




<b>PCN Number:</b>	20211101000.1		<b>PCN Date:</b>	November 03, 2021													
<b>Title:</b>	Qualify HNT as an additional Assembly 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 05, 2022		<b>Estimated Sample Availability:</b>	Provided upon 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 checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>	Wafer Bump Process												
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Site												
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Materials												
		<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process												
<b>PCN Details</b>																	
<b>Description of Change:</b>																	
Texas Instruments Incorporated is announcing the qualification of HNT as Additional Assembly Site for select devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.																	
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly City</th> </tr> </thead> <tbody> <tr> <td>TI Melaka</td> <td>CU6</td> <td>MYS</td> <td>Melaka</td> </tr> <tr> <td><b>Hana Semiconductor</b></td> <td><b>HNT</b></td> <td><b>THA</b></td> <td><b>Ayutthaya</b></td> </tr> </tbody> </table>						Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City	TI Melaka	CU6	MYS	Melaka	<b>Hana Semiconductor</b>	<b>HNT</b>	<b>THA</b>	<b>Ayutthaya</b>
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City														
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<b>Hana Semiconductor</b>	<b>HNT</b>	<b>THA</b>	<b>Ayutthaya</b>														
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Mount Compound	4223179	400194															
Mold Compound	8097131	450419															
<b>Reason for Change:</b>																	
Continuity of Supply																	
<b>Anticipated impact on Fit, Form, 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.																	
<table border="1"> <thead> <tr> <th>RoHS</th> <th>REACH</th> <th>Green Status</th> <th>IEC 62474</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> </tr> </tbody> </table>						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				
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<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>																	
<table border="1"> <thead> <tr> <th colspan="3">Assembly Site</th> </tr> </thead> <tbody> <tr> <td>TI Melaka</td> <td>Assembly Site Origin (22L)</td> <td>ASO: CU6</td> </tr> <tr> <td><b>Hana Semiconductor</b></td> <td><b>Assembly Site Origin (22L)</b></td> <td><b>ASO: HNT</b></td> </tr> </tbody> </table>						Assembly Site			TI Melaka	Assembly Site Origin (22L)	ASO: CU6	<b>Hana Semiconductor</b>	<b>Assembly Site Origin (22L)</b>	<b>ASO: HNT</b>			
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<b>Hana Semiconductor</b>	<b>Assembly Site Origin (22L)</b>	<b>ASO: HNT</b>															
Sample product shipping label (not actual product label)																	

 <b>TEXAS INSTRUMENTS</b> MADE IN: Malaysia 2DC: 20: MSL 2 /260C/1 YEAR SEAL DT MSL 1 /235C/UNLIM 03/29/04 OPT: ITEM: 39 <b>LBL: 5A (L)T0:1750</b>	 	(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
<b>Product Affected</b>		
TPL5010DDCR	TPL5010DDCT	

## Qualification Report

Automotive New Product Qualification Summary  
 (As per AEC-Q100 and JEDEC Guidelines)  
 Approve Date 21-Oct-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: TPL5010QDDCRQ1
<b>TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS</b>							
PC	A1	J-STD-020 JESD22-A113	3	77	Auto Preconditioning	Level 1 - 260C	3/597/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave, 121C	96 Hours	3/231/0
TC	A4	JEDEC JESD22-A104 & Appendix 3	3	77	Temperature Cycle, Grade 1, -65/150C	500 Cycles	3/231/0
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Auto Post TC Bond Pull	Wires	3/90/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life, 170C	420 Hours	3/135/0
<b>TEST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS</b>							
WBS	C1	AEC Q100-001	3	30	Wire Bond Shear (Cpk>1.67)	Bonds	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 (Pb)	>95% Lead Coverage, 155C Dry Bake	3/45/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability (Pb-Free)	>95% Lead Coverage, 155C Dry Bake	3/45/0
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	# of leads to destruction	3/45/0
<b>TEST GROUP D – DIE FABRICATION RELIABILITY TESTS</b>							
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements
TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPL5010QDDCRQ1
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements
<b>OTHER QUALIFICATION TESTS</b>							
MQ	-	Per Automotive requirements	3	1	Manufacturability (Auto Assembly)	-	3/PASS
DSS		MIL-STD-883 Method 2019	3	10	Die Shear	Die	3/30/0
LFA	-	-	3	15	Lead Finish Adhesion	Leads, 5 parts minimum	3/45/0
LP	-	-	3	24	Lead Pull	Leads, 8 parts minimum	3/72/0
XR	-	-	3	5	X-Ray	Top side only	3/15/0
YLD	-	Per datasheet specifications	3	All	FTY and Bin Summary	-	3/PASS
MSL	-	-	3	12	Moisture Sensitivity	Level 1 – 260C	3/36/0

- Qual Device TPL5010QDDCRQ1 is qualified at LEVEL1-260C

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

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 regional contacts shown below or your local Field Sales Representative.

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Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
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