

PCN Number: 20170627001 **PCN Date:** June 29, 2017

Title: Qualification of MIHO8 as additional Wafer Fab site option for TPD3S714QDBQRQ1

Customer Contact: [PCN Manager](#) **Dept:** Quality Services

Proposed 1st Ship Date: Dec 29, 2017 **Estimated Sample Availability:** Date provided at sample request.

Change Type:

<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 checked="" type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Wafer Fab Materials	<input type="checkbox"/>	Wafer Fab Process
		<input type="checkbox"/>	Part number change		

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of its MIHO8 Wafer fabrication facility as an additional Wafer Fab source for TPD3S714QDBQRQ1.

Current Sites			Additional Sites		
Current Fab Site	Fab Process	Wafer Diameter	Additional Fab Site	Fab Process	Wafer Diameter
DMOS5	LBC7	200 mm	MIHO8	LBC7	200 mm

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

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	MHS	JPN	Ibaraki

Sample product shipping label (not actual product label)

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

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

Product Affected Group:

TPD3S714QDBQRQ1



Automotive New Product Qualification Summary

(As per AEC-Q100 and JEDEC Guidelines)

TPD3S714QDBQRQ1 Grade1 Q100H Q006 (MIHO8 LBC7)

Approved 16-Nov-2016

Updated 12/01/2016-Added QBS Data

Product Attributes

Attributes	Qual Device: TPD3S714QDBQRQ1	QBS Process Reference: SN0406082PW-B1	QBS Process Reference: SN0406082PW-B2	QBS Package Reference: TPD3S714QDBQRQ1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Automotive Grade Level	Grade 1	Grade 1	Grade 1	-
Product Function	Interface	-	-	Interface
Wafer Fab Supplier	MIHO-8	MIHO8	MIHO8	DM5-DALLAS
Die Revision	A2	B1	B2	A2
Assembly Site	MLA	TAI	TAI	MLA
Package Type	SSOP	TSSOP	TSSOP	SSOP
Package Designator	DBQ	PW	PW	DBQ
Ball/Lead Count	16	16	16	16

- QBS: Qual By Similarity

- Qual Device TPD3S714QDBQRQ1 is qualified at LEVEL2-260C

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	Qual Device: TPD3S714QDBQRQ1	QBS Process Reference: SN0406082PW-B1	QBS Process Reference: SN0406082PW-B2	QBS Package Reference: TPD3S714QDBQRQ1
Test Group A – Accelerated Environment Stress Tests										
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 1-260C	-	-	-	3/1086/0
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 2-260C	2/616/0	-	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	1/77/0	3/231/0	-	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	1/77/0	3/230/0	-	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	1/77/0	3/231/0	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	60	Post Temp. Cycle Bond Pull	500 Cycles	-	1/5/0	-	3/15/0
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull over Ball Post Temp. Cycle	1000 Cycles	1/30/0	-	-	-
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull over Ball Post Temp. Cycle	500 Cycles	1/30/0	-	-	-
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull over Stitch Post Temp. Cycle	1000 Cycles	1/30/0	-	-	-
TC-WBP	A4	MIL-STD883 Method 2011	1	60	Bond Pull over Stitch Post Temp. Cycle	500 Cycles	1/30/0	-	-	-
PTC	A5	JEDEC JESD22-	1	45	Power Temperature	1000 Cycles	-	1/45/0	-	-

		A105			Cycle, -40/125C					
HTSL	A6	JEDEC JESD22- A103	1	45	High Temp. Storage Bake, 150C	2000 Hours	-	3/224/0	-	-
HTSL	A6	JEDEC JESD22- A103	1	45	High Temp. Storage Bake, 175C	500 Hours	1/77/0	-	-	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests										
HTOL	B1	JEDEC JESD22- A108	3	77	Life Test, 125C	1000 hours	1/77/0	-	-	-
HTOL	B1	JEDEC JESD22- A108	3	77	Life Test, 140C	480 Hours	-	3/229/0	1/77/0	-
HTOL	B1	JEDEC JESD22- A108	3	77	Life Test, 150C	408 Hours	-	-	-	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	1/800/0	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 140C	48 Hours	-	3/2409/0	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 Hours	-	-	-	3/2400/0
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	-	-	-
Test Group C – Package Assembly Integrity Tests										
WBS	C1	AEC Q100-001	1	30	Bond Shear (Cpk>1.33, Ppk>1.67)	Wires	-	-	-	3/90/0
WBS	C1	AEC Q100-001	1	30	Bond Shear (Cpk>1.67)	Wires	1/30/0	-	-	-
WBP	C2	MIL- STD883 Method 2011	1	30	Bond Pull (Cpk>1.67)	Wires	1/30/0	-	-	3/228/0
WBP	C2	MIL- STD883 Method 2011	1	30	Post Bake Bond Pull	500 Hours	-	-	-	3/15/0
WBP	C2	MIL- STD883 Method 2011	1	30	Post b-HAST Bond Pull	96 Hours	-	-	-	3/15/0
SD	C3	JEDEC JESD22- B102	1	15	Solderability	Pb-Free (Post 8 Hours Steam Age)	-	-	-	3/45/0
SD	C3	JEDEC JESD22- B102	1	15	Solderability	Pb (Post 8 Hours Steam Age)	-	-	-	3/45/0
PD	C4	JEDEC JESD22- B100 and B108	3	10	Physical Dimensions (Cpk>1.33 Ppk>1.67)	--	-	-	-	3/30/0
LI	C6	JEDEC JESD22- B105	1	50	Lead Integrity	Leads	-	-	-	-
LI	C6	JEDEC JESD22- B105	1	50	Lead Pull to Destruction	Leads	1/50/0	-	-	-
Test Group D – Die Fabrication Reliability Tests										
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-	-	-
TDDB	D2	JESD35	-	-	Time Dependant 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	-	-	-
Test Group E – Electrical Verification Tests										
HBM	E2	AEC Q100-002	1	3	ESD - HBM	4000 V	1/3/0	1/3/0	1/3/0	3/9/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0	3/9/0
LU	E4	AEC	1	6	Latch-up	(Per AEC	1/6/0	1/6/0	1/6/0	3/18/0

		Q100-004				Q100-004)				
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0	-	-	3/90/0
ED	E5	AEC Q100-009	3	30	Electrical Characterization	Per Datasheet Parameters	-	3/90/0	3/90/0	-
Additional Tests										
-			-	-	Bench Monitored Overvoltage Test, 150C	100 Hours 7V	-	-	1/4/0	-
-			-	-	Bond Pull over Ball, Post bHAST	192 Hours	1/78/0	-	-	-
-			-	-	Bond Pull over Ball, Post bHAST	96 Hours	1/78/0	-	-	-
-			-	-	Bond Pull over Stitch, post bHAST	192 Hours	1/78/0	-	-	-
-			-	-	Bond Pull over Stitch, post bHAST	96 Hours	1/78/0	-	-	-
-			-	-	CSAM/TSAM Prior to PreconSAM Analysis, Pre Stress	SAM Analysis, Pre Stress	1/22/0	-	-	-
-			-	-	Post 1X HAST AEC-Q006	Ball Bond/Shear	1/3/0	-	-	-
-			-	-	Post 1X HAST AEC-Q006	Over Ball/Bond Pull	1/3/0	-	-	-
-			-	-	Post 1X HAST AEC-Q006	Over Stitch/Bond Pull	1/3/0	-	-	-
-			-	-	Post 2X HAST AEC-Q006	Ball Bond/Shear	1/3/0	-	-	-
-			-	-	Post 2X HAST AEC-Q006	Over Ball/Bond Pull	1/3/0	-	-	-
-			-	-	Post 2X HAST AEC-Q006	Over Stitch/Bond Pull	1/3/0	-	-	-
-			-	-	Post Stress Decap and Inspect, Autoclave	at 96 Hours	-	-	-	3/15/0
-			-	-	Post Stress Decap and Inspect, Biased HAST	at 96 Hours	-	-	-	3/15/0
-			-	-	Post Stress Decap and Inspect, Temp Cyle	at 500 Cycles	-	-	-	3/15/0
-			-	-	Post Stress SAM, Biased HAST	at 96 Hours	-	-	-	3/15/0
-			-	-	Post Stress SAM, High Temp Storage	at 500 Hours	-	-	-	3/15/0
-			-	-	Post TC AEC-Q006	Ball Bond 1x/Shear	1/3/0	-	-	-
-			-	-	Post TC AEC-Q006	Ball Bond 2x/Shear	1/3/0	-	-	-
-			-	-	Post TC AEC-Q006	Over Ball 1x/Bond Pull	1/3/0	-	-	-
-			-	-	Post TC AEC-Q006	Over Ball 2x/Bond Pull	1/3/0	-	-	-
-			-	-	Post TC AEC-Q006	Over Stitch 1x/Bond Pull	1/3/0	-	-	-
-			-	-	Post TC AEC-Q006	Over Stitch 2x/Bond Pull	1/3/0	-	-	-
-			-	-	SAM Analysis, Post bHAST, 192 Hours	SAM Analysis, Post bHAST, 192 Hours	1/22/0	-	-	-
-			-	-	SAM Analysis, Post-Precon	SAM Analysis, Post-Precon	1/22/0	-	-	-

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 you can contact 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