TEXAS INSTRUMENTS **12500 TI Boulevard, MS 8640, Dallas, Texas 75243**

PCN# 20151016001
Qualification of AMKOR P1 as Additional Assembly and Test Site for Select SOIC Package Devices
Change Notification / Sample Request

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

We request you acknowledge receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If you require samples or additional data to support your evaluation, please request within 30 days.

The changes discussed within this PCN will not take effect any earlier than **90** days from the date of this notification, unless customer agreement has been reached on an earlier implementation of the change. This notification period is per TI's standard process.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice, contact your local Field Sales Representative or the PCN Manager (PCN_ww_admin_team@list.ti.com).

Sincerely,

PCN Team
SC Business Services

PCN# 20151016001
Attachment: 1

Products Affected:

According to our records, there are the affected device(s) that you have purchased within the past twenty-four (24) months. Technical details of this Product Change follow on the next page(s).

PCN Number:	20151016001	**PCN Date:**	10/22/2015
Title:	Qualification of AMKOR P1 as Additional Assembly and Test Site for Select SOIC Package Devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	01/22/2016	**Estimated Sample Availability:**	Date Provided at Sample request

Change Type:

☒	Assembly Site	☐	Design	☐	Wafer Bump Site
☐	Assembly Process	☐	Data Sheet	☐	Wafer Bump Material
☒	Assembly Materials	☐	Part number change	☐	Wafer Bump Process
☐	Mechanical Specification	☒	Test Site	☐	Wafer Fab Site
☒	Packing/Shipping/Labeling	☐	Test Process	☐	Wafer Fab Materials
				☐	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments Incorporated is announcing the qualification of AMKOR P1 as Additional Assembly and Test 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
TI Mexico	MEX	MX	Aguascalientes
TI Malaysia	MLA	MY	Kuala Lumpur
ASESH	ASH	CN	Shanghai
Amkor P1	**AKR**	**PH**	**Cupang, Muntinlupa City**

Material Differences:

	TI Mexico	TI Malaysia	ASESH	AMKOR P1
Mount Compound	4147858	4042500	EY1000063	101375281
Mold Compound	4211880	4211880	EN20000509	101380756
Lead Finish	NiPdAu	NiPdAu	Matte Sn	Matte Sn

Upon expiration of this PCN, TI will combine lead free solutions in a single ***standard part number***, for example; ***LM224ADR*** – can ship with both Matte Sn and NiPdAu. When available customers may specify NiPdAu finish by ordering the part with the G4 suffix, e.g. ***LM224ADRE4.”***

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.

Reason for Change:

Continuity of supply.

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

None

Anticipated impact on Material Declaration

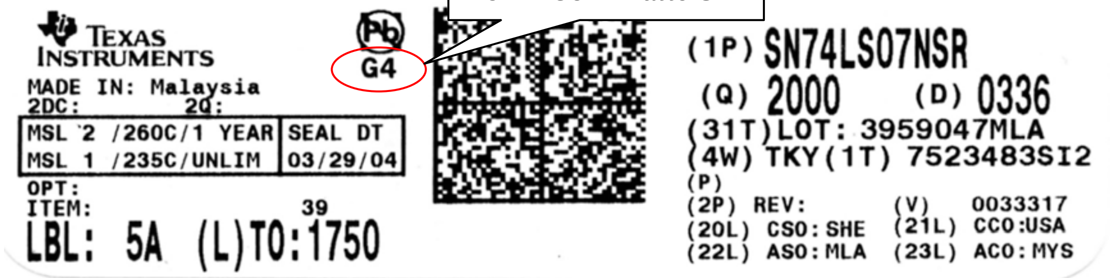
☐	No Impact to the Material Declaration	☒	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained from the TI ECO website.

Changes to product identification resulting from this PCN:

Assembly Site			
TI Mexico	Assembly Site Origin (22L)	ASO: MEX	ECAT: G4
TI Malaysia	Assembly Site Origin (22L)	ASO: MLA	ECAT: G4
ASESH	Assembly Site Origin (22L)	ASO: ASH	ECAT: G3
Amkor P1	Assembly Site Origin (22L)	ASO: AKR	ECAT: G3

Sample product shipping label (not actual product label)

ECAT: G4 = NiPdAu
ECAT: G3 = Matte Sn



TEXAS INSTRUMENTS
Pb
G4
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)TO: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

ASSEMBLY SITE CODES: TI-Mexico = M , TI-Malaysia = K , ASESH = A , AP1 = 4

Product Affected:

LM224ADR	LM2901DR	LM324ADR	LM358DR
LM224DR	LM2901DRG3	LM324DR	LM358DRG3
LM224DRG3	LM2902DR	LM324DRG3	LM393DR
LM239DR	LM2903DR	LM324DR-M	LM393DRG3
LM239DRG3	LM2903DRG3	LM339DR	LM393DR-V1
LM258DR	LM2904DR	LM339DRG3	NE555DR
LM258DRG3	LM2904DRG3	LM358ADR	NE555DRG3

Qualification Report

Amkor SOIC - 8D Offload

Product Attributes

Attributes	Qual Device: LM358DR	Qual Device: LM393DR
Assembly Site	AMKOR AP1	AMKOR AP1
Package Family	SOIC	SOIC
Flammability Rating	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	SFAB	SFAB
Wafer Process	JI1	JI1

- QBS: Qual By Similarity

- Qual Devices qualified at LEVEL1-260CG: LM358DR, LM393DR

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: LM358DR	Qual Device: LM393DR
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass
FLAM	Flammability (IEC 695-2-2)	--	3/15/0	3/15/0
FLAM	Flammability (UL 94V-0)	--	3/15/0	3/15/0
FLAM	Flammability (UL-1694)	--	3/15/0	3/15/0
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	3/231/0
HTOL	Life Test, 150C	300 Hours	3/231/0	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/229/0	3/231/0
LI	Lead Fatigue	Leads	3/66/0	3/66/0
LI	Lead Pull to Destruction	Leads	3/66/0	3/66/0
PD	Physical Dimensions	--	3/60/0	3/60/0
SD	Solderability	PB Free	3/66/0	3/66/0
TC	Temperature Cycle, -65/150C	500 cycles	3/230/0	3/231/0
WBP	Bond Pull	Wires	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0

- 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

Qualification Report

Amkor SOIC - 14D Offload

Product Attributes

Attributes	Qual Device: LM324ADR
Assembly Site	AMKOR P1
Package Family	SOIC
Flammability Rating	UL 94 V-0
Wafer Fab Supplier	SFAB
Wafer Process	JI1

- QBS: Qual By Similarity
- Qual Device LM324ADR is qualified at LEVEL1-260CG

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: LM324ADR
AC	Autoclave 121C	96 Hours	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass
FLAM	Flammability (IEC 695-2-2)	--	3/15/0
FLAM	Flammability (UL 94V-0)	--	3/15/0
FLAM	Flammability (UL-1694)	--	3/15/0
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0
HTOL	Life Test, 150C	300 hours	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/229/0
LI	Lead Fatigue	Leads	3/66/0
LI	Lead Pull to Destruction	Leads	3/66/0
PD	Physical Dimensions	--	3/60/0
SD	Solderability	PB-Free	3/66/0
TC	Temperature Cycle -65/150C	500 Cycles	3/231/0
WBP	Bond Pull	Wires	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0

- 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 regional contacts shown below or your local Field Sales Representative.

Location	**E-Mail**
USA	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com