life 125C	1000 hours	1/77/0	3/231/0	QBS		
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	QBS	3/2400/0	QBS		

EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life 150C	-	N/A	N/A	N/A		
Test Group C – Package Assembly Integrity Tests						(UTL1 assembly)			(CDAT assembly)		
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	N/A	N/A	N/A		
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	-	N/A	N/A	N/A		
SD	C3	JEDEC JESD22-B102	1	15	Pb Free Surface Mount Solderability	4 hours bake 155 C	1/30/0	-	QBS	1/30/0	
PD	C4	JEDEC JESD22-B100 and B108	3	10	Automotive Physical Dimensions	Assy MQ	3/30/0	-	QBS	3/30/0	
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	
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	
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	
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	
Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TP362816QWRWYR Q1	QBS Product TP362810QWRWYR Q1	Qual Device: TP362816QWRWYRQ1	QBS Product Reference: TP362810QWRWYRQ1	QBS Package reference LMR33630CQRNXRQ1
SM	D5	-	-	-	Stress Migration	-	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	HBM-Q100	2000V	1/3/0		QBS		
CDM	E3	AEC Q100-011	1	3	ESD Q100	750V	1/3/0		QBS		
LU	E4	AEC Q100-004	1	6	Latch up	150C	1/6/0		QBS		
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0		QBS		

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)

Approve Date 06-Feb-2023

Product Attributes

Attributes	Qual Device: TPS6281180QWRYGRQ1	Product QBS Reference: TPS62810QWRWYRQ1	Package QBS Reference: LMR33630CQRNXRQ1	Package QBS Reference: TPS62812QWRWYRQ1	Product QBS Reference: TPS62811A0QWRYGRDN
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Product Function	Power Management	Power Management	Power Management	Power Management	Power Management
Die Attributes					
Wafer Fab Supplier	RFAB	RFAB	DMOS6	RFAB	RFAB
Wafer Process	LBC9	LBC9	LBC9	LBC9	LBC9
Die Size (L,W) (um)	1945 x 1085	1945 x 1085	1500 x 1995	1945 x 1085	1945 x 1085
Package Attributes					
Assembly Site	CDAT	UTL1	CDAT	CDAT	UTL1
Package Group	QFN	QFN	QFN	QFN	QFN
Package Designator	RYG	RWY	RNX	RWY	RYG
Package Size (mm)	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2
Body Thickness (mm)	0.9	0.9	0.85	0.9	0.9
Pin Count	9	9	12	9	9
Lead Finish	NIPDAU	MATT SN	NIPDAU	NIPDAU	MATTE SN
Lead Pitch(mm)	0.5	0.5	0.5	0.5	0.5

QBS: Qual By Similarity
Qual Device TPS6281180QWRYGRQ1 is qualified at MSL2 260C

Qualification Results

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

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: TPS6281180QWRYGRQ1	Device QBS Reference: TPS62810QWRWYRQ1	Package QBS Reference: LMR33630CQRNXRQ1	Package QBS Reference: TPS62812QWRWYRQ1	Device QBS Reference: TPS62811A0QWRYGRDN
Test Group A - Accelerated Environment Stress Tests												
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	1 Step	1/77/0	3/693/0	3/693/0	1/154/0	1/154/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	110C/85%RH	264 Hours	QBS	-	3/231/0	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	QBS	3/231/0	-	-	-
ACU/HAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	QBS	-	-	1/77/0	-
ACU/HAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	110C/85%RH	264 Hours	QBS	-	3/231/0	-	-
ACU/HAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	QBS	3/231/0	-	-	1/77/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	3/231/0	3/231/0	1/77/0	1/77/0
PTC	A5	JEDEC JESD22-A105	1	45	PTC	-40/125C	1000 Cycles	QBS	3/135/0	-	-	-
PTC	A5	JEDEC JESD22-A105	1	45	PTC	-40/125C	1000 Cycles	QBS	-	1/50/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	QBS	3/231/0	3/231/0	-	-
Test Group B - Accelerated Lifetime Simulation Tests												
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	125C	1000 Hours	QBS	3/231/0	-	-	-
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	125C	48 Hours	QBS	3/2400/0	-	-	-

EDR	B3	AEC Q100-005	1	77	NVM Endurance, Data Retention, and Op Life	Per QSS-009-018	1 Step	QBS	3/231/0	-	-	-
Test Group C - Package Assembly Integrity Tests												
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	Not applicable: No wires				
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	Not applicable: No wires				
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	1/15/0				
PD	C4	JEDEC JESD22-B100 and B108	1	10	Physical Dimensions	Cpk>1.67	-	1/10/0		3/30/0		
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
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
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
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												
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	-	1/3/0			1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	-	1/3/0			1/3/0
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	125C	-	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			1/30/0

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

The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours

The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours

The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Ambient Operating Temperature by Automotive Grade Level:

Grade 0 (or E): -40C to +150C

Grade 1 (or Q): -40C to +125C

Grade 2 (or T): -40C to +105C

Grade 3 (or I) : -40C to +85C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):

Room/Hot/Cold : HTOL, ED

Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU

Room : AC/uHAST

Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

ZVEI ID reference: SEM-PA-18, SEM-PA-05, SEM-TF-01, SEM-PS-03

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

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