PCN Number:	20230829004.2	**PCN Date:**	August 30, 2023
Title:	Qualification of LFAB as an additional Fab site and CD-PR as an additional Probe Site for select devices		
Customer Contact:	Change Management team	**Dept:**	Quality Services
Proposed 1st Ship Date:	Feb 29, 2024	**Sample requests accepted until:**	Sep 29, 2023*

***Sample requests received after September 29, 2023 will not be supported.**

Change Type:

☐	Assembly Site	☐	Design	☐	Wafer Bump Material
☐	Assembly Process	☐	Data Sheet	☐	Wafer Bump Process
☐	Assembly Materials	☐	Part number change	☒	Wafer Fab Site
☐	Mechanical Specification	☒	Test Site	☐	Wafer Fab Material
☐	Packing/Shipping/Labeling	☐	Test Process	☐	Wafer Fab Process

Description of Change:

Texas Instruments is pleased to announce the qualification of its LFAB fabrication facility as an additional Wafer Fab source and CD-PR as additional probe site options for the selected devices listed in the "Product Affected" section.

Current Fab/Probe Site				Additional Fab/Probe Sites			
Current Fab Site	**Fab Process**	**Probe Site**	**Wafer Diameter**	**Additional Fab Site**	**Fab Process**	**Probe Site**	**Wafer Diameter**
UMC12i	F65	CLARK-PR	300mm	LFAB	F65	CD-PR	300mm

Test coverage, insertions, conditions will remain consistent with current testing.

Reason for Change:

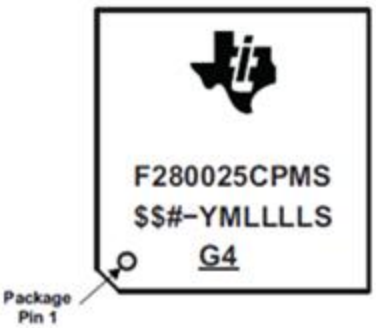
Continuity of supply

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

None

Changes to product identification resulting from this PCN:

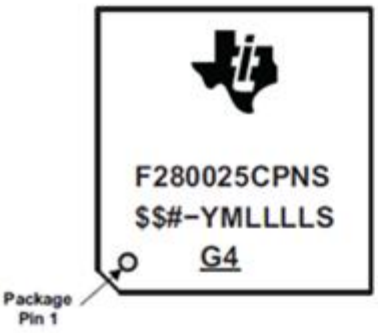
Device Symbol:



YMLLLLS = Lot Trace Code

YM = 2-Digit Year/Month Code
LLLL = Assembly Lot
S = Assembly Site Code
$$ = Wafer Fab Code (one or two characters) as applicable
= Silicon Revision Code

G4 = Green (Low Halogen and RoHS-compliant)



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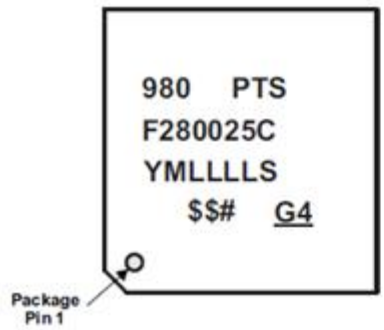


YMLLLLS = Lot Trace Code

YM = 2-Digit Year/Month Code
LLLL = Assembly Lot
S = Assembly Site Code
980 = TI E.I.A. Code
$$ = Wafer Fab Code (one or two characters) as applicable
= Silicon Revision Code

G4 = Green (Low Halogen and RoHS-compliant)

Original Fab Field:

$$ = $7 → UMC 12i

Updated Fab Field:

$$ = $7 → UMC 12i

Or

$$ = 3L → LFAB

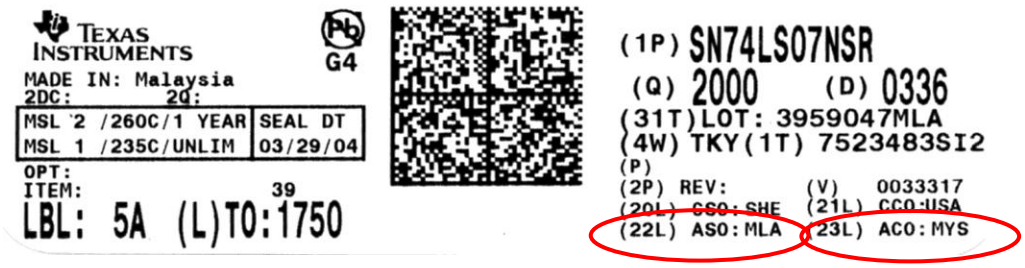
Current Fab Site Information:

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
UMC 12i	UMI	SGP	Singapore

Additional Fab Site Information:

New Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
LFAB	**LHI**	**USA**	**Lehi**

Sample product shipping label (not actual product label)



Product Affected:

F280021PTQR	F280023PTQR	F280025CPTQR	F280025PTQR
F280023PMQR	F280025CPMQR	F280025PMQR	SB280025PNQR
F280023PNQR	F280025CPNQR	F280025PNQR	

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: F280025CPNQR	QBS Reference: TMS320F28379SPTPQ
Test Group A - Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL3 260C	-	-QBS	3/363/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	110C/85%RH	264 Hours	-QBS	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	-QBS	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-QBS	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	-QBS	1/5/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-QBS	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	3/231/0
ELFR	B2	AEC Q100-008	3	77	Early Life Failure Rate	125C	48 Hours	-QBS	3/2400/0
EDR B3	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	150C	1000 hours	-QBS	3/231/0
Test Group C - Package Assembly Integrity Tests									
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-QBS	3/90/0

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: F280025CPNQR	QBS Reference: TMS320F28379SPTPQ
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-QBS	3/90/0
Test Group D - Die Fabrication Reliability Tests									
EM	D1	JESD61	-	-	Electromigration	-	-	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
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	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
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
Test Group E - Electrical Verification Tests									
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	1/3/0	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	750 Volts	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	3/90/0	3/90/0
Additional Tests									

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

- Flash memory was programmed and Erased to 20,000 times for B1 and B2 tests

Ambient Operating Temperature by Automotive Grade Level:

- Grade 0 (or E): -40C to +150C
- Grade 1 (or Q): -40C to +125C
- Grade 2 (or T): -40C to +105C
- Grade 3 (or I) : -40C to +85C

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

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

TI Qualification ID: R-CHG-2206-089

[1]-1 unit passed 25C (Q100 requirement) marginal failure at 125C. Appears to be tester repeatability and unrelated to stress test. Refer to QEM-EVAL-2211-00276

ZVEI ID: SEM-PW-13, SEM-TF-01

For questions regarding this notice, e-mails can be sent to the Change Management team or your local Field Sales Representative.

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