

<b>PCN Number:</b>	20161130002			<b>PCN Date:</b>	Dec 2, 2016
<b>Title:</b>	Replacing Tungsten at Metal One with standard aluminum metallization architecture on select devices in the CS80 Fab process at Maine Fab				
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>		<b>Dept:</b>	Quality Services	
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Jun 2, 2017		<b>Estimated Sample Availability:</b>	Date provided at sample request.	
<b>Change Type:</b>					
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Assembly Materials
<input type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<input type="checkbox"/>	Mechanical Specification
<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material	<input type="checkbox"/>	Wafer Bump Process
<input type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Wafer Fab Materials	<input checked="" type="checkbox"/>	Wafer Fab Process
<input type="checkbox"/>			Part number change		
<b>PCN Details</b>					
<b>Description of Change:</b>					
This change notification is to announce the replacement of Tungsten at Metal one with standard aluminum metallization architecture on select devices in the CS80 Fab process at Maine Fab.					
<b>Current</b>					
Chip Site	Fab Process	Wafer Diameter	Metal One Composition		
MAINEFAB	CS80	200mm	Tungsten contact fill and metal 1		
<b>New</b>					
<b>Chip Site</b>	<b>Fab Process</b>	<b>Wafer Diameter</b>	<b>Metal One Composition</b>		
<b>MAINEFAB</b>	<b>CS80</b>	<b>200mm</b>	<b>Tungsten contact fill plus CMP and Al/Cu 0.5% metal 1</b>		
<b>Reason for Change:</b>					
Continuity of supply.					
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>					
None					
<b>Changes to product identification resulting from this PCN:</b>					
None					
<b>Product Affected:</b>					
LMV321M5/E7001883	LMV358Q1MA/NOPB	LMV7239QM7X/E7002934	LMV822Q1MM/NOPB		
LMV321Q1M5/NOPB	LMV358Q1MAX/NOPB	LMV7239QM7X/NOPB	LMV822Q1MMX/NOPB		
LMV321Q1M5X/NOPB	LMV358Q1MM/NOPB	LMV7275IDCKRQ1	LMV824Q1MA/NOPB		
LMV321Q3M5/NOPB	LMV358Q1MMX/NOPB	LMV762BQMMX	LMV824Q1MAX/NOPB		
LMV321Q3M5X/NOPB	LMV358Q3MA/NOPB	LMV762QMA/NOPB	LMV824Q1MT/NOPB		
LMV324Q1MA/NOPB	LMV358Q3MAX/NOPB	LMV762QMAX/NOPB	LMV824Q1MTX/NOPB		
LMV324Q1MAX/NOPB	LMV358Q3MM/NOPB	LMV762QMM/NOPB	LMV931Q1MF/NOPB		
LMV324Q1MT/NOPB	LMV358Q3MMX/NOPB	LMV762QMMX/E7002900	LMV931Q1MFX/NOPB		
LMV324Q1MTX/NOPB	LMV712Q1MM/NOPB	LMV762QMMX/NOPB	LMV931Q1MG/NOPB		
LMV324Q3MA/NOPB	LMV712Q1MMX/NOPB	LMV772QMM/NOPB	LMV931Q1MGX/NOPB		
LMV324Q3MAX/NOPB	LMV7239M7/E7001398	LMV772QMMX/E7002761	LMV934Q1MT/NOPB		
LMV324Q3MT/NOPB	LMV7239QDBVRQ1	LMV772QMMX/NOPB	LMV934Q1MTX/NOPB		
LMV324Q3MTX/NOPB	LMV7239QM7/NOPB				

**Automotive CS080 Process Qualification Summary  
(As per AEC-Q100 and JEDEC Guidelines)**

**CS080 ALCu Back End Conversion  
Approved 20-Oct-2016**

**Product Attributes**

Attributes	Qual Device: LMV824Q1MT/NOPB
Assembly Site	TIEM-AT
Package Family	TSSOP
Flammability Rating	UL 94 V-0
Wafer Fab Supplier	MFAB
Wafer Fab Process	CS080

- QBS: Qual By Similarity

- Qual Device LMV824Q1MT/NOPB is qualified at LEVEL1-260CG

**Qualification Results**

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

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LMV824Q1MT/NOPB
<b>Test Group A – Accelerated Environment Stress Tests</b>							
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 1	Level 1-260C	3/720/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0
TC-BP		MIL-STD883 Method 2011	1	30	Post Temp. Cycle Bond Pull	500 Cycles	1/30/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A
<b>Test Group B – Accelerated Lifetime Simulation Tests</b>							
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	3/2400/1*
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A
<b>Test Group C – Package Assembly Integrity Tests</b>							
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	1/30/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	1/30/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb Free	1/15/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	3/30/0
<b>Test Group D – Die Fabrication Reliability Tests</b>							
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements
TDDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements

**A1 (PC): Preconditioning:**

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

\*One Continuity failure due to EOS

**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

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.

<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>
Japan	<a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>