



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20160308002B
Add Cu as Alternative Wire Base Metal for Selected Device(s)
Change Notification / Sample Request

Date: 9/9/2016
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

Revision B is to announce the retraction of select devices.

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 proposed first ship date is indicated on page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

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

20160308002
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
LP2996MRX/J7002223	null

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

PCN Number:	20160308002B		PCN Date:	Sept. 9, 2016																						
Title:	Add Cu as Alternative Wire Base Metal for Selected Device(s)																									
Customer Contact:	PCN Manager	Dept:	Quality Services																							
Proposed 1st Ship Date:	July 9, 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:																										
Revision A is to announce the <u>retraction</u> of select devices. These devices will continue to be manufactured as prior and will not be subjected to the change described in this notification. Affected devices are identified with a strike through and are highlighted in yellow in the Product Affected Section. Texas Instruments is pleased to announce the qualification of Cu as an additional bond wire option for selected devices listed in "Product affected" section below. Devices will remain in current assembly facilities and there will be no other piece part changes: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Pkg Family</th> <th>Current Wire</th> <th>Additional Wire</th> </tr> </thead> <tbody> <tr> <td>SOT</td> <td>Au 1.0 mils</td> <td>Cu, 1.0 mils</td> </tr> <tr> <td>TSSOP</td> <td>Au, 0.96 mils</td> <td>Cu, 0.96 mils</td> </tr> <tr> <td>SOIC</td> <td>Au, 1.3 mils</td> <td>Cu, 1.3 mils</td> </tr> <tr> <td>SOIC_a</td> <td>Au, 0.96 mils</td> <td>Cu, 0.96 mils</td> </tr> <tr> <td>VSSOP</td> <td>Au, 0.96 mils</td> <td>Cu, 0.96 mils</td> </tr> <tr> <td>VSSOP_a</td> <td>Au, 1.30 mils</td> <td>Cu, 1.3 mils</td> </tr> </tbody> </table>						Pkg Family	Current Wire	Additional Wire	SOT	Au 1.0 mils	Cu, 1.0 mils	TSSOP	Au, 0.96 mils	Cu, 0.96 mils	SOIC	Au, 1.3 mils	Cu, 1.3 mils	SOIC_a	Au, 0.96 mils	Cu, 0.96 mils	VSSOP	Au, 0.96 mils	Cu, 0.96 mils	VSSOP_a	Au, 1.30 mils	Cu, 1.3 mils
Pkg Family	Current Wire	Additional Wire																								
SOT	Au 1.0 mils	Cu, 1.0 mils																								
TSSOP	Au, 0.96 mils	Cu, 0.96 mils																								
SOIC	Au, 1.3 mils	Cu, 1.3 mils																								
SOIC_a	Au, 0.96 mils	Cu, 0.96 mils																								
VSSOP	Au, 0.96 mils	Cu, 0.96 mils																								
VSSOP_a	Au, 1.30 mils	Cu, 1.3 mils																								
Reason for Change:																										
Continuity of supply. 1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties 2) Maximize flexibility within our Assembly/Test production sites. 3) Cu is easier to obtain and stock																										
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:																										
None																										

Product Affected:

Device	Package Family	Device	Package Family
DS90C363MTD	TSSOP	LP2996MRX/46	SOIC
DS90C363MTD/J5000204	TSSOP	LP2996MRX/46SN	SOIC
DS90C363MTD/NOPB	TSSOP	LP2996MRX/J7001247	SOIC
DS90C363MTDX/J5000203	TSSOP	LP2996MRX/J7002223	SOIC
DS90C363MTDX/NOPB	TSSOP	LP2996MRX/NOPB	SOIC
DS90C383MTD/NOPB	TSSOP	LP2996MX/46	SOIC
DS90C383MTDX/NOPB	TSSOP	LP2996MX/46SN	SOIC
DS90CF364AMTD	TSSOP	LP2996MX/J5000337	SOIC
DS90CF364AMTD/NOPB	TSSOP	LP2996MX/J7000947	SOIC
DS90CF364AMTDX	TSSOP	LP2996MX/NOPB	SOIC
DS90CF364AMTDX/NOPB	TSSOP	LP2997M	SOIC
DS90CF364MTD/NOPB	TSSOP	LP2997M/J7002921	SOIC
DS90CF364MTDX/NOPB	TSSOP	LP2997M/NOPB	SOIC
DS90CF383MTD/NOPB	TSSOP	LP2997MR	SOIC
DS90CF383MTDX/NOPB	TSSOP	LP2997MR/J7002436	SOIC
DS90CF384AMTD/J7000878	TSSOP	LP2997MR/NOPB	SOIC
DS90CF384AMTD/NOPB	TSSOP	LP2997MRX	SOIC
DS90CF384AMTDX/J7000879	TSSOP	LP2997MRX/J7002437	SOIC
DS90CF384AMTDX/NOPB	TSSOP	LP2997MRX/NOPB	SOIC
DS90CF384MTD/NOPB	TSSOP	LP2997MX/J7002922	SOIC
DS90CF384MTDX/NOPB	TSSOP	LP2997MX/NOPB	SOIC
DS90CR215MTD	TSSOP	LP2998MA/NOPB	SOIC
DS90CR215MTD/NOPB	TSSOP	LP2998MAE/NOPB	SOIC
DS90CR215MTDX/NOPB	TSSOP	LP2998MAX/J7002528	SOIC
DS90CR216AMTD	TSSOP	LP2998MAX/J7002555	SOIC
DS90CR216AMTD/NOPB	TSSOP	LP2998MAX/NOPB	SOIC
DS90CR216AMTDX/NOPB	TSSOP	LP2998MR/J7002445	SOIC
DS90CR216MTD	TSSOP	LP2998MR/NOPB	SOIC
DS90CR216MTD/NOPB	TSSOP	LP2998MRE/NOPB	SOIC
DS90CR216MTDX	TSSOP	LP2998MRX/J7002446	SOIC
DS90CR216MTDX/NOPB	TSSOP	LP2998MRX/NOPB	SOIC

DS90CR217MTD	TSSOP	REF2912AIDBZR	SOT
DS90CR217MTD/NOPB	TSSOP	REF2912AIDBZT	SOT
DS90CR217MTDX/NOPB	TSSOP	REF2912AIDBZTG4	SOT
DS90CR285MTD/NOPB	TSSOP	REF2920AIDBZR	SOT
DS90CR285MTDX/NOPB	TSSOP	REF2920AIDBZRG4	SOT
DS90CR286AMTD/NOPB	TSSOP	REF2920AIDBZT	SOT
DS90CR286AMTDX/NOPB	TSSOP	REF2920AIDBZTG4	SOT
DS90CR286MTD/NOPB	TSSOP	REF2925AIDBZR	SOT
DS90CR286MTDX/NOPB	TSSOP	REF2925AIDBZRG4	SOT
DS90CR287MTD/NOPB	TSSOP	REF2925AIDBZT	SOT
DS90CR287MTDX/NOPB	TSSOP	REF2925AIDBZTG4	SOT
DS90LV031ATMTC/NOPB	TSSOP	REF2930AIDBZR	SOT
DS90LV031ATMTCX/NOPB	TSSOP	REF2930AIDBZRG4	SOT
DS90LV032ATMTC/NOPB	TSSOP	REF2930AIDBZT	SOT
DS90LV032ATMTCX/NOPB	TSSOP	REF2930AIDBZTG4	SOT
DS90LV047ATMTC/DRSN	TSSOP	REF2933AIDBZR	SOT
DS90LV047ATMTC/NOPB	TSSOP	REF2933AIDBZRG4	SOT
DS90LV048ATMTC/NOPB	TSSOP	REF2933AIDBZT	SOT
EMB1412MY/NOPB	VSSOP_a	REF2933AIDBZTG4	SOT
EMB1412MYE/NOPB	VSSOP_a	REF2940AIDBZR	SOT
LM2621MM/NOPB	VSSOP_a	REF2940AIDBZRG4	SOT
LM2621MMX/NOPB	VSSOP_a	REF2940AIDBZT	SOT
LM2623AMM	VSSOP_a	REF2940AIDBZTG4	SOT
LM2623AMM/NOPB	VSSOP_a	REF3012AIDBZR	SOT
LM2623AMMX/NOPB	VSSOP_a	REF3012AIDBZRG4	SOT
LM2623MM/NOPB	VSSOP_a	REF3012AIDBZT	SOT
LM2623MMX/NOPB	VSSOP_a	REF3012AIDBZTG4	SOT
LM2687MM	VSSOP_a	REF3020AIDBZR	SOT
LM2687MM/NOPB	VSSOP_a	REF3020AIDBZRG4	SOT
LM2687MMX/NOPB	VSSOP_a	REF3020AIDBZT	SOT
LM3224MM-ADJ/NOPB	VSSOP_a	REF3020AIDBZTG4	SOT
LM3224MMX-ADJ/NOPB	VSSOP_a	REF3025AIDBZR	SOT
LM3402MM/NOPB	VSSOP_a	REF3025AIDBZRG4	SOT
LM3402MMX/NOPB	VSSOP_a	REF3025AIDBZT	SOT
LM3409HVMY/NOPB	VSSOP_a	REF3025AIDBZTG4	SOT
LM3409HVMYX/NOPB	VSSOP_a	REF3030AIDBZRG4	SOT
LM3409MY/NOPB	VSSOP_a	REF3030AIDBZT	SOT
LM3409MYX/NOPB	VSSOP_a	REF3030AIDBZTG4	SOT
LM3409MYX/S7002564	VSSOP_a	REF3033AIDBZR	SOT
LM3477AMM/NOPB	VSSOP_a	REF3033AIDBZRG4	SOT
LM3477AMMX/NOPB	VSSOP_a	REF3033AIDBZT	SOT
LM3477MM	VSSOP_a	REF3033AIDBZTG4	SOT
LM3477MM/NOPB	VSSOP_a	REF3040AIDBZR	SOT
LM3477MMX	VSSOP_a	REF3040AIDBZRG4	SOT

LM3477MMX/NOPB	VSSOP_a	REF3040AIDBZT	SOT
LM3478MM	VSSOP_a	REF3040AIDBZTG4	SOT
LM3478MM/NOPB	VSSOP_a	REF3112AIDBZR	SOT
LM3478MM/S7002338	VSSOP_a	REF3112AIDBZRG4	SOT
LM3478MMX/E7002426	VSSOP_a	REF3112AIDBZT	SOT
LM3478MMX/NOPB	VSSOP_a	REF3112AIDBZTG4	SOT
LM3478MMX/S5000085	VSSOP_a	REF3120AIDBZR	SOT
LM3478MMX/S5000472	VSSOP_a	REF3120AIDBZRG4	SOT
LM3487MM/NOPB	VSSOP_a	REF3120AIDBZT	SOT
LM3487MMX/NOPB	VSSOP_a	REF3120AIDBZTG4	SOT
LM3488MM	VSSOP_a	REF3125AIDBZR	SOT
LM3488MM/J7002912	VSSOP_a	REF3125AIDBZRG4	SOT
LM3488MM/NOPB	VSSOP_a	REF3125AIDBZT	SOT
LM3488MM/S7002334	VSSOP_a	REF3125AIDBZTG4	SOT
LM3488MMX/NOPB	VSSOP_a	REF3130AIDBZR	SOT
LM3525M-H	SOIC	REF3130AIDBZRG4	SOT
LM3525M-H/NOPB	SOIC	REF3130AIDBZT	SOT
LM3525M-L	SOIC	REF3130AIDBZTG4	SOT
LM3525M-L/MESN	SOIC	REF3133AIDBZR	SOT
LM3525M-L/NOPB	SOIC	REF3133AIDBZRG4	SOT
LM3525MX-H	SOIC	REF3133AIDBZT	SOT
LM3525MX-H/J5000395	SOIC	REF3133AIDBZTG4	SOT
LM3525MX-H/J7002225	SOIC	REF3140AIDBZR	SOT
LM3525MX-H/NOPB	SOIC	REF3140AIDBZRG4	SOT
LM3525MX-H/S7002348	SOIC	REF3140AIDBZT	SOT
LM3525MX-L/NOPB	SOIC	REF3140AIDBZTG4	SOT
LM3525MX-L/S7002493	SOIC	SM72482MY-1/NOPB	VSSOP_a
LM3526M-H	SOIC	SM72482MYE-1/NOPB	VSSOP_a
LM3526M-H/NOPB	SOIC	SM72482MYX-1/NOPB	VSSOP_a
LM3526M-L	SOIC	SN239089DBZR	SOT
LM3526M-L/NOPB	SOIC	SN249089DBZR	SOT
LM3526MX-H/J5000143	SOIC	TLV803MDBZR	SOT
LM3526MX-H/J5000396	SOIC	TLV803MDBZT	SOT
LM3526MX-H/NOPB	SOIC	TLV803RDBZR	SOT
LM3526MX-L	SOIC	TLV803RDBZT	SOT
LM3526MX-L/J7000497	SOIC	TLV803SDBZR	SOT
LM3526MX-L/NOPB	SOIC	TLV803SDBZT	SOT
LM3526MX-L/S7002586	SOIC	TLV803ZDBZR	SOT
LM3544M-L	SOIC	TLV803ZDBZT	SOT
LM3544M-L/NOPB	SOIC	TLV809I50DBZR	SOT
LM3544MX-L/NOPB	SOIC	TLV809I50DBZT	SOT
LM5022MM	VSSOP_a	TLV809J25DBZR	SOT
LM5022MM/NOPB	VSSOP_a	TLV809J25DBZT	SOT
LM5022MME/NOPB	VSSOP_a	TLV809K33DBZR	SOT

LM5022MMX/NOPB	VSSOP_a	TLV809K33DBZT	SOT
LM5111-1MY/NOPB	VSSOP_a	TLV809L30DBZR	SOT
LM5111-1MYX/NOPB	VSSOP_a	TLV809L30DBZT	SOT
LM5111-2MY/NOPB	VSSOP_a	TLV810MDBZR	SOT
LM5111-2MYX/NOPB	VSSOP_a	TLV810MDBZT	SOT
LM5111-4MY/NOPB	VSSOP_a	TLV810RDBZR	SOT
LM5112MY/NOPB	VSSOP_a	TLV810RDBZT	SOT
LM5112MYX/NOPB	VSSOP_a	TLV810SDBZR	SOT
LM75AIM/NOPB	SOIC	TLV810SDBZT	SOT
LM75AIMM/NOPB	VSSOP	TLV810ZDBZR	SOT
LM75AIMME/NOPB	VSSOP	TLV810ZDBZT	SOT
LM75AIMMX/NOPB	VSSOP	TLV863MDBZR	SOT
LM75AIMX/NOPB	SOIC	TLV863MDBZT	SOT
LMR61428XMM/NOPB	VSSOP_a	TPD2E009DBZR	SOT
LMR61428XMMX/NOPB	VSSOP_a	TPS3839A09DBZR	SOT
LP2995MR	SOIC	TPS3839A09DBZT	SOT
LP2995MR/J7002808	SOIC	TPS3839E16DBZR	SOT
LP2995MR/NOPB	SOIC	TPS3839E16DBZT	SOT
LP2995MRX	SOIC	TPS3839G12DBZR	SOT
LP2995MRX/NOPB	SOIC	TPS3839G12DBZT	SOT
LP2996M	SOIC	TPS3839G18DBZR	SOT
LP2996M/46	SOIC	TPS3839G18DBZT	SOT
LP2996M/46SN	SOIC	TPS3839G33DBZR	SOT
LP2996M/NOPB	SOIC	TPS3839G33DBZT	SOT
LP2996MR	SOIC	TPS3839K33DBZR	SOT
LP2996MR/46	SOIC	TPS3839K33DBZT	SOT
LP2996MR/46SN	SOIC	TPS3839K50DBZR	SOT
LP2996MR/J7001509	SOIC	TPS3839K50DBZT	SOT
LP2996MR/NOPB	SOIC	TPS3839L30DBZR	SOT
LP2996MRX	SOIC	TPS3839L30DBZT	SOT

Qualification Report

**Conversion of SOT23 (DBZ) devices from Au wire to Cu wire at NS2
Approve Date 11-Jan-2016**

Product Attributes

Attributes	Qual Device: BQ2022ADBZR	Qual Device: REF3112AIDBZR	Qual Device: TPD2E009DBZR
Assembly Site	NS2	NS2	NS2
Package Family	SOP (SOT23) (COL)	SOP (SOT23)	SOP
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	MH8	TMSC FAB2B	FFAB
Wafer Process	LBC7	0.6UM TSMC	ASLC10_BOPO

- QBS: Qual By Similarity

- Qual Devices qualified at LEVEL1-260CG: BQ2022ADBZR, REF1112AIDBZR, REF3112AIDBZR

- Qual Device TPD2E009DBZR is qualified at LEVEL 2-260C

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: BQ2022ADBZR	Qual Device: REF3112AIDBZR	Qual Device: TPD2E009DBZR
PC	Preconditioning	Level 1-260C	6/924/0	3/693/0	3/693/0
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0
DS	Die Shear	--	3/30/0	3/30/0	3/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-	-
WBP	Bond Pull	Wires	3/90/0	3/90/0	3/90/0
WBS	Ball Bond Shear	Wires	3/90/0	3/90/0	3/90/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0

- 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

0.96 mil Cu wire qual for VSSOP & TSSOP Packages

Product Attributes

Attributes	Qual Device: LMV852MMX	Qual Device: LMC6482IMM	Qual Device: LM93C1MT	Qual Device: LM5642MHX
Assembly Site	TIEMA	TIEMA	TIEMA	TIEMA
Package Family	VSSOP	VSSOP	TSSOP	TSSOP
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	MFAB	GFAB	MFAB	MFAB
Wafer Fab Process	CMOS7	P2CMOS	CMOS7	ABCD150

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: LMV852MMX	Qual Device: LMC6482IMM	Qual Device: LM93C1MT	Qual Device: LM5642MHX
PC	PreCon Level 1	Level 1-260C	3/462/0	3/462/0	-	3/231/0
PC	PreCon Level 2	Level 2-260C	-	-	3/693/0	-
HAST	Biased HAST, 130C/85%RH	96/hrs. @130C	-	-	3/231/0	-
AC	Autoclave 121C	96HRS	3/231/0	3/231/0	3/231/0	-
TC	Temperature Cycle, -65/150C	TMCL500X	3/231/0	3/231/0	3/231/0	3/231/0
HTSL	High Temp Storage Bake 150C	1000 hrs. @150C	-	-	1/77/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	-	-
DPA	Destructive Physical Analysis Post 500 Temp Cycle	x-section and de process to examine assembly robustness, Check for stich bond and bond pad integrity	3/15/0	3/15/0	-	3/15/0
YLD	FTY and Bin Summary	Compare against baseline	Pass	Pass	-	-

Qualification Data: Approved 12/30/2012

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qualification Device: DS90CP22MX-8 (MSL 1-260c)

Package Construction Details

Assembly Site:	TIEM	Mold Compound:	8096859
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	8075531
Leadframe (Finish, Base):	Matte Sn, Cu	Bond Wire:	0.96 Mil Dia., Cu

Qualification: ☐ Plan ☒ Test Results

Reliability Test	Conditions	Sample Size / Fail		
		Lot 1	Lot 2	Lot 3
**T/C -65C/150C	JESD22-A104 (500 Cyc)	80/0	80/0	80/0
**ACLV 121C/100%RH, 2ATM	JESD22-A102 (96 Hrs)	80/0	80/0	79/0
Notes: **Tests received preconditioning sequence: MSL1-260C				

Qualification Data: Approved 2/06/2013

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qualification Device: LP2995MX/NOPB (MSL 1-260c)

Package Construction Details

Assembly Site:	TIEM	Mold Compound:	8095179
# Pins-Designator, Family:	8-D, SOIC	Mount Compound:	8080598
Leadframe (Finish, Base):	Matte Sn, Cu	Bond Wire:	0.96 Mil Dia., Cu

Qualification: ☐ Plan ☒ Test Results

Reliability Test	Conditions	Sample Size / Fail		
		Lot 1	Lot 2	Lot 3
**Autoclave 121C	121C, 2 ATM (96 hrs)	79/0	80/0	80/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	80/0	80/0	80/0
Destructive Physical Analysis	Post Temp Cycle	pass	pass	pass
Manufacturability (Assembly)	(per mfg. Site specification)	pass	pass	pass
CSAM/TSAM	Post Temp Cycle	pass	pass	pass

Notes: **Tests received preconditioning sequence: MSL1-260C

Reference Qualification Data: Approved 9/09/2012

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qualification Device: LM93C1MT/NOPB (MSL 2-260c)

Package Construction Details

Assembly Site:	TIEM	Mold Compound:	8095181
# Pins-Designator, Family:	56-DGG, TSSOP	Mount Compound:	8080598
Leadframe (Finish, Base):	Matte Sn, Cu	Bond Wire:	0.96 Mil Dia., Cu

Qualification: ☐ Plan ☒ Test Results

Reliability Test	Conditions	Sample Size / Fail		
		Lot 1	Lot 2	Lot 3
High Temp. Storage Bake	150C (500, 1000 Hrs)	77/0	--	--
**Biased HAST	130C/85%RH/33.3 psia (96 hrs)	80/0	80/0	80/0

Notes: **Tests received preconditioning sequence: MSL2-260C

Qualification Report

**0.96 mils Bare Cu Qual on 0.35 TSMC in TSSOP at
TIEMA
Approved 02/22/2016**

Product Attributes

Attributes	Qual Device: DS90CR287MTD/NOPB	Qual Device: DS90LV032ATMTC/NO
Assembly Site	TIEMA	TIEMA
Package Family	56 Lead TSSOP	16 Lead TSSOP
Flammability Rating	UL 94 V-0	UL 94 V-0
Wafer Fab Site	TSMC WF3	TSMC WF3
Wafer Fab Process	.35 Um TSMC	.35 UM TSMC

- QBS: Qual By Similarity
- Qual Device DS90CR287MTD/NOPB is qualified at LEVEL2-260CG
- Qual Device DS90LV032ATMTC/NO 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: DS90CR287MTD/NOPB	Qual Device: DS90LV032ATMTC/NO
AC	Autoclave 121C	96HRS	3/231/0	3/231/0
TC	Temperature Cycle, - 65/150C	500CYC	3/231/0	3/231/0
HTSL	High Temp Storage Bake 150C	500HRS	3/231/0	3/231/0
WBS	Wire Bond Shear	Post TC/500CYC	-	3/228/0
WBP	Bond Pull	Post TC/500CYC	-	3/90/0
VM	Visual Quality Reliability	Post TC	1/3/0	1/3/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	1/Pass	1/Pass
ED	Electrical Characterization	Side by Side	1/Pass	1/Pass
ILD	ILD Check		1/3/0	1/3/0

- 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

1.3 mils PCC Wire Qualification on CS65 (MFAB) in SOIC (D) 8ld, 16lds MSL1 and PSOP (DDA) 8lds MSL3 packages Approved: 02/23/2016

Product Attributes

Attributes	Qual Device: LP2996MX	Qual Device: LP2996MRX	Qual Device: LM3544MX
Assembly Site	TIEMA	TIEMA	TIEMA
Package Family	FRAME;SO;8L;88X90;CU;PRF;ST AMP;MAT;AP4AG	HSOIC	FRAME;SO;16L;JEDEC;.096X. 190;CU;ETCH;MAT;AP4AG
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Site	MAINEFAB	MAINEFAB	MAINEFAB
Wafer Fab Process	CS065	CS065	CS065

Qual Device LP2996MX_TEST LEG is qualified at LEVEL1-260CG
Qual Device LP2996MRX_TEST LEG is qualified at LEVEL3-260CG
Qual Device LM3544MX-L_TEST LEG is qualified at LEVEL1-260CG

Qualification Results

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

	Test Name / Condition	Duration	Qual Device: LP2996MX	Qual Device: LP2996MRX	Qual Device: LM3544MX
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	1/77/0
AC	Autoclave 121C	96 Hours	-	-	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96HRS	3/231/0		-
TC	Temperature Cycle, - 65/150C	500 Cycles	3/231/0	3/231/0	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0
WBS	Bond Shear	Ball Bond shear/Post TC	3/15/0	3/15/0	3/15/0
WBP	Bond Pull	Bond Pull Post Temp Cycle	3/15/0	3/15/0	3/15/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	1/Pass	1/Pass	1/Pass
Thermal Path Integrity	Thermal Path Integrity	Level 3-260C	3/36/0		
ED	Electrical Characterization	Per Datasheet Parameters	1/Pass	1/Pass	1/Pass

- 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

**1.3 mils PCC wire qualification on ABCD150 (GFAB - 8 inch) in VSSOP package
Approved 10/30/2015**

Product Attributes

Attributes	Qual Device: LM2682MM/NOPB	Qual Device: LM3445MM/NOPB
Assembly Site	TIEMA	TIEMA
Package Family	VSSOP	VSSOP
Flammability Rating	UL 94 V-0	UL 94 V-0
Wafer Fab Site	GFAB 200MM	GFAB 200MM
Wafer Fab Process	ABCD150	ABCD150

- QBS: Qual By Similarity

- Qual Devices qualified at LEVEL1-260CG: LM2682MM/NOPB, LM3445MM/NOPB

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: LM2682MM/NOPB	Qual Device: LM3445MM/NOPB
AC	Autoclave 121C	96HRS	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500CYC	3/231/0	3/231/0
WBS	Bond Shear	Ball Bond shear/Post TC	3/15/0	3/15/0
WBP	Bond Pull	Post T/C	3/15/0	3/15/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass
VQR	Visual Quality Inspection	Post Temp Cycle	Pass	Pass

- 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.

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