

PCN Number:	20220412000.1	PCN Date:	April 14, 2022
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Title:	Qualification of TI Malaysia as a new Assembly site for select devices		
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Customer Contact:	PCN Manager	Dept:	Quality Services
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Proposed 1st Ship Date:	Jul 14, 2022	Estimated Sample Availability:	Date Provided at Sample request
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Change Type:			
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
		<input type="checkbox"/>	Wafer Bump Site
		<input type="checkbox"/>	Wafer Bump Material
		<input type="checkbox"/>	Wafer Bump Process
		<input type="checkbox"/>	Wafer Fab Site
		<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


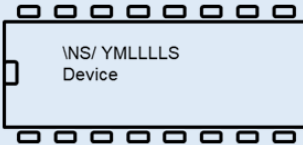
Group 1 Material Differences:

	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
14/16 pin		
	\NS/ = NATIONAL LOGO YM = YEAR MONTH DATE CODE LLLL = ASSY DATE CODE P = PRIMARY ASSY SITE CODE G3 = ECAT VALUE	\NS/ = NATIONAL LOGO YM = YEAR MONTH DATE CODE LLLL = ASSY DATE COD S = ASSLY SITE CODE

Reason for Change:

Continuity of supply. PDIP assembly EOL from Amkor Phil

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)

Group 1 Product Affected:

LM2902N/NOPB	LM324N/NOPB
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Group 2 Product Affected:

LM2907N/NOPB	LM361N/NOPB	LP339N/NOPB
LM2917N/NOPB	LP2902N/NOPB	
LM339AN/NOPB	LP324N/NOPB	

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	-
HAS	Biased HAST,	96 Hours	-	-	3/231/0	-	-

Type	Test Name / Condition	Duration	Qual Device: <u>ADC0832CCN/NOPB</u>	Qual Device: <u>LM6134BIN/NOPB</u>	QBS Package Reference: <u>LM2594HVN-ADJ/NOPB</u>	QBS Package Reference: <u>SN74HC595N</u>	QBS Package Reference: <u>SN74LS03N</u>
T	130C/85%RH						
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
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/NO PB</u>	Qual Device: <u>LM231AN/NO PB</u>	Qual Device: <u>LM2594HV N-ADJ/NOPB</u>	Qual Device: <u>LMC6482IN/NO PB</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	3/231/0	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	-	-	-

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>
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
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, LM2594HVN-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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