

<b>PCN Number:</b>	20200922002.1	<b>PCN Date:</b>	Oct. 6, 2020
<b>Title:</b>	Qualification of MIHO8 as an additional Fab site option 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>	Jan. 6, 2021	<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"/>	Design	<input type="checkbox"/>	Electrical Specification
<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material
<input checked="" type="checkbox"/>	Wafer Fab Site	<input checked="" type="checkbox"/>	Wafer Fab Materials
		<input type="checkbox"/>	Part number change
<input type="checkbox"/>		<input type="checkbox"/>	Assembly Materials
<input type="checkbox"/>		<input type="checkbox"/>	Mechanical Specification
<input type="checkbox"/>		<input type="checkbox"/>	Test Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Fab Process

**PCN Details**

**Description of Change:**

Texas Instruments is pleased to announce the qualification of its MIHO8 fabrication facility as an additional Wafer Fab source for the selected devices listed in the "Product Affected" section.

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Site	Process	Wafer Diameter
RFAB	LBC7	300 mm	MIHO8	LBC7	200 mm

Qual details are provided in the Qual Data Section.

**Reason for Change:**

Continuity of supply

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

None

**Changes to product identification resulting from this PCN:**

**Current:**

Current Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
RFAB	RFB	USA	Richardson

**New Fab Site:**

New Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
<b>MIHO8</b>	<b>MH8</b>	<b>JPN</b>	<b>Ibaraki</b>

Sample product shipping label (not actual product label)

**TEXAS INSTRUMENTS**  
 MADE IN: Malaysia  
 2DC: 2Q:  
 MSL 2 /260C/1 YEAR SEAL DT  
 MSL 1 /235C/UNLIM 03/29/04  
 OPT:  
 ITEM: 39  
**LBL: 5A (L)T0:1750**

(1P) SN74LS07NSR  
 (Q) 2000 (D) 0336  
 (31T) LOT: 3959047MLA  
 (4W) TKY (1T) 7523483S12  
 (P)  
 (2P) REV: (V) 0033317  
 (20L) CSO: SHE (21L) CCO:USA  
 (22L) ASO: MLA (23L) ACO: MYS

**Product Affected:**

TPS6590376ZWSR	TPS6590377ZWST	TPS6590379ZWSR	TPS659037A394ZWSR
TPS6590376ZWST	TPS6590378ZWSR	TPS6590379ZWST	TPS659037A398ZWSR
TPS6590377ZWSR	TPS6590378ZWST	TPS659037A38CZWSR	TPS659037A399ZWSR

**Automotive Product Qualification Summary  
(As per AEC-Q100H and JEDEC Guidelines)**

Approved 27-Jul-2020

**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: O9039A4XXIZWSRQ1	QBS Device: O9039A3XXTZWSRQ1	QBS Device : O9039A3XXTZWSRQ1	QBS Process References: PGA400QYZSRQ1
<b>Test Group A – Accelerated Environment Stress Tests</b>										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Auto Preconditioning	L3-260C	-	1/all/0	2/all/0	3/all/0
THB	A2	JEDEC JESD22-A101	3	77	**Temperature Humidity Bias	85C/85%RH 1000 Hrs	-	1/77/0	2/154/0	3/231/0
uHAST	A3	JEDEC JESD22-A118	3	77	** Unbiased Highly Accelerated Stress	110C/85%RH, 264 Hrs	-	1/77/0	2/154/0	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	**Temperature Cycling	-55C/+125C 1000 cycles	-	1/77/0	2/154/0	3/231/0
			1	5	Bond Pull	Post TC	-	1/5/0	2/10/0	1/5/0
PTC	A5	JEDEC JESD22-A105	1	45	**Auto Power T/C Grade 1	-40C/105C, 1000 Cycles	-	1/45/0	1/45/0	-
HTSL	A6	JEDEC JESD22-A103	1	45	**Auto High Temp. Storage Life Grade 1	150C, 500 Hrs	-	1/45/0	1/45/0	1/45/0
<b>Test Group B – Accelerated Lifetime Simulation Tests</b>										
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hrs	-	1/77/0	2/154/0	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hrs	-	-	-	3/2400/0
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	-	1/30/0	1/30/0	-
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Cpk>1.67	-	1/30/0	1/30/0	-
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	>95% Lead Coverage	-	-	1/15/0	-
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	1/10/0	2/20/0	-
SBS	C5	AEC Q100-010	3	50	Solder Ball Shear	Cpk > 1.67	-	1/50/0	2/100/0	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	-	-	N/A	-	-
<b>Test Group D – Die Fabrication Reliability Tests</b>										
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	Completed Per Process Technology	Completed Per Process Technology	-

								Requirements	Requirements	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	-
<b>Test Group E – Electrical Verification Tests</b>											
HBM	E2	AEC Q100-002	1	3	HBM	2000 V		1/3/0	1/3/0	1/3/0	-
CDM	E3	AEC Q100-011	1	3	CDM	450V (B4, B7, H8, L1, L2, M3 pins)		1/3/0	1/3/0	1/3/0	-
						500 V (all other pins)					
						750 V (corner pins)		1/3/0	1/3/0	1/3/0	
LU	E4	AEC Q100-004	1	6	Latch-up	105 C	I2C and SPI balls, 90 mA LDOVANA_OUT, -60 mA All other balls, 100 mA	I2C and SPI balls, 90 mA LDOVANA_OUT, -60 mA All other balls, 100 mA	I2C and SPI balls, 90 mA LDOVANA_OUT, -60 mA All other balls, 100 mA		-
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk > 1.67 at Room, hot, and cold test		Data Available	Data Available	Data Available	-

- QBS: Qual By Similarity  
- Qual Device is qualified at LEVEL3-260C

**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

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