

PCN Number:	20220413001.1	PCN Date:	April 14, 2022
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly/test site (HFTF) & BOM for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Oct 14, 2022	Estimated Sample Availability:	Date provided at sample request.
Change Type:			
<input checked="" type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Assembly Process
<input checked="" type="checkbox"/>	Design	<input checked="" type="checkbox"/>	Assembly Materials
<input checked="" type="checkbox"/>	Test Site	<input type="checkbox"/>	Electrical Specification
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Mechanical Specification
<input checked="" type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Packing/Shipping/Labeling
<input type="checkbox"/>		<input type="checkbox"/>	Test Process
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Wafer Fab Materials
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Wafer Fab Process
<input type="checkbox"/>		<input type="checkbox"/>	Part number change

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of a new fab & process technology (RFAB, LBC7) and additional assembly/test site (HFTF) for selected devices as listed below in the product affected section. Construction differences are noted below:

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
SFAB	EPIC1ZS	150 mm	RFAB	LBC7	300 mm

The die was also changed as a result of the process change.

Construction differences are noted below:

	HNA	HFTF
Mount Compound	SID#400180	SID#A-18
Mold Compound	SID#450207	SID#R-32
Bond wire Composition, Diameter	Au, 0.8 mil	Cu, 0.8 mil

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ

The datasheets will be changing as a result of the above mentioned changes. The datasheet change details can be reviewed in the datasheet revision history. The link to the revised datasheet is available in the table below.



TCA9306-Q1
SCPS263A – AUGUST 2019 – REVISED APRIL 2022

Changes from Revision * (August 2019) to Revision A (April 2022)	Page
• Changed all instances of legacy terminology to controller and target where I ² C is mentioned.....	1
• Changed the values in the Thermal Information table.....	5
• Changed the V _{IK} MIN value to -1.2 V and the MAX value to 0 V in the Electrical Characteristics table.....	5
• Changed the t _{PHL} MAX value at C _L = 15 pF from: 0.5 ns to: 0.75 ns in the Switching Characteristics AC Performance (Translating Down) (EN = 3.3 V)	6
• Changed the t _{PHL} MAX value at C _L = 15 pF from: 0.5 ns to: 0.75 ns in the Switching Characteristics AC Performance (Translating Down) (EN = 2.5 V)	6
• Changed the values in the Switching Characteristics AC Performance (Translating Up) (EN = 3.3 V)	6
• Added Note <i>Specified by design</i> to the Switching Characteristics AC Performance (Translating Up) (EN = 3.3 V)	6
• Changed the values in the Switching Characteristics AC Performance (Translating Up) (EN = 2.5 V)	6
• Added Note <i>Specified by design</i> to the Switching Characteristics AC Performance (Translating Up) (EN = 2.5 V)	6
• Changed figure "ON-Resistance vs. Input Voltage" for V _{EN} =4.5V.....	7
• Added sections Definition of threshold voltage through Current Limiting Resistance on V_{REF2}	9



Changes from Revision B (April 2016) to Revision C (April 2022)	Page
• Changed all instances of legacy terminology to controller and target where I ² C is mentioned.....	1
• Added text when <i>disabled</i> to the first paragraph in the Description (continued)	3
• Changed the θ _{JA} MAX value from 227°C/W to 275°C/W in the Absolute Maximum Ratings	5
• Changed the Thermal Information table.....	5
• Changed the V _{IK} MIN value to -1.2 V and the MAX value to 0 V in the Electrical Characteristics table.....	6
• Changed the t _{PHL} MAX value at C _L = 15 pF from: 0.5 ns to: 0.75 ns in the Switching Characteristics: Translating Down, V_{IH} = 3.3 V	6
• Changed the t _{PHL} MAX value at C _L = 15 pF from: 0.5 ns to: 0.75 ns in the Switching Characteristics: Translating Down, V_{IH} = 2.5 V	6
• Added Note <i>Specified by design</i> to the Switching Characteristics: Translating Up, V_{IH} = 2.3 V	7
• Added Note <i>Specified by design</i> to the Switching Characteristics: Translating Up, V_{IH} = 1.5 V	7
• Changed figure "ON-Resistance vs. Input Voltage" for V _{EN} = 4.5V.....	7
• Added sections Definition of threshold voltage through Current Limiting Resistance on V_{REF2}	9

Products	Current Datasheet Number	New Datasheet Number	Link to full datasheet
TCA9306-Q1	SCPS263	SCPS263A	Custom: For the full version of the datasheet, contact Duy (Bobby) Nguyen at duynquyen@ti.com
PCA9306-Q1	SCPS178B	SCPS178C	http://www.ti.com/product/PCA9306-Q1

Qual details are provided in the Qual Data Section.

Reason for Change:

These changes are part of our multiyear plan to transition products from our 150-millimeter factories to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

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

None

Impact on Environmental Ratings

Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

RoHS	REACH	Green Status	IEC 62474
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change

Changes to product identification resulting from this PCN:

Fab Site Information:

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
SH-BIP-1	SHE	USA	Sherman
RFAB	RFB	USA	Richardson

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
Hana	HNT	THA	Ayutthaya
HFTF	HFT	CHN	Hefei

Die Rev:

Current	New
Die Rev [2P] B	Die Rev [2P] A

Sample product shipping label (not actual product label)

Product Affected:

PCA9306IDCURQ1	PCA9306TDCURQ1	TCA9306TDCURHB
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**Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)**

**[RedBull, MI300] PCA9306TDCURQ1 (Q100H, Grade 2 -40/105C)
Approved 15-Feb-2022**

Product Attributes

Attributes	Qual Device: PCA9306TDCURQ1	QBS Product Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
Automotive Grade Level	Grade 2	Grade 1	Grade 0
Operating Temp Range	-40 to +105 C	-40 to +125 C	-40 to +150 C
Product Function	Interface	Interface	Signal Chain
Wafer Fab Supplier	RFAB	RFAB	RFAB
Die Revision	A0	A0	AA
Assembly Site	HFTFAT	HFTFAT	HNT
Package Type	VSSOP	VSSOP	SOT
Package Designator	DCU	DCU	DBZ
Ball/Lead Count	8	8	3

- QBS: Qual By Similarity
- Qual Device PCA9306TDCURQ1 is qualified at LEVEL1-260C

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: PCA9306TDCURQ1	QBS Product/Process/Package Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
Test Group A – Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 1	L1-260C	-	3/144/0	3/1022/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	3/231/0	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	3/135/0	3/231/0
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, 150C	48 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	Wire Bond Shear, Cpk>1.67	Wires	-	3/90/0	-
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	3/30/0	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Pull to Destruction	Leads	-	1/24/0	-
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	-	-

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: PCA9306TDCURQ1	QBS Product/Process/Package Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
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 - Q100	4000 V	-	1/3/0	1/3/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	(Per JESD78)	-	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0	3/90/0	-
Additional Tests									
MSL			-	-	Automotive Moist Sens. L1	L1-260C	-	1/12/0	-
-			-	-	Bond Pull, over ball, Cpk>1.67	Wires	-	3/90/0	-
-			-	-	Bond Pull, over stitch, Cpk>1.67	Wires	-	3/90/0	-
MISC			-	-	Bond Pad Cratering Check	Completed	-	Pass	-
MQ			-	-	Manufacturability (Auto Assembly)	(per automotive requirements)	-	Pass	-
MQ			-	-	Manufacturability (Wafer Fab)	(per mfg. Site specification)	-	Pass	-

1 (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

TI Qualification ID: 20210120-137963



TI Information
Selective Disclosure

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

[RedBull, MI300] TCA9306TDCURHB (Q100H, Grade 2 -40/105C)
Approved 15-Feb-2022

Product Attributes

Attributes	Qual Device: TCA9306TDCURHB	QBS Product Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
Automotive Grade Level	Grade 2	Grade 1	Grade 0
Operating Temp Range	-40 to +105 C	-40 to +125 C	-40 to +150 C
Product Function	Interface	Interface	Signal Chain
Wafer Fab Supplier	RFAB	RFAB	RFAB
Die Revision	A0	A0	AA
Assembly Site	HFTFAT	HFTFAT	HNT
Package Type	VSSOP	VSSOP	SOT
Package Designator	DCU	DCU	DBZ
Ball/Lead Count	8	8	3

- QBS: Qual By Similarity
- Qual Device TCA9306TDCURHB is qualified at LEVEL 1-260C

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TCA9306TDCURHB	QBS Product/Process/Package Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
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 - Q100	4000 V	-	1/3/0	1/3/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	(Per JESD78)	-	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0	3/90/0	-
Additional Tests									
MSL			-	-	Automotive Moist Sens. L1	L1-260C	-	1/12/0	-
-			-	-	Bond Pull, over ball, Cpk>1.67	Wires	-	3/90/0	-
-			-	-	Bond Pull, over stitch, Cpk>1.67	Wires	-	3/90/0	-
MISC			-	-	Bond Pad Cratering Check	Completed	-	Pass	-
MQ			-	-	Manufacturability (Auto Assembly)	(per automotive requirements)	-	Pass	-
MQ			-	-	Manufacturability (Wafer Fab)	(per mfg. Site specification)	-	Pass	-
Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TCA9306TDCURHB	QBS Product/Process/Package Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
Test Group A – Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 1	L1-260C	-	3/144/0	3/1022/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	3/231/0	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	3/135/0	3/231/0
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, 150C	48 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	Wire Bond Shear, Cpk>1.67	Wires	-	3/90/0	-
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	3/30/0	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Pull to Destruction	Leads	-	1/24/0	-
Test Group D – Die Fabrication Reliability Tests									
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-	-
TDD	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	-	-

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

TI Qualification ID: 20210120-137964



TI Information
 Selective Disclosure

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

[RedBull, MI300] PCA9306IDCURQ1 (Q100H, Grade 3 -40/85C)
 Approved 15-Feb-2022

Product Attributes

Attributes	Qual Device: PCA9306IDCURQ1	QBS Product Reference: PCA9306IDCURQ1	QBS Process Reference: TMP235EDBZRQ1
Automotive Grade Level	Grade 3	Grade 1	Grade 0
Operating Temp Range	-40 to +85 C	-40 to +125 C	-40 to +150 C
Product Function	Interface	Interface	Signal Chain
Wafer Fab Supplier	RFAB	RFAB	RFAB
Die Revision	A0	A0	AA
Assembly Site	HFTFAT	HFTFAT	HNT
Package Type	VSSOP	VSSOP	SOT
Package Designator	DCU	DCU	DBZ
Ball/Lead Count	8	8	3

- QBS: Qual By Similarity
 - Qual Device PCA9306IDCURQ1 is qualified at LEVEL1-260C

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: PCA9306IDCURQ1	QBS Product/Process/Package Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
Test Group A – Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 1	L1-260C	-	3/144/0	3/1022/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	3/231/0	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 150C	1000 Hours	-	3/135/0	3/231/0
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, 150C	48 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	Wire Bond Shear, Cpk>1.67	Wires	-	3/90/0	-
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	3/30/0	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Pull to Destruction	Leads	-	1/24/0	-
Test Group D – Die Fabrication Reliability Tests									
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-	-
TDDDB	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	-	-

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: PCA9306IDCURQ1	QBS Product/Process/Package Reference: TCA39306DCURQ1	QBS Process Reference: TMP235EDBZRQ1
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 - Q100	4000 V	-	1/3/0	1/3/0
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1500 V	-	1/3/0	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-up	(Per JESD78)	-	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	3/90/0	3/90/0	-
Additional Tests									
MSL			-	-	Automotive Moist Sens. L1	L1-260C	-	1/12/0	-
-			-	-	Bond Pull, over ball, Cpk>1.67	Wires	-	3/90/0	-
-			-	-	Bond Pull, over stitch, Cpk>1.67	Wires	-	3/90/0	-
MISC			-	-	Bond Pad Cratering Check	Completed	-	Pass	-
MQ			-	-	Manufacturability (Auto Assembly)	(per automotive requirements)	-	Pass	-
MQ			-	-	Manufacturability (Wafer Fab)	(per mfg. Site specification)	-	Pass	-

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

TI Qualification ID: 20210120-137962

For questions regarding this notice, e-mails can be sent to the contacts shown below or your local Field Sales Representative.

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