




<b>PCN Number:</b>	20180522002		<b>PCN Date:</b>	May 24, 2018													
<b>Title:</b>	Qualification of Hefei Tongfu Microelectronic Co. Ltd (HFTF) as additional Assembly and Test Site for Select Devices																
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services														
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Aug. 24, 2018		<b>Estimated Sample Availability:</b>	Date provided at sample request													
<b>Change Type:</b>																	
<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 checked="" type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Site												
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Materials												
		<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process												
<b>PCN Details</b>																	
<b>Description of Change:</b>																	
Texas Instruments is pleased to announce the Qualification of Hefei Tongfu Microelectronic Co. Ltd (HFTF) as additional Assembly and Test Site for Select Devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.																	
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly Site City</th> </tr> </thead> <tbody> <tr> <td>TI Philippines Inc.</td> <td>PHI</td> <td>PHL</td> <td>Baguio City</td> </tr> <tr> <td><b>HFTF</b></td> <td><b>HFT</b></td> <td><b>CHN</b></td> <td><b>Hefei</b></td> </tr> </tbody> </table>						Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City	TI Philippines Inc.	PHI	PHL	Baguio City	<b>HFTF</b>	<b>HFT</b>	<b>CHN</b>	<b>Hefei</b>
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City														
TI Philippines Inc.	PHI	PHL	Baguio City														
<b>HFTF</b>	<b>HFT</b>	<b>CHN</b>	<b>Hefei</b>														
<b>Material Differences:</b>																	
<table border="1"> <thead> <tr> <th></th> <th>TI Philippines Inc.</th> <th>HFTF</th> </tr> </thead> <tbody> <tr> <td>Mount Compound</td> <td>4207123</td> <td>A-18</td> </tr> <tr> <td>Mold compound</td> <td>4222198</td> <td>R-27</td> </tr> </tbody> </table>							TI Philippines Inc.	HFTF	Mount Compound	4207123	A-18	Mold compound	4222198	R-27			
	TI Philippines Inc.	HFTF															
Mount Compound	4207123	A-18															
Mold compound	4222198	R-27															
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.																	
<b>Reason for Change:</b>																	
Continuity of supply.																	
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>																	
None																	
<b>Anticipated impact on Material Declaration</b>																	
<input type="checkbox"/>	No Impact to the Material Declaration	<input checked="" type="checkbox"/>	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 <a href="#">TI Eco-Info website</a> . There is no impact to the material meeting current regulatory compliance requirements with this PCN change.														
<b>Changes to product identification resulting from this PCN:</b>																	
<table border="1"> <thead> <tr> <th colspan="3">Assembly Site</th> </tr> </thead> <tbody> <tr> <td>TI Philippines Inc.</td> <td>Assembly Site Origin (22L)</td> <td>ASO: PHI</td> </tr> <tr> <td><b>HFTF</b></td> <td><b>Assembly Site Origin (22L)</b></td> <td><b>ASO: HFT</b></td> </tr> </tbody> </table>						Assembly Site			TI Philippines Inc.	Assembly Site Origin (22L)	ASO: PHI	<b>HFTF</b>	<b>Assembly Site Origin (22L)</b>	<b>ASO: HFT</b>			
Assembly Site																	
TI Philippines Inc.	Assembly Site Origin (22L)	ASO: PHI															
<b>HFTF</b>	<b>Assembly Site Origin (22L)</b>	<b>ASO: HFT</b>															
Sample product shipping label (not actual product label)																	

 <b>TEXAS INSTRUMENTS</b> MADE IN: Malaysia 2DC: 2Q: MSL 2 /260C/1 YEAR SEAL DT MSL 1 /235C/UNLIM 03/29/04 OPT: ITEM: 39 <b>LBL: 5A (L)T0:1750</b>	 	(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	
<b>Product Affected: Group 1</b>			
TLV62568DBVR	TLV62568DBVT	TLV62569DBVR	TLV62569DBVT

## Qualification Report

### TLV62568DBVR & TLV62569DBVR HFTF Offload

Approve Date 14-May-2018

#### Product Attributes

Attributes	Qual Device: <u>TLV62568DBVR</u>	Qual Device: <u>TLV62569DBVR</u>	QBS Product Reference: <u>TLV62568DBV</u>	QBS Product Reference: <u>TLV62569DBV</u>
Assembly Site	HFTF	HFTF	PHI (TIPI)	PHI (TIPI)
Package Family	SOT-23	SOT-23	SOT-23	SOT-23
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	RFAB / DMOS6	RFAB / DMOS6
Wafer Process	LBC9	LBC9	LBC9LV	LBC9LV

Attributes	QBS Package Reference: <u>TLV70333DBVR</u>	QBS Package Reference: <u>TLV70333DBVR</u>	QBS Package Reference: <u>TLV74333PDBVR</u>
Assembly Site	NFME HFTF	NFME HFTF	NFME HFTF
Package Family	SOT-23	SOT-23	SOT-23
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	MIHO 8	MIHO 8	RFAB
Wafer Process	LBC7	LBC7	LBC7

- QBS: Qual By Similarity
- Qual Device TLV62569DBVR is qualified at LEVEL1-260CG
- Qual Device TLV62568DBVR 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: <u>TLV62568DBVR</u>	Qual Device: <u>TLV62569DBVR</u>	QBS Product Reference: <u>TLV62568DBV</u>	QBS Product Reference: <u>TLV62569DBV</u>
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	Pass	Pass
EDR	EEPROM Data Retention, 170C	420 Hours	-	-	-	-

EDR	One Time Programmable/EEPROM Data Retention, 170C	420 Hours	-	-	-	-
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	3/3000/0	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	-	-
FLAM	Flammability (UL 94V-0)	--	-	-	-	-
FLAM	Flammability (UL-1694)	--	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0	-
HBM	ESD - HBM	4000 V	-	-	1/3/0	1/3/0
CDM	ESD - CDM	1500 V	-	-	2/6/0	1/3/0
HTOL	Life Test, 150C	300 Hours	3/231/0	-	3/231/0	1/77/0
HTSL	High Temperature Storage, 170C	420 Hours	-	3/231/0	3/231/0	-
LI	Lead Fatigue	Leads	-	-	-	-
LI	Lead Pull	Leads	-	-	-	-
LU	Latch-up	(per JESD78)	-	-	2/12/0	2/12/0
PD	Physical Dimensions	--	-	-	-	-
SD	Solderability	Pb Free	-	-	-	-
SD	Solderability	Pb	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	1/77/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	-	-
WBP	Bond Pull	Wires	-	3/228/0	-	-
WBS	Ball Bond Shear	Wires	-	3/228/0	-	-

Type	Test Name / Condition	Duration	QBS Package Reference: <u>TLV70333DBVR</u>	QBS Package Reference: <u>TLV70333DBVR</u>	QBS Package Reference: <u>TLV74333PDBVR</u>
AC	Autoclave 121C	96 Hours	-	-	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	-	Pass
EDR	EEPROM Data Retention, 170C	420 Hours	-	-	3/231/0
EDR	One Time Programmable/EEPROM Data Retention, 170C	420 Hours	3/231/0	-	-
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	-
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	2/231/0	-	1/77/0
HBM	ESD - HBM	4000 V	1/3/0	1/3/0	1/3/0
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0
HTOL	Life Test, 150C	300 Hours	3/231/0	-	1/77/0
HTSL	High Temperature Storage, 170C	420 Hours	3/231/0	-	3/231/0
LI	Lead Fatigue	Leads	3/66/0	-	-
LI	Lead Pull	Leads	3/66/0	-	-
LU	Latch-up	(per JESD78)	1/6/0	1/6/0	1/12/0
PD	Physical Dimensions	--	3/30/0	1/5/0	3/15/0
SD	Solderability	Pb Free	3/45/0	3/45/0	3/66/0
SD	Solderability	Pb	3/45/0	1/15/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	1/77/0	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	3/231/0	-	3/231/0

WBP	Bond Pull	Wires	3/228/0	1/76/0	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

THIS INFORMATION RELATING TO QUALITY AND RELIABILITY IS PROVIDED "AS IS." Product information detailed in this report may not accurately reflect TI's current product materials, processes and testing used in the construction of the TI products. Customers are solely responsible to conduct sufficient engineering and additional qualification testing to determine whether a device is suitable for use in their applications. Using TI products outside limits stated in TI's datasheet may void TI's warranty. See TI's Terms of Sale at "<http://www.ti.com/lscs/ti/legal/termsofsale.page>"

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