12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20240813001.2
Qualification of additional low-COP wafer substrate type for select F65 products
Change Notification / Sample Request

Date: August 13, 2024
To: MOUSER PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

Texas Instruments requires acknowledgement of receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If samples or additional data are required, requests must be received within **30 days** of this notification.

The changes discussed within this PCN will not take effect any earlier than the proposed first ship date on Page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the Change Management team.

For sample requests or sample related questions, contact your local Field Sales Representative.

Sincerely,

Change Management Team
SC Business Services

20240813001.2
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records**,** you have recently purchased these devices**.** The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
CC2642R1FTWRGZRQ1	NULL
F280021PTQR	NULL
F280023PMQR	NULL
F280023PNQR	NULL
F280023PTQR	NULL
F280025CPMQR	NULL
F280025CPNQR	NULL
F280025CPTQR	NULL
F280025PMQR	NULL
F280025PNQR	NULL
F280025PTQR	NULL
F280034PTRQ1	NULL
F280036CPMRQ1	NULL
F280036PMRQ1	NULL
F280037CPTQ1	NULL
F280037CPTRQ1	NULL
F280037CPZRQ1	NULL
F280037PTRQ1	NULL
F280037PZRQ1	NULL
F280038CPMQ1	NULL
F280038CPMRQ1	NULL
F280038PMRQ1	NULL
F280039CPNQ1	NULL
F280039CPZQ1	NULL
F280039CPZRQ1	NULL
F280039PZRQ1	NULL
F28384DPTPQR	NULL
F28384DZWTQR	NULL
F28384SPTPQR	NULL
F28386DPTPQ	NULL
F28386DPTPQR	NULL
F28386DZWTQ	NULL
F28386SPTPQR	NULL
F28P659DH8PZPRQ1	NULL
F28P659DK8PTPQ1	NULL
F28P659DK8PZPQ1	NULL
F28P659DK8PZPRQ1	NULL
F28P659DK8ZEJQ1	NULL
F28P659DK8ZEJRQ1	NULL
F28P659SH6PTPQ1	NULL
F28P659SH6PZPRQ1	NULL
TMS320F28075PTPQ	NULL
TMS320F28075PTPQR	NULL
TMS320F28075PZPQ	NULL
TMS320F28375SPZPQ	NULL
TMS320F28377DPTPQ	NULL
TMS320F28377DZWTQ	NULL
TMS320F28377DZWTQR	NULL
TMS320F28377SPTPQ	NULL
TMS320F28377SPZPQ	NULL
TMS320F28377SZWTQ	NULL

TMS320F28379DPTPQ	NULL
TMS320F28379DZWTQR	NULL

Technical details of this Product Change follow on the next page(s).

PCN Number:	20240813001.2	**PCN Date:**	August 13, 2024
Title:	Qualification of additional low-COP wafer substrate type for select F65 products		
Customer Contact:	Change Management team	**Dept:**	Quality Services
Proposed 1st Ship Date:	February 09, 2025	**Sample requests accepted until:**	September 12, 2024*

***Sample requests received after September 12, 2024 will not be supported.**

Change Type:

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

PCN Details

Description of Change:

Texas Instruments is pleased to announce an additional low-COP (Crystal Oriented Pitting) polished wafer substrate type for the devices listed in the "Product Affected" section.

Current	Additional
Epi/ArA	**Low-COP polished**

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:

None

Product Affected:

CC2642R1FTWRGZRQ1	F280037CPTRQ1	F28386DPTPQR	TMS320F28375SPZPQ
F280021PTQR	F280037CPZRQ1	F28386DZWTQ	TMS320F28375SPZPQR
F280023PMQR	F280037PTRQ1	F28386DZWTQR	TMS320F28377DPTPQ
F280023PNQR	F280037PZRQ1	F28386SPTPQR	TMS320F28377DZWTQ
F280023PTQR	F280038CPMQ1	F28P659DH8PZPRQ1	TMS320F28377DZWTQR
F280025CPMQR	F280038CPMRQ1	F28P659DK8PTPQ1	TMS320F28377SPTPQ
F280025CPNQR	F280038PMRQ1	F28P659DK8PZPQ1	TMS320F28377SPZPQ
F280025CPTQR	F280039CPNQ1	F28P659DK8PZPRQ1	TMS320F28377SZWTQ
F280025PMQR	F280039CPZQ1	F28P659DK8ZEJQ1	TMS320F28379DPTPQ
F280025PNQR	F280039CPZRQ1	F28P659DK8ZEJRQ1	TMS320F28379DZWTQR
F280025PTQR	F280039PZRQ1	F28P659SH6PTPQ1	XF28P559SJ9PDTQ1
F280034PTRQ1	F28384DPTPQR	F28P659SH6PZPRQ1	XF28P559SJ9PMQ1
F280036CPMRQ1	F28384DZWTQR	TMS320F28075PTPQ	XF28P559SJ9PNAQ1
F280036PMRQ1	F28384SPTPQR	TMS320F28075PTPQR	XF28P559SJ9PZQ1
F280037CPTQ1	F28386DPTPQ	TMS320F28075PZPQ	

Automotive Qualification Summary
(As per AEC-Q100 Rev. J and JEDEC Guidelines)

LFAB Low COP Silicon qualification for F65 technology
Approve Date 28-JUNE -2024

Product Attributes

Attributes	Qual Device: TMS320F28379SZWTQR SK/Siltron Low COP	Qual Device: TMS320F28379SZWTQR SEH Low COP	Qual Device: TMS320F28379SZWTQR GW Low COP	QBS Process Reference: TMS320F28379SPTPQ Epi
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Product Function	Microprocessor	Microprocessor	Microprocessor	Microprocessor
Wafer Fab Supplier	LFAB	LFAB	LFAB	LFAB
Assembly Site	PHI	PHI	PHI	PHI
Package Group	NFBGA	NFBGA	NFBGA	QFP
Package Designator	ZWT	ZWT	ZWT	PTP
Pin Count	337	337	337	176

- QBS: Qual By Similarity
- Qual Device TMS320F28379SZWTQR SK/Siltron Low COP is qualified at MSL3 260C
- Qual Device TMS320F28379SZWTQR SEH Low COP is qualified at MSL3 260C
- Qual Device TMS320F28379SZWTQR GW Low COP is qualified at MSL3 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: TMS320F28379SZWTQR SK/Siltron Low COP	Qual Device: TMS320F28379SZWTQR SEH Low COP	Qual Device: TMS320F28379SZWTQR GW Low COP	QBS Process Reference: TMS320F28379SPTPQ Epi
Test Group A - Accelerated Environment Stress Tests											
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL3 260C	-	-	-	-	3/462/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	110C/85%RH	264 Hours	-	-	-	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	-	-	-	1/5/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-	-	-	3/135/0
Test Group B - Accelerated Lifetime Simulation Tests											
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	-	-	-	3/2400/0
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	-	-	-	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	-	-	3/90/0
Test Group D - Die Fabrication Reliability Tests											
EM	D1	JESD61	-	-	Electromigration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: TMS320F28379SZWTQR SK/Siltron Low COP	Qual Device: TMS320F28379SZWTQR SEH Low COP	Qual Device: TMS320F28379SZWTQR GW Low COP	QBS Process Reference: TMS320F28379SPTPQ Epi
TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	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	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	1/3/0	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	1/3/0	1/3/0	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	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	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

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-2309-078

Affected ZVEI IDs: SEM-PW-01

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

and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

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