12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20161118002B
OPA2317/2330/2333, OPA317/330/333, TLV2333/333 Product Family Die Enhancement
Change Notification / Sample Request

Date: January 06, 2017
To: PREMIER FARNELL PCN

Dear Customer:

The purpose of this Rev B PCN is to add 8 part numbers that were inadvertently missed in the Product Affected section on page 3 of this document. We apologize for any inconvenience this may have caused.

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).

PCN Team
SC Business Services

20161118002
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
OPA333AIDCKR	null
OPA333AIDCKT	null
OPA330AIDCKT	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20161118002**B**	**PCN Date:**	**Jan 6, 2017**
Title:	OPA2317/2330/2333, OPA317/330/333, TLV2333/333 Product Family Die Enhancement		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Mar 5, 2017	**Estimated Sample Availability:**	Date provided at sample request.

Change Type:

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

PCN Details

Description of Change:

This purpose of this Revision B is to add 8 part numbers that were inadvertently missed in the Product Affected section below. There is no change in the terms of this notification.

This notification is to announce a die enhancement to the affected product families listed in the Products Affected section of this document. This change will result in enhanced manufacturability for these products. There is no change to device performance or datasheet specifications.

Affected devices are listed in the product affected section of this document.

Reason for Change:

Die Enhancement

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

None

Changes to product identification resulting from this PCN:

Die Rev designator (Aizu fab only) will change as shown in the table and sample label below:

	Current		New
Product Family	**Wafer fab**	**Die Rev [2P]**	**Die Rev [2P]**
OPA2317/2330/2333, TLV2333	Aizu	C	E

	Current		New
Product Family	**Wafer fab**	**Die Rev [2P]**	**Die Rev [2P]**
OPA317/330/333, TLV333	Aizu	F	A

Sample product shipping label (not actual product label)

Product Affected:			
OPA2317ID	OPA2333AIDGKR	OPA330AID	**OPA333AIDCKR**
OPA2317IDGKR	OPA2333AIDGKRG4	OPA330AIDBVR	**OPA333AIDCKRG4**
OPA2317IDGKT	OPA2333AIDGKT	OPA330AIDBVRG4	**OPA333AIDCKT**
OPA2317IDR	OPA2333AIDGKTG4	OPA330AIDBVT	**OPA333AIDCKTG4**
OPA2330AID	OPA2333AIDR	OPA330AIDBVTG4	OPA333AIDG4
OPA2330AIDGKR	OPA2333AIDRBR	**OPA330AIDCKR**	OPA333AIDR
OPA2330AIDGKRG4	OPA2333AIDRBRG4	**OPA330AIDCKRG4**	OPA333AIDRG4
OPA2330AIDGKT	OPA2333AIDRBT	**OPA330AIDCKT**	TLV2333IDGKR
OPA2330AIDR	OPA2333AIDRBTG4	**OPA330AIDCKTG4**	TLV2333IDGKT
OPA2330AIDRBR	OPA2333AIDRG4	OPA330AIDR	TLV2333IDR
OPA2330AIDRBRG4	OPA317ID	OPA330AIDRG4	TLV333IDBVR
OPA2330AIDRBT	OPA317IDBVR	OPA333AID	TLV333IDBVT
OPA2330AIDRBTG4	OPA317IDBVT	OPA333AIDBVR	TLV333IDCKR
OPA2330AIDRG4	OPA317IDCKR	OPA333AIDBVRG4	TLV333IDCKT
OPA2333AID	OPA317IDCKT	OPA333AIDBVT	TLV333IDR
OPA2333AIDG4	OPA317IDR	OPA333AIDBVTG4	

Qualification Report

OPA2333 die qualification in AIZU

Approve Date 29-Aug-2016

Product Attributes

Attributes	Qual Device: OPA2333AIDGKR	Qual Device: OPA2333AIDR	Qual Device: OPA2333AIDRBR	QBS Process Reference: BUF12840AIRGE	QBS Process Reference: INA210AIDCK	QBS Process Reference: INA219AIDCN	QBS Process Reference: OPA2333AIDGK	QBS Package Reference: SN0903049DRG	QBS Package Reference: SN65HVD1780DR	QBS Package Reference: SN65LVCP22DR	QBS Package Reference: SN74LV138ATDR	QBS Package Reference: TH54304DGK	QBS Package Reference: TL1454ACDBR	QBS Package Reference: TPA4860DR	QBS Package Reference: TPS51427ARHB	QBS Package Reference: TPS51620RHAR	QBS Package Reference: TPS61042DRB	QBS Package Reference: TPS62410DRC
Assembly Site	ASESH	MLA	MLA	CLARK	HNT	NS2	ASESH	MLA	MLA	TAI	MLA	ASESH	MLA	TAI	MLA	MLA	MLA	MLA
Package Family	VSSOP	SOIC	SON	VQFN	SOT	SOT	VSSOP	SON 3X3	SOIC	SOIC	SOIC	VSSOP	SSOP	SOIC	VQFN	VQFN	SON	SON
Flammability Rating	UL94 Class V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL94 Class V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	AIZU	AIZU	AIZU	AIZU	AIZU	AIZU	AIZU	DM0S6	DMOS6	FFAB	SFAB	FFAB	SFAB	DFAB	MIHO8	DFAB	MIHO8	FFAB
Wafer Process	50HPA07	50HPA07	50HPA07	50HPA07	50HPA07	50HPA07	50HPA07	50HPA07	LBC5X	RF_BICMOS1	EPIC1-S_DLM	BICOM3	JI1	LBC3S	LBC7	LBC4X	3370A12	3370A12

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL1-260CG: OPA2333AIDR, OPA2333AIDGKR
- Qual Device OPA2333AIDRBR is qualified at LEVEL2-260C

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: OPA2333AIDGKR	Qual Device: OPA2333AIDR	Qual Device: OPA2333AIDRBR	QBS Process Reference: BUF12840AIRGE	QBS Process Reference: INA210AIDCK	QBS Process Reference: INA219AIDCN	QBS Process Reference: OPA2333AIDGK	QBS Package Reference: SN0903049DRG	QBS Package Reference: SN65HVD1780DR	QBS Package Reference: SN65LVCP22DR	QBS Package Reference: SN74LV138ATDR	QBS Package Reference: THS4304DGK	QBS Package Reference: TL1454ACDBR	QBS Package Reference: TPA4860DR	QBS Package Reference: TPS51427ARHB	QBS Package Reference: TPS51620RHAR	QBS Package Reference: TPS61042DRB	QBS Package Reference: TPS62410DRC
AC	Autoclave 121C	96 Hours	-	-	-	-	-	-	-	-	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	1/77/0	3/231/0	3/231/0	-	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	Pass	Pass	Pass	Pass	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	-	-	-	-	1/77/0	1/77/0	1/77/0	3/231/0	-	-	-	3/231/0	-	-	-	-	3/228/0	-
HBM	ESD - HBM	4000 V	-	1/3/0	1/3/0	-	-	-	-	3/9/0	-	-	-	-	-	-	-	-	-	-
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/9/0
HTOL	Life Test, 150C	300 Hours	-	1/77/0	-	1/77/0	1/77/0	1/77/0	1/77/0	1/77/0	-	-	-	-	-	-	-	-	-	-
HTOL	Life Test, 155C	240 Hours	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-	-	-	3/231/0	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	1/77/0	1/77/0	1/77/0	-	1/77/0	-	3/231/0	-	3/231/0	3/227/0	-	3/231/0	3/230/0	-	3/231/0
LI	Lead Fatigue	Leads	-	-	-	-	-	-	-	-	-	-	-	3/66/0	-	-	-	-	-	-
LI	Lead Pull to Destruction	Leads	-	-	-	-	-	-	-	-	-	-	-	3/66/0	-	-	-	-	-	-
LU	Latch-up	(per JESD78)	-	1/6/0	1/6/0	1/6/0	1/6/0	1/6/0	1/6/0	1/6/0	-	-	-	-	-	-	-	-	-	-
PD	Physical Dimensions	--	-	-	-	-	-	-	-	-	-	-	-	1/20/0	-	-	-	-	-	3/15/0
PKG	Lead Finish Adhesion	Leads	-	-	-	-	-	-	-	-	-	-	-	3/45/0	-	-	-	-	-	-
SD	Surface Mount Solderability	8 Hours Steam Age	-	-	-	-	-	-	-	-	-	-	-	3/66/0	-	-	-	-	-	-
SD	Surface Mount Solderability	Pb Free	-	-	-	-	-	-	-	-	-	-	-	3/66/0	-	-	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	-	1/77/0	1/77/0	1/77/0	1/77/0	3/175/0	3/231/0	3/231/0	3/231/0	3/212/0	3/231/0	1/77/0	3/231/0	3/231/0	-	3/231/0
TS	Thermal Shock, -65/150C	500 Cycles	-	-	-	-	-	-	-	-	-	-	-	3/231/0	-	-	3/231/0	3/231/0	-	3/231/0
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	-	-	1/77/0	1/77/0	1/77/0	1/77/0	2/154/0	-	-	-	-	-	-	-	-	-	-
WBP	Bond Pull	Wires	-	-	-	-	-	-	-	-	-	-	-	3/240/0	-	-	-	-	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	-	-	-	-	-	-	-	-	-	-	3/240/0	-	-	-	-	3/90/0	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
OPA333 die shrink qualification in AIZU
Approve Date 15-Nov-2016

Product Attributes

Attributes	Qual Device: OPA333AID	Qual Device: OPA333AIDBV	Qual Device: OPA333AIDCK	QBS Process Reference: OPA2333AIDGK	QBS Process Reference: TMP431ADGK	QBS Package Reference: OPA2330AIDR	QBS Package Reference: OPA333AIDCK	QBS Package Reference: SN74AHCT14DR	QBS Package Reference: SN74LVC86ADR	QBS Package Reference: TL431CDBV	QBS Package Reference: TPS3808G50QDBVRQ1	QBS Package Reference: TS12A4517DR
Die Attributes	-	-	-	-	-	-	-	-	-	-	-	-
Die Revision	A	A	A	C	B	C	F	D	K	E	A	A
Wafer Fab Supplier	AIZU	AIZU	AIZU	AIZU	AIZU	AIZU	AIZU	SFAB	FFAB	SFAB	FFAB	DFAB
Wafer Process	50HPA07	50HPA07	50HPA07	50HPA07	50HPA07	50HPA07	50HPA07	EPIC1S1	ACTPI	JI Bipolar	3370A12X3	LBC3S
Die Size (L,W) (mm)	0.676 X 0.796	0.676 X 0.796	0.676 X 0.796	1.04 X 1.56	1.14 X 2.13	1.04 X 1.57	0.83 X 0.99	0.84 X 0.97	1.02 X 0.84	1.0287 X 1.2574	1.44 X 0.78	0.55 X 0.59
Passivation	8kASION	8kASION	8kASION	8kASION	8kASION	8kASION	8kASION	-	-	10kACN	CN 11kA	-
Package Attributes	-	-	-	-	-	-	-	-	-	-	-	-
Assembly Site	MLA	UTAC	NFME	ASESH	HNT	MLA	NFME	MLA	MLA	UTAC	UTAC	MLA
Package Family	SOIC	SOT	SOT	VSSOP	VSSOP	SOIC	SOT	SOIC	SOIC	SOT	SOT	SOIC
Package Designator	D	DBV	DCK	DGK	DGK	D	DCK	D	D	DBV	DBV	D
Package Size (mils)	192.9 X 153.9	114.17 X 63	78.74 X 49.21	118.11 X 118.11	118.11 X 118.11	192.9 X 153.9	78.74 X 49.21	340.55 X 153.93	340.55 X 153.93	114.17 X 63	114.17 X 63	192.9 X 153.9
Body Thickness (mils)	62.2	47.24	35.43	38.18	39.37	62.2	35.43	62.2	62.2	47.24	47.24	62.2
Pin Count	8	5	5	8	8	8	5	14	14	5	6	8
Lead Frame Type	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu
Lead Finish	NiPdAu	NiPdAu	NIPDAU	NiPdAuAg	NiPdAu	NiPdAu	NiPdAu	NiPdAu	NiPdAu	NiPdAu	NiPdAu	NiPdAu
Lead Pitch(mils)	50	37.4	25.59	25.59	25.59	50	25.59	50	50	37.4	37.4	50
Mount Compound Supplier	HENKEL	HENKEL	HENKEL	HITACHI	HENKEL	HITACHI	HENKEL	HITACHI	HITACHI	HENKEL	HENKEL	HITACHI
Mount Compound Supplier Number	QMI505MT	ABLEBOND 84-1LMISR4	ABLECOAT 8006NS	EN-4900G	Ablebond 84-1LMISR4	EN-4088Z	AbleCoat 8006NS	EN-4088Z	EN-4088Z	Ablebond 84-1LMISR4	Ablebond 84-1LMISR4	EN-4088Z
Mold Compound Supplier	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo	Sumitomo
Mold Compound Supplier Number	EME-G633C	EME-G600	EME-G600F	EME-G700LY	EME-G700FGT	EME-G633C	EME-G600F	EME-G633C	EME-G633C	EME-G600	EME-G600	EME-G633C
Bond Wire Composition	Au	Au	Au	Au	Au	Cu	Au	Cu	Cu	Au	Au	Cu
Bond Wire Diameter(mils)	0.96	1.0	1.0	1.0	1.0	0.96	1.0	0.96	0.96	1.0	1.0	0.96
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL94 Class V-0	UL94 Class V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0

- QBS: Qual By Similarity
- Qual Device OPA333AIDCK is qualified at LEVEL1-260C
- Qual Device OPA333AIDBV is qualified at LEVEL1-260C
- Qual Device OPA333AID is qualified at LEVEL1-260C

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

Type	Test Name / Condition	Duration	Qual Device: OPA333AID	Qual Device: OPA333AIDBV	Qual Device: OPA333AIDCK	QBS Process Reference: OPA2333AIDGK	QBS Process Reference: TMP431ADGK	QBS Package Reference: OPA2330AIDR	QBS Package Reference: OPA333AIDCK	QBS Package Reference: SN74AHCT14DR	QBS Package Reference: SN74LVC86ADR	QBS Package Reference: TL431CDBV	QBS Package Reference: TPS3808G50QDBVRQ1	QBS Package Reference: TS12A4517DR
AC	Autoclave 121C	96 Hours	-	-	-	-	-	3/230/0	-	3/231/0	3/218/0	-	-	3/231/0
CDM	ESD - CDM	1000 V	1/3/0	1/3/0	1/3/0	1/3/0	1/3/0	-	3/9/0		-	-		-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	Pass	Pass	-	-		-	-	-	-
HAST	Biased HAST 130C/85%RH	96 Hours	-	-	-	1/77/0	2/154/0	-	3/231/0		-	-	3/231/0	-
HBM	ESD - HBM	2500 V	-	-	-	1/3/0	1/3/0	-	-		-	-	-	-
HBM	ESD - HBM	4000 V	-	1/3/0	1/3/0	-	-	-	-		-	-	-	-
HTOL	Life Test, 150C	300 Hours	-	-	1/77/0	1/77/0	2/154/0	-	3/228/0		-	-	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	-	-	-	3/231/0	3/231/0	3/205/0	-	-	1/45/0	3/231/0
LI	Lead Fatigue	Leads	-	-	-	-	-	-	-	3/66/0	-	-	-	3/66/0
LU	Latch-up	Per JESD78	-	1/6/0	1/6/0	1/6/0	1/6/0	-	3/18/0		-	-	-	-
SD	Solderability	Pb-Free/Solder-	-	-	-	-	-	-	3/99/0		-	-	-	-
TC	Temperature Cycle -65/150C	500 Cycles	-	-	-	1/77/0	2/154/0	3/222/0	3/231/0	3/231/0	3/231/0	-	3/231/0	3/198/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	-	1/77/0	2/154/0	-	-					

- 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
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- 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 you can contact 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