

PCN Number:	20210816001.1			PCN Date:	August 19, 2021
Title:	Qualification of TI Malaysia as a new Assembly site for select devices				
Customer Contact:	PCN Manager	Dept:	Quality Services		
Proposed 1st Ship Date:	Nov 19, 2021	Estimated Sample Availability:	Date Provided at Sample 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 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"/>	Wafer Fab Process
PCN Details					
Description of Change:					

Texas Instruments Incorporated is announcing the qualification TIM (TI Malaysia) as a new Assembly Site for select devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.

Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City
Amkor Phil	AKR	PHL	Muntinlupa City
TI Melaka	CU6	MYS	Melaka
TI Malaysia	MLA	MYS	Kuala Lumpur

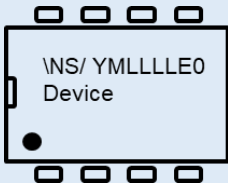
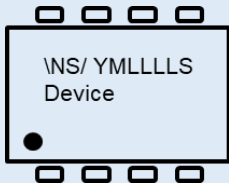
Group 1 Material Differences:


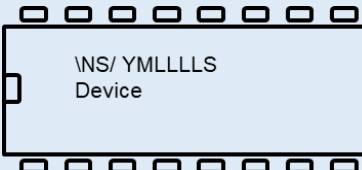
	Amkor Phil	TI Malaysia
Mount compound	101300929	4147858
Mold compound	101402556	4211880
Wire Type	Au	Cu
Lead Finish	Matte Sn	NiPdAu

Group 2 Material Differences:

	TI Melaka	TI Malaysia
Mount compound	210003	4147858
Mold compound	150044	4211880
Wire Type	Au	Cu
Lead Finish	Matte Sn	NiPdAu

Package Marking Differences:

	AMKOR /TI Melaka	TI Malaysia
8 pin	 <p>\NS/ = NATIONAL LOGO YM = YEAR MONTH DATE CODE LLLL = ASSY DATE CODE E0 = ECAT VALUE</p>	 <p>\NS/ = NATIONAL LOGO YM = YEAR MONTH DATE CODE LLLL = ASSY DATE COD S = ASSLY SITE CODE</p>

	AMKOR /TI Melaka	TI Malaysia
14/16 pin	 <p>\NS/ = NATIONAL LOGO YM = YEAR MONTH DATE CODE LLLL = ASSY DATE CODE P = PRIMARY ASSY SITE CODE G3 = ECAT VALUE</p>	 <p>\NS/ = NATIONAL LOGO YM = YEAR MONTH DATE CODE LLLL = ASSY DATE COD S = ASSLY SITE CODE</p>

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		
Amkor Phil	Assembly Site Origin (22L)	ASO: AKR
TI Melaka	Assembly Site Origin (22L)	ASO: CU6
TI Malaysia	Assembly Site Origin (22L)	ASO: MLA

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
 (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:

ADC0831CCN/NOPB	LM2574N-ADJ/NOPB	LM318N/NOPB	LMC6042IN/NOPB
ADC0832CCN/NOPB	LM2578AN/NOPB	LM319N/NOPB	LMC6044IN/NOPB
ADC0834CCN/NOPB	LM2671N-5.0/NOPB	LM324AN/NOPB	LMC6462AIN/NOPB
DS14C89AN/NOPB	LM2671N-ADJ/NOPB	LM339N/NOPB	LMC6462BIN/NOPB
LF353N/NOPB	LM2672N-12/NOPB	LM3578AN/NOPB	LMC6464BIN/NOPB
LF398AN/NOPB	LM2672N-5.0/NOPB	LM358N/NOPB	LMC6482AIN/NOPB
LF398N/NOPB	LM2672N-ADJ/NOPB	LM386N-1/NOPB	LMC6484AIN/NOPB
LF412CN/NOPB	LM2674N-5.0/NOPB	LM386N-3/NOPB	LMC6484IN/NOPB
LM2574HVN-12/NOPB	LM2674N-ADJ/NOPB	LM386N-4/NOPB	LMC660AIN/NOPB
LM2574HVN-15/NOPB	LM2675N-12/NOPB	LM4562NA/NOPB	LMC660CN/NOPB
LM2574HVN-5.0/NOPB	LM2675N-5.0/NOPB	LM6134BIN/NOPB	LMC7660IN/NOPB
LM2574HVN-ADJ/NOPB	LM2675N-ADJ/NOPB	LM6144BIN/NOPB	LME49720NA/NOPB
LM2574N-12/NOPB	LM2901N/NOPB	LM833N/NOPB	
LM2574N-3.3/NOPB	LM2904N/NOPB	LMC6041IN/NOPB	
LM2574N-5.0/NOPB	LM311N/NOPB	LMC6042AIN/NOPB	

Group 2 Product Affected:

LF347BN/NOPB	LM2594N-5.0/NOPB	LM2907N-8/NOPB	LMC555CN/NOPB
LF347N/NOPB	LM2594N-ADJ/NOPB	LM2917N-8/NOPB	LMC6001AIN/NOPB
LF356N/NOPB	LM2597HVN-12/NOPB	LM331AN/NOPB	LMC6001BIN/NOPB
LF412ACN/NOPB	LM2597HVN-3.3/NOPB	LM331N/NOPB	LMC6032IN/NOPB
LF444ACN/NOPB	LM2597HVN-5.0/NOPB	LM358AN/NOPB	LMC6062IN/NOPB
LF444CN/NOPB	LM2597HVN-ADJ/NOPB	LM380N-8/NOPB	LMC6081IN/NOPB
LM10CLN/NOPB	LM2597N-12/NOPB	LM392N/NOPB	LMC6082AIN/NOPB
LM10CN/NOPB	LM2597N-3.3/NOPB	LM393N/NOPB	LMC6082IN/NOPB
LM1458N/NOPB	LM2597N-5.0/NOPB	LM5021NA-1/NOPB	LMC6442IN/NOPB
LM1949N/NOPB	LM2597N-ADJ/NOPB	LM555CN/NOPB	LMC6482IN/NOPB
LM231AN/NOPB	LM2671N-12/NOPB	LM567CN/NOPB	LMC662AIN/NOPB
LM231N/NOPB	LM2671N-3.3/NOPB	LM6132BIN/NOPB	LMC662CN/NOPB
LM2594HVN-12/NOPB	LM2672N-3.3/NOPB	LM6142BIN/NOPB	LP2951ACN/NOPB
LM2594HVN-3.3/NOPB	LM2674N-3.3/NOPB	LM6171BIN/NOPB	LP2951CN/NOPB
LM2594HVN-5.0/NOPB	LM2675N-3.3/NOPB	LM6172IN/NOPB	TL082CP/NOPB
LM2594HVN-ADJ/NOPB	LM2903N/NOPB	LM7171BIN/NOPB	
LM2594N-12/NOPB	LM2904N/S5000653	LM741CN/NOPB	
LM2594N-3.3/NOPB	LM2904N/SL161997	LM741CN/S7001461	

Group 1 Qualification Report

Approve Date 05-Aug-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>ADC0832CCN/NOPB</u> B	Qual Device: <u>LM6134BIN/NOPB</u> B	QBS Package Reference: <u>LM2594HVN-ADJ/NOPB</u>	QBS Package Reference: <u>SN74HC595N</u>	QBS Package Reference: : <u>SN74LS03N</u>
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0	3/225/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	Pass	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
LI	Lead Fatigue	Leads	1/15/0	3/54/0	3/36/0	3/45/0	3/45/0
LI	Lead Pull	Leads	1/20/0	3/72/0	3/72/0	3/72/0	3/72/0
PD	Physical Dimensions	(per mechanical drawing)	3/15/0	3/15/0	3/15/0	-	-
PKG	Lead Finish Adhesion	Leads	-	-	-	3/45/0	3/45/0
SD	Solderability	Pb free	3/66/0	3/66/0	-	3/66/0	3/66/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
VM	Visual / Mechanical	(per mfg. Site specification)	3/984/0	3/984/0	3/984/0	3/984/0	3/984/0

Type	Test Name / Condition	Duration	Qual Device: <u>ADC0832CCN/NOPB</u> B	Qual Device: <u>LM6134BIN/NOPB</u> B	QBS Package Reference: <u>LM2594HVN-ADJ/NOPB</u>	QBS Package Reference: <u>SN74HC595N</u>	QBS Package Reference: : <u>SN74LS03N</u>
WBP	Bond Pull	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0

- QBS: Qual By Similarity

- Qual Devices ADC0832CCN/NOPB and LM6134BIN/NOPB are qualified at LEVEL1-NACG

- Device LM6134BIN/NOPB contains multiple dies.

- 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 and Green

Group 2 Qualification Report

Approve Date 05-Aug-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>LF444ACN/NOPB</u> PB	Qual Device: <u>LM231AN/NOPB</u> PB	Qual Device: <u>LM2594HVN-ADJ/NOPB</u> N-ADJ/NOPB	Qual Device: <u>LMC6482IN/NOPB</u> PB	QBS Package Reference: <u>SN74HC595N</u>	QBS Package Reference: <u>SN74LS03N</u>
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0	3/225/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	Pass	Pass	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	-	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
LI	Lead Fatigue	Leads	3/27/0	3/54/0	3/36/0	3/54/0	3/45/0	3/45/0
LI	Lead Pull	Leads	3/72/0	3/72/0	3/72/0	3/72/0	3/72/0	3/72/0
PD	Physical Dimensions	(per mechanical drawing)	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0
PKG	Lead Finish Adhesion	Leads	3/45/0	-	-	-	3/45/0	3/45/0
SD	Solderability	Pb Free	3/66/0	3/66/0	-	3/66/0	3/66/0	3/66/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
VM	Visual / Mechanical	(per mfg. Site specification)	3/984/0	3/984/0	3/984/0	3/984/0	3/984/0	3/984/0
WBP	Bond Pull	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0

Type	Test Name / Condition	Duration	Qual Device: <u>LF444ACN/NO</u> <u>PB</u>	Qual Device: <u>LM231AN/NO</u> <u>PB</u>	Qual Device: <u>LM2594HV</u> <u>N-</u> <u>ADJ/NOPB</u>	Qual Device: <u>LMC6482IN/NO</u> <u>PB</u>	QBS Package Reference: <u>SN74HC59</u> <u>5N</u>	QBS Package Reference: <u>SN74LS03</u> <u>N</u>
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0

- QBS: Qual By Similarity

- Qual Devices LF444ACN/NOPB, LM231AN/NOPB, LM2594HV-N-ADJ/NOPB, LMC6482IN/NOPB is qualified at LEVEL1-NACG

- 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 and Green

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