

<b>PCN Number:</b>	20190819001.2		<b>PCN Date:</b>	Aug 28, 2019
<b>Title:</b>	Qualification of FM0055 Leadframe for Select VSSOP Package Devices			
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services	
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Feb 28, 2020 <b>(See Note 1)</b>	<b>Estimated Sample Availability:</b>	Date Provided at Sample request	
<b>Change Type:</b>				
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site	<input type="checkbox"/>
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>
				<input type="checkbox"/>
				Wafer Bump Site
				Wafer Bump Material
				Wafer Bump Process
				Wafer Fab Site
				Wafer Fab Materials
				Wafer Fab Process
<b>PCN Details</b>				
<b>Description of Change:</b>				
Texas Instruments Incorporated is announcing the qualification of FM0055 Leadframe for Select VSSOP package devices listed in the "Product Affected" Section.				
		<b>Current</b>		<b>New</b>
Leadframe p/n		FM0014 (PEH)		FM0055 (HDS)
Lead finish		Non-roughened		Roughened (Top side)
<b>Reason for Change:</b>				
Continuity of supply. <b>Note 1:</b> Unexpected discontinuation of operation for PEH Hong Kong leadframe supplier. Current leadframe material inventory is expected to support shipments through February 2020. To avoid discontinuity of supply, we need your approval feedback by January 31 <sup>st</sup> , 2020 thru your local Field Sales Representative or to the PCN Team (PCN_ww_admin_team@list.ti.com).				
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>				
None				
<b>Anticipated impact on Material Declaration</b>				
<input checked="" type="checkbox"/>	No Impact to the Material Declaration	<input 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>				
None				
<b>Product Affected:</b>				
OPA2333AQDGKRQ1	TMP411AQDGKRQ1	TMP411DQDGKRQ1		

# Qualification Report

Approved 21-May-2019

## Qualification Results

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

Type	#	Test Spec	Min Lot Qty	S/S/Lot	Test Name / Condition	Duration	Qual Device: TMP411DQDQGRQ1	Qual Device: TPS61085TDGKRQ1	QBSD Device: TPS79801QDGNRQ1
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Auto Preconditioning	Level 3 - 260C	3/231/0	3/231/0	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Auto Preconditioning	Level 2 - 260C	-	-	3/462/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave, 121C	96 Hours	-	-	3/231/0
TC	A4	JEDEC JESD22-A104 & Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Auto Post TC Bond Pull	Wires	3/90/0	3/90/0	3/90/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	N/A
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	N/A	N/A	N/A
ELFR	B2	AEC Q100-008	3	77	Early Failure Rate, 125C	48 Hours	N/A	N/A	N/A
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, Operational Life	-	N/A	N/A	N/A
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	-	-	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	3/228/0	3/228/0	3/228/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability (Pb)	>95% Lead Coverage 8 Hours Steam Age	-	3/45/0	3/45/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability (Pb-Free)	>95% Lead Coverage 8 Hours Steam Age	-	3/45/0	3/45/0

Type	#	Test Spec	Min Lot Qty	S/S/ Lot	Test Name / Condition	Duration	Qual Device: TMP411DQDGKRQ1	Qual Device: TPS61085TDGKRQ1	QBSDevice: TPS79801QDGNRQ1
PD	C4	JEDEC JESD22-B100 and B108	3	10	Auto Physical Dimensions	Devices (Cpk>1.67)	-	3/30/0	3/30/0
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	# of leads to destruction	-	-	3/72/0
EM	D1	JESD61	-	-	Electro migration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
Tddb	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
DS	G7	MIL-STD-883 Method 2019	1	5	Die Shear	Die	3/30/0	3/30/0	3/30/0
MQ			-	-	Manufacturability (Auto Assembly)	(per automotive requirements)	3/Pass	3/Pass	3/Pass
MSL			-	-	Moisture Sensitivity	Level 2 - 260C	-	-	3/36/0
MSL			-	-	Moisture Sensitivity	Level 3 - 260C	3/36/0	3/36/0	
XRAY			-	-	X-Ray	Top side only	3/15/0	3/15/0	3/15/0
YLD			-	-	FTY & Bin Summary	-	3/Pass	3/Pass	3/Pass

- QBS: Qual By Similarity

- Qual Device TMP411DQDGKRQ1 is qualified at LEVEL3-260C

- Qual Device TPS61085TDGKRQ1 is qualified at LEVEL3-260C

- QBS Device TPS79801QDGNRQ1 is qualified at LEVEL2-260C

A1 (PC): Preconditioning:

Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Ambient Operating Temperature by Automotive Grade Level:

Grade 0 (or E): -40°C to +150°C

Grade 1 (or Q): -40°C to +125°C

Grade 2 (or T): -40°C to +105°C  
Grade 3 (or I) : -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):  
Room/Hot/Cold : HTOL, ED  
Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU  
Room : AC/uHAST

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.

<b>Location</b>	<b>E-Mail</b>
USA	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
Europe	<a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>
Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
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