

PCN Number:	20211101000.2		PCN Date:	November 03, 2021												
Title:	Qualify HNT as an additional Assembly & Test site for select devices															
Customer Contact:	PCN Manager	Dept:	Quality Services													
Proposed 1st Ship Date:	May 05, 2022	Estimated Sample Availability:	Provided upon Request													
Change Type:																
<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 checked="" 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											
PCN Details																
Description of Change:																
Texas Instruments Incorporated is announcing the qualification of HNT as Additional Assembly and Test 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>Hana Semiconductor</td> <td>HNT</td> <td>THA</td> <td>Ayutthaya</td> </tr> </tbody> </table>					Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City	TI Melaka	CU6	MYS	Melaka	Hana Semiconductor	HNT	THA	Ayutthaya
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Material Differences:																
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Mount Compound	4223179	400194														
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Lead finish	Matte Sn (Rough dual side)	NiPdAu (Rough single side)														
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.																
Reason for Change:																
Continuity of Supply																
Anticipated impact on Fit, Form, 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.																
<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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Changes to product identification resulting from this PCN:																
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TI Melaka	Assembly Site Origin (22L)	ASO: CU6														
Hana Semiconductor	Assembly Site Origin (22L)	ASO: HNT														

Sample product shipping label (not actual product label)

G3 = Matte Sn
G4 = NiPdAu



Product Affected

TPL5010QDDCRQ1	TPL5010QDDCTQ1	TPL5110QDDCRQ1	TPL5110QDDCTQ1
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Qualification Report

Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)
Approve Date 21-Oct-2021

Product Attributes

Attributes	Qual Device: TPL5010QDDCRQ1
Die Attributes	
Die Revision	A
Wafer Fab Supplier	MAINEFAB
Wafer Process	CMOS9T5V
Passivation	-
Package Attributes	
Assembly Site	HNA
Package Family	SOT-23-THN
Package Designator	DDC
Package Size (mils)	114.17 X 62.99
Body Thickness (mils)	34.25
Pin Count	6

- Qual Device TPL5010QDDCRQ1 is qualified at LEVEL1-260C

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: TPL5010QDDCRQ1
TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS							
PC	A1	J-STD-020 JESD22-	3	77	Auto Preconditioning	Level 1 - 260C	3/597/0

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPL5010QDDCRQ1
		A113					
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
HTS L	A6	JEDEC JESD22- A103	1	45	High Temperature Storage Life, 170C	420 Hours	3/135/0
TEST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS							
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
TEST GROUP D – DIE FABRICATION RELIABILITY TESTS							
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements
TDD B	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements
OTHER QUALIFICATION TESTS							
MQ	-	Per	3	1	Manufacturability (Auto Assembly)	-	3/PASS

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPL5010QDDCRQ1
		Automotive requirements					
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

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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