










<b>PCN Number:</b>	20210901000.2		<b>PCN Date:</b>	September 01, 2021									
<b>Title:</b>	Qualification of MLA as an alternate Assembly & Test site 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>	Feb 28, 2022	<b>Estimated Sample Availability:</b>	Date provided at sample request										
<b>Change Type:</b>													
<input checked="" type="checkbox"/> Assembly Site	<input type="checkbox"/> Design	<input type="checkbox"/> Wafer Bump Site											
<input type="checkbox"/> Assembly Process	<input type="checkbox"/> Data Sheet	<input type="checkbox"/> Wafer Bump Material											
<input type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input type="checkbox"/> Wafer Bump Process											
<input type="checkbox"/> Mechanical Specification	<input checked="" type="checkbox"/> Test Site	<input type="checkbox"/> Wafer Fab Site											
<input type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input type="checkbox"/> Wafer Fab Materials											
		<input type="checkbox"/> Wafer Fab Process											
<b>PCN Details</b>													
<b>Description of Change:</b>													
<p>Texas Instruments Incorporated is announcing the qualification of TI Malaysia as an additional Assembly &amp; Test site for the list of devices shown below. There are no construction differences between the two sites.</p> <p>Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ</p> <p style="text-align: center;">I.</p>													
<b>Reason for Change:</b>													
Supply continuity													
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>													
None													
<b>Impact on Environmental Ratings</b>													
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.													
<b>RoHS</b>	<b>REACH</b>	<b>Green Status</b>	<b>IEC 62474</b>										
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change										
<b>Changes to product identification resulting from this PCN:</b>													
<b>Assembly Site</b>	<b>Assembly Site Origin (22L)</b>	<b>Assembly Country Code (23L)</b>	<b>Assembly City</b>										
TI Taiwan	TAI	TWN	Chung Ho, New Taipei City										
<b>TI Malaysia</b>	<b>MLA</b>	<b>MYS</b>	<b>Kuala Lumpur</b>										
Sample product shipping label (not actual product label)													
<table border="0"> <tr> <td style="vertical-align: top;">  <p>TEXAS INSTRUMENTS MADE IN: Malaysia 2DC: 20:</p> <table border="1" style="font-size: small;"> <tr> <td>MSL 2 /260C/1 YEAR</td> <td>SEAL DT</td> </tr> <tr> <td>MSL 1 /235C/UNLIM</td> <td>03/29/04</td> </tr> </table> <p>OPT: ITEM: 39 LBL: 5A (L)TO:1750</p> </td> <td style="vertical-align: top; text-align: center;">  G4 </td> <td style="vertical-align: top; text-align: center;">  </td> <td colspan="2" style="vertical-align: top;"> <p>(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</p> </td> </tr> </table>					 <p>TEXAS INSTRUMENTS MADE IN: Malaysia 2DC: 20:</p> <table border="1" style="font-size: small;"> <tr> <td>MSL 2 /260C/1 YEAR</td> <td>SEAL DT</td> </tr> <tr> <td>MSL 1 /235C/UNLIM</td> <td>03/29/04</td> </tr> </table> <p>OPT: ITEM: 39 LBL: 5A (L)TO:1750</p>	MSL 2 /260C/1 YEAR	SEAL DT	MSL 1 /235C/UNLIM	03/29/04	 G4		<p>(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</p>	
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MSL 2 /260C/1 YEAR	SEAL DT												
MSL 1 /235C/UNLIM	03/29/04												

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<b>Product Affected:</b>			
LP8861QPWPRQ1	LP8867QPWPRQ1	LP8869QPWPRQ1	TPS61194PWPRQ1
LP8862QPWPRQ1	LP8869CQPWPRQ1	TPS61193PWPRQ1	TPS71133PWPRQ1
LP8867CQPWPRQ1			



**TI Information**  
Selective Disclosures

**Automotive New Product Qualification Summary**  
(As per AEC-Q100, Q006 and JEDEC Guidelines)

**TPS71133PWPRQ1, LP8861QPWPRQ1, LP8862QPWPRQ1, TPS61193PWPRQ1,  
TPS61194PWPRQ1, LP8867CQPWPRQ1, LP8867QPWPRQ1, LP8869CQPWPRQ1,  
LP8869QPWPRQ1 Qualification**

**Approved 10-Aug-2021**  
Updated 8/10/2021-Added QBS Data

**Product Attributes**

<b>Attributes</b>	<b>Qual Device: TPS71133PWPRQ1</b>	<b>QBS Product Reference: PLP8861QPWPRQ1</b>	<b>QBS Process Reference: S0704038C0PLPR</b>
<b>Operating Temp Range</b>	-40 to +125 C	-40 to +125 C	-40 to +125 C
<b>Automotive Grade Level</b>	Grade 1	Grade 1	Grade 1
<b>Wafer Fab Supplier</b>	RFAB	RFAB	RFAB
<b>Die Revision</b>	A	A	C1
<b>Assembly Site</b>	MLA	TAI	TAI
<b>Package Type</b>	HTSSOP	HTSSOP	TQFP
<b>Package Designator</b>	PWP	PWP	PLP
<b>Ball/Lead Count</b>	20	20	128

- QBS: Qual By Similarity  
- Qual Device TPS61194PWPRQ1, LP8867CQPWPRQ1, LP8861QPWPRQ1, LP8862QPWPRQ1, LP8869CQPWPRQ1, TPS61193PWPRQ1, LP8867QPWPRQ1, LP8869QPWPRQ1 and TPS71133PWPRQ1 are qualified at LEVEL2-260C. TPS71133PWPRQ1 represents the device family.

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPS71133PWP RQ1	QBS Product Reference: PLP8861QPWP RQ1	QBS Process Reference: S0704038C0PLPR
			3	1	Cross Section, Post T/C 500 Cycles	Completed	3/3/0	-	-
			3	22	SAM Analysis, Post T/C 500 Cycles	Completed	3/66/0	-	-
			3	30	Wire Bond Shear, Post T/C 500 Cycles	Wires	3/90/0	-	-
			3	30	Bond Pull over Stitch, Post T/C 500 Cycles	Wires	3/90/0	-	-
			3	30	Bond Pull over Ball Post T/C 500 Cycles	Wires	3/90/0	-	-
TC	A4	JEDEC JESD22-A104	3	70	Temperature Cycle, -85/150C	1000 Cycles	3/231/0	-	-
			3	1	Cross Section, Post T/C 1000 Cycles	Completed	3/3/0	-	-
			3	22	SAM Analysis, Post T/C 1000 Cycles	Completed	3/66/0	-	-
			3	30	Wire Bond Shear, Post T/C 1000 Cycles	Wires	3/90/0	-	-
			3	30	Bond Pull over Stitch, Post T/C 1000 Cycles	Wires	3/90/0	-	-
			3	30	Bond Pull over Ball, Post T/C 1000 Cycles	Wires	3/90/0	-	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	-	-	3/45/0
HTSL	A6	JEDEC JESD22-A103	3	45	High Temp Storage Bake 150C	1000 Hours	3/231/0	-	-
			3	1	Cross Section, Post HTSL 1000 Hours	Completed	3/3/0	-	-
HTSL	A6	JEDEC JESD22-A103	3	45	High Temp Storage Bake 175C	500 Hours	-	1/77/0	3/45/0
HTSL	A6	JEDEC JESD22-A103	3	45	High Temp Storage Bake 150C	2000 Hours	3/231/0	-	-
			3	1	Cross Section, Post HTSL 2000 Hours	Completed	3/3/0	-	-
HTSL	A6	JEDEC JESD22-A103	3	45	High Temp Storage Bake 175C	1000 Hours	-	-	-

### 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: TPS71133PWP RQ1	QBS Product Reference: PLP8861QPWP RQ1	QBS Process Reference: S0704038C0PLPR
<b>Test Group A – Accelerated Environment Stress Tests</b>									
			3	22	SAM Analysis, T0	Completed	3/66/0	-	-
PC	A1	JEDEC J-STD-020; JESD22-A113	3	77	Preconditioning	Level 2-260C	3/All/0	1/All/0	3/All/0
			3	22	SAM Analysis, Post Preconditioning	Completed	3/66/0	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	3/231/0	1/77/0	3/231/0
			3	1	Cross Section, Post bHAST 96 Hours	Completed	3/3/0	-	-
			3	30	Wire Bond Shear, Post bHast, 96 Hours	Wires	3/90/0	-	-
			3	30	Bond Pull over Stitch, post bHAST, 96 Hours	Wires	3/90/0	-	-
			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	3/231/0	-	3/231/0
			3	1	Cross Section, Post bHAST 192 Hours	Completed	3/3/0	-	-
			3	22	SAM Analysis, Post bHAST, 192 Hours	Completed	3/66/0	-	-
			3	30	Wire Bond Shear, Post bHast 192 Hours	Wires	3/90/0	-	-
			3	30	Bond Pull over Stitch, post bHAST 192 Hours	Wires	3/90/0	-	-
			3	30	Bond Pull over Ball, Post bHAST 192 Hours	Wires	3/90/0	-	-
UHAST	A3	JEDEC JESD22-A118	3	77	Unbiased HAST, 130C/85%RH	96 Hours	3/231/0	-	-
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	1/77/0	3/231/0
TC	A4	JEDEC JESD22-A104	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	1/77/0	3/231/0

Test Group B – Accelerated Lifetime Simulation Tests									
HTOL	B1	JEDEC JESD22- A108	3	77	Life Test, 125C	1000 Hours	1/77/0	-	3/231/0
HTOL	B1	JEDEC JESD22- A108	3	77	Life Test, 150C	408 Hours	-	1/77/0	-
ELFR	B2	AEC Q100- 008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/0
EDR	B3	AEC Q100- 005	3	77	NVM Endurance, Data Retention, and Operational Life	--	NA	NA	NA
Test Group C – Package Assembly Integrity Tests									
WBS	C1	AEC Q100- 001	3	30	Wire Bond Shear, Cpk>1.67	Wires	3/90/0	-	-
WBP	C2	MIL- STD883 Method 2011	3	30	Wire Bond Pull, Cpk>1.67	Wires	3/90/0	-	-
SD	C3	JEDEC JESD22- B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb Free	1/15/0	-	-
SD	C3	JEDEC JESD22- B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb	1/15/0	-	-
PD	C4	JEDEC JESD22- B100 and B108	3	10	Auto Physical Dimensions Cpk>1.67	--	3/30/0	-	-
LI	C6	JEDEC JESD22- B105	1	50	Lead Integrity	Leads	N/A	N/A	N/A
Test Group D – Die Fabrication Reliability Tests									
EM	D1	JESD81	-	-	Electromigration	-	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
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements

Test Group E – Electrical Verification Tests										
	HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	3000 V	1/3/0	1/3/0	-
	CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 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	-
	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

- 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

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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