

PCN Number:	20171115002		PCN Date:	Nov. 16, 2017
Title:	Qualify additional Wafer Fab site MIHO for LM4360xAQPWPxQ1			
Customer Contact:	PCN Manager	Dept:	Quality Services	
Proposed 1st Ship Date:	May 16, 2018	Estimated Sample Availability:	Date provided at sample request	
Change Type:	<input 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 type="checkbox"/> Assembly Materials <input type="checkbox"/> Part number change <input type="checkbox"/> Wafer Bump Process <input type="checkbox"/> Mechanical Specification <input type="checkbox"/> Test Site <input checked="" 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"/> <input type="checkbox"/> Wafer Fab Process			

PCN Details

Description of Change:

Texas Instruments Incorporated is pleased to announce the qualification of MIHO8 Wafer fabrication facility as an additional Wafer Fab source for LM4360xAQPWPxQ1 devices.

Current Site			Additional Site		
Current Fab Site	Fab Process	Wafer Diameter	Additional Fab Site	Fab Process	Wafer Diameter
DMOS5	LBC8	200 mm	MIHO8	LBC8	200 mm

Reason for Change:

Increased capacity.

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

None.

Changes to product identification resulting from this PCN:

Current

Chip Site	Chip Site Origin (20L)	Chip Site Country Code (21L)	Chip Site City
DMOS5	DM5	USA	Dallas

New

Chip Site	Chip Site Origin (20L)	Chip Site Country Code (21L)	Chip Site City
MIHO8	MH8	JPN	Ibaraki

Sample product shipping label (not actual product label)

 <p>TEXAS INSTRUMENTS MADE IN: Malaysia 2DC: 20: MSL '2 /260C/1 YEAR SEAL DT MSL 1 /235C/UNLIM 03/29/04 OPT: ITEM: 39 LBL: 5A (L)T0:1750</p>	 	(1P) SN74LS07NSR (Q) 2000 (D) 0336 (31T) LOT: 3959047MLA (4W) TKY (1T) 7523483SI2 (P) (2P) REV: (V) 003317 (20L) CSO: SHE (21L) CCO:USA (22L) ASO: MLA (23L) ACO: MYS
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Product Affected:

LM43602AQPWPRQ1	LM43603AQPWPRQ1
LM43602AQPWPTQ1	LM43603AQPWPTQ1

**Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)**

**Qualification of MIHO wafer fab for LBC8MVM technology :
LM4360xAQPWPRQ1 / LM4600xAPWPRQ1 family of devices
Approved 08-Aug-2017**

Product Attributes

Attributes	Process qualification LM46002AQPWPRQ1	Delta qualification #1: LM43603AQPWPRQ1	Delta qualification #2: LM46001AQPWPRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Power Management	Power Management	Power Management
Die Attributes	-	-	-
Wafer Fab Supplier	MIHO		
Die Revision	C1	D0	B0
Package Attributes	-	-	-
Assembly Site	TAI (TITL)		
Package Type	HTSSOP		
Package Designator	PWP		
Ball/Lead Count	16		

- QBS: Qual By Similarity
- All devices are qualified at LEVEL3-260C

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	Process qualification: LM46002AQPWPRQ1	Delta device qual #1: LM43603AQPWPRQ1	Delta device qual #2: LM46001AQPWPRQ1
Test Group A – Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD 22-A113	3	77	Automotive Preconditioning Level 3	260C	3/693/0	QBS	1/77/0
THB	A2	JEDEC JESD 22-A101	3	77	Biased Temperature and Humidity, 85C/85% RH	1000 hours	3/231/0	QBS	QBS
AC	A3	JEDEC JESD 22-A102	3	77	Autoclave 121C	96 hours	3/231/0	QBS	QBS

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Process qualification: LM46002AQPWPR Q1	Delta device qual #1: LM43603AQPWPRQ1	Delta device qual #2: LM46001AQPWPR Q1
TC	A4	JEDEC JESD 22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 cycles	3/231/0	QBS	1/77/0
PTC	A5	JEDEC JESD 22-A105	1	45	Power Temperature Cycle, -40/125C	1000 cycles	1/45/0	QBS	QBS
Test Group B – Accelerated Lifetime Simulation Tests									
HTOL	B1	JEDEC JESD 22-A108	3	77	Life Test, 150C	408 hours	3/231/0	1/77/0	QBS
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 hours	5/2400/0	QBS	QBS
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	150C x 1000 hours	3/231/0	QBS	QBS
Test Group C – Package Assembly Integrity Tests									
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	3 lots Pass	QBS	QBS
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	-	3 lots Pass	QBS	QBS
SD	C3	JEDEC JESD 22-B102	1	15	Pb Free Solderability	Pb-Free/Solderability	1/15/0	QBS	QBS
PD	C4	JEDEC JESD 22-	3	10	Auto Physical Dimensions	Cpk>1.67	3 lots Pass	QBS	QBS

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Process qualification: LM46002AQPWPR Q1	Delta device qual #1: LM43603AQPWPRQ1	Delta device qual #2: LM46001AQPWPR Q1
		B100 and B108							
SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Solder Balls	N/A	N/A	N/A
LI	C6	JEDEC JESD 22-B105	1	50	Lead Integrity	-	N/A	N/A	N/A
Test Group D – Die Fabrication Reliability Tests									
EM	D1	JESD 61	-	-	Electromigration	-	Completed Per Process Technology Requirements		
TDD B	D2	JESD 35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements		
HCI	D3	JESD 60 & 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		
Test Group E – Electrical Verification Tests									
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	500V,1000V, 1500V, 2000V, 2500V	1/3/0	1/3/0	1/3/0
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	500V, 750V, 1000V	1/3/0	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	125C	1/6/0	1/6/0	1/6/0

A1 (PC): Preconditioning:

Performed for THB, Biased HAST, AC, uHAST & TC 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.

Location	E-Mail
USA	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com