

Product/process change notification

PCN N° 2021-101-A

Dear customer,

Please find attached our Infineon Technologies AG PCN:

Capacity extension by introduction of 300mm wafer diameter for dedicated OptiMOS™5 25V products at Infineon Technologies Austria AG, Austria

Important information for your attention:

- Please respond to this PCN by indicating your decision on the approval form, sign it and return to your sales partner before **2021-12-17**
- Infineon aligns with the widely recognized JEDEC STANDARD “**JESD46**“, which stipulates: **“Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change.”**

Your prompt reply will help Infineon to assure a smooth and well-executed transition. If Infineon does not hear from your side by the due date, we will assume your full acceptance to this proposed change and its implementation.

Your attention and response to this matter is greatly appreciated.

On 16 April 2020, Infineon acquired Cypress.
We are now in the process of merging and consolidating our tools and processes for PCN, Information Notes, Errata and Product Discontinuance.
For further details, please visit our website:
<https://www.infineon.com/cms/en/about-infineon/company/cypress-acquisition/>

Infineon Technologies AG
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Chairman of the Supervisory Board: Dr. Wolfgang Eder
Management Board: Dr. Reinhard Ploss (CEO), Dr. Helmut Gassel, Jochen Hanebeck, Constanze Hufenbecher, Dr. Sven Schneider
Registered Office: Neubiberg
Commercial Register: München HRB 126492

Product/process change notification

PCN N° 2021-101-A

- **Products affected** Please refer to attached affected product list 1_cip21101_a

- **Detailed change information**

Subject Introduction of 300mm wafer diameter at Infineon Technologies Austria AG

Reason Extension for manufacturing capability to cover increasing customer demand and support short term upside demand in a more efficient way

Description	Old	New
Wafer Fab Location	<ul style="list-style-type: none"> ■ Infineon Technologies Austria AG, Villach, Austria (200mm) 	<ul style="list-style-type: none"> ■ Infineon Technologies Austria AG, Villach, Austria (200mm & 300mm)
Wafer Lot Number	<ul style="list-style-type: none"> ■ VExxxxxx (200mm) 	<ul style="list-style-type: none"> ■ VExxxxxx (200mm) <i>and</i> ■ VFxxxxxx (300mm)

- **Product identification** Internal & External traceability via wafer lot number

- **Impact of change**
 - **NO** change on electrical, thermal parameters as proven via product qualification and characterization.
 - **NO** change of existing electrical datasheet parameters.
 - **NO** change in quality and reliability. Processes are optimized to meet product performance according to already applied Infineon specification.

- **Attachments**

1_cip21101_a	affected product list
2_cip21101_a	qualification report

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■ Time schedule

■ Final qualification report	available
■ First samples available	on request
■ Intended start of delivery	2022-02-28 or earlier pending on customer approval

If you have any questions, please do not hesitate to contact your local sales office.

PCN 2021-101-A

Capacity Extension by Introduction of 300mm wafer diameter for dedicated OptiMOS™5 25V products at Infineon Technologies Austria AG, Austria

IFAT PSS QM DCDC
2021-06-22



- restricted -

- › OptiMOS™5 25V technology qualification for 25V in 300mm in PG-TISON-8 and PG-TDSON-8 packages
 - **PCN 2017-005-A** : Capacity extension by introduction of 300mm wafer diameter for dedicated OptiMOS™5 25V and 60V products at Infineon Villach, Austria
- › Qualification of introduction of 300mm for integrated Power stages with current sense at Carsem
 - **PCN 2017-063-A** : Capacity extension by introduction of 300mm wafer diameter for integrated Power stages with current sense at Carsem, Malaysia



Qualification Test Report TDA21231

Date: 2017-04-18
Danler-Swatt

IFAT PMM QM
Herbert Danler

**Product Qualification for SFET 6 technologie 12" (300mm)
PCN: 2017-005-A**

Reason for qualification: TDA2123x SFET6 12" (300mm) qualification
Extension of qualification: SFET6 Technology Qualification in Reference Packages (same BE line)
Reason for choosing following test vehicle:
BSG0811ND same package type, same process and assembly site

Reference Products				BSG0811ND	BSG0811ND	BSG0811ND	TDA21231
Wafer Technology, location				SFET6 / Villach SFET6 / Villach	SFET6 / Villach SFET6 / Villach	SFET6 / Villach SFET6 / Villach	C11HV / Dresden SFET6 / Villach SFET6 / Villach
Chip type				P9104 P9106A	P9104 P9106A	P9104 P9106A	M1672 P9109 P9101
Chip sizes (mm²)				4,5 1,5	4,5 1,5	4,5 1,5	1.1 1.6 5.3
Package type, Assembly line location				PG-TISON-8 Malacca	PG-TISON-8 Malacca	PG-TISON-8 MALACCA	PG-IQFN-30 Malacca
Test description	Abbr.	Condition	Readout	1 lot	1 lot	1 lot	1 lot
Pre-Conditioning J-STD020 / JESD22 A113	PC	MSL and 3 x reflow at x°C		MSL1, 260°C, 3x reflow	MSL1, 260°C, 3x reflow	MSL1, 260°C, 3x reflow	MSL2, 260°C, 3x reflow
Temperature Cycling JESD22 A104	TC*	-55°C - +150°C	0 c PC 500 c 1000 c	0/77 0/77 0/77 0/77	0/77 0/77 0/77 0/77	0/100 0/100 0/100 0/100	refer to BSG0811ND
Autoclave JESD22 A102	AC*	121°C / 100% rh	0h PC 96h	0/77 0/77 0/77	0/77 0/77 0/77	0/77 0/77 0/77	refer to BSG0811ND
High Humidity High Temp. Reverse Bias JESD22 A101	H3TRB*	85°C / 85%rh V =80% VDS	0 h PC 168h 500 h 1000 h	0/77 0/77 0/77 0/77 0/77	0/77 0/77 0/77 0/77 0/77	refer to BSG0811ND	-
High Temperature Reverse Bias JESD22 A-108 (Q101)	HTRB*	Ta =150°C V =VDS max	0 h PC 168 h 500 h 1000 h	0/77 0/77 0/77 0/77	0/77 0/77 0/77 0/77	0/77 0/77 0/77 0/77	refer to BSG0811ND
High Temperature Gate stress JESD22 A108	HTGS*	Ta =150°C Vg = ±80% VGS	0 h PC 168 h 500 h 1000 h	0/77 0/77 0/77 0/77	0/77 0/77 0/77 0/77	0/77 0/77 0/77 0/77	refer to BSG0811ND
Intermitted Operational Life Test MIL-STD 750/Meth.1037	IOL*	Delta T=100K for 15 000c	0 c PC 7500 c 15000 c	0/77 0/77 0/77 0/77	refer to BSG0811ND	0/77 0/77 0/77 0/77	-

* PC is done only for SMD Packages before AC, TC, IOL, HTGS, HTRB and H3TRB stress tests



PCN 2017-063-A

Capacity extension by introduction of 300mm wafer diameter for integrated powerstages with current sense at Carsem, Malaysia

Infineon Technologies Americas Corp.

41915 Business Park Dr. Temecula, California 92590, USA. Tel#: 951-676-7500; Fax: 951-676-9154; website: www.infineon.com

SFET6 300mm SMQ75 Qualification

QUALIFICATION INFORMATION

Description	Voyager 300mm SMQ75 Qualification		
Qualification Level	Industrial	Qualification Type	Assembly
Reliability ID #	22355	Plan Author	Ryan Munson
PPN/CPN		Project Manager	Thomas Durand
CC List	Gil Alivio, Dennis Cerney		

VEHICLE PRODUCT INFORMATION

Product / Part #	TDA21470	Silicon Technology	TSMC BCD 0.18um 1P5M SFET6 25V
Fabrication Location	TSMC – IC IFX Villach – FETs	Silicon Process/GEN	TSMC BCD 0.18um 1P5M SFET6 25V
Package Type	PQFN 5x6 39L	Assembly Location	Carsem-S
MSL	2	Reflow Temperature	260°C

REVISION HISTORY

#	Date	Author	Description of Changes
A	9/01/2017	Ryan Munson	Initial Release

INTRODUCTION

Based on successfully passing the reliability tests per qualification plan, the objective of this reliability test is to qualify 300mm SFET6 to be produced at IFX Villach, Austria and assembled in PQFN 5x6 39L packages at Carsem-S using SMQ75 die attach for products listed in Table 1.

SUMMARY/CONCLUSION

TDA21470 completed uHAST, TC, HTSL, IOL and THB with no reliability related failures. The reliability test on the samples of qual vehicle TDA21470 completed the standard International Rectifier Industrial-Level qualification.

Refer to Table 1 for the list of products covered under this qualification.



PRODUCT QUALIFIED GENERICALLY

Table 1

Part Number	Product Name	Current
IR35411MTRPBF	Traveler	60A
IR35412MTRPBF	Traveler	50A
TDA21460	Voyager	60A
TDA21470	Voyager	70A
TDA21471	Voyager	70A
TDA21462	VoyagerA	60A
TDA21472	VoyagerA	70A
TDA21473	VoyagerA	70A

Test failures are defined as devices exhibiting any of the following characteristics:

1. Devices not meeting the electrical test limits defined in the datasheet specification.
2. Any device exhibiting external physical damage attributable to the environmental test.

STRESS TEST RESULTS SUMMARY

Temperature Cycling (TC)

Test Conditions: A: $T_A = +150^{\circ}\text{C}$ to -65°C (15 minute Dwell Time)

Rel #	Part Number	Assembly lot #	Test Conditions	Temperature	#Failed/Total			
					0cyc	250cyc	500cyc	1000cyc
22355	TDA21470	I0317JP	A	25°C	0/80	0/80	0/80	0/80
		I0317JQ			0/80	0/80	0/80	0/80
		I0317JO			0/80	0/80	0/80	0/80

MSL2 preconditioning at 260°C peak reflow performing prior to reliability testing.

Unbiased Highly Accelerated Stress Test (uHAST)

Test Conditions: A: $T_A = 130^{\circ}\text{C}/85\%\text{RH}/18.6\text{PSIG}$

Rel #	Part Number	Assembly lot #	Test Conditions	Temperature	#Failed/Total	
					0h	96h
22355	TDA21470	I0317JP	A	25°C	0/80	0/80
		I0317JQ			0/80	0/80
		I0317JO			0/80	0/80

MSL2 preconditioning at 260°C peak reflow performing prior to reliability testing.



Temperature Humidity Bias (THB)

Test Conditions: A: $T_A = 85^\circ\text{C}/85\%\text{RH}$, $V_{in}=16.4\text{V}$

Rel #	Part Number	Assembly lot #	Test Conditions	Temperature	#Failed/Total			
					0h	168h	500h	1000h
22355	TDA21470	I0317JP	A	25°C	0/80	0/80	0/80	0/80
		I0317JQ			0/80	0/80	0/80	0/80
		I0317JO			0/80	0/80	0/80	0/80

MSL2 preconditioning at 260°C peak reflow performing prior to reliability testing.

High Temperature Storage Life (HTSL)

Test Conditions: A: $T_A = +150^\circ\text{C}$, Unbiased

Rel #	Part Number	Assembly lot #	Test Conditions	Temperature	#Failed/Total		
					0h	500h	1000h
22355	TDA21470	I0217BX	A	25°C	0/80	0/80	0/80
		I0217ET			0/80	0/80	0/80
		I0317DC			0/80	0/80	0/80

Intermittent Operating Life (IOL) HS/LS

Test Conditions: A: $\Delta T_j = 100^\circ\text{C}$, 2 minutes on/off cycles

Rel #	Part Number	Assembly lot #	Test Conditions	Temperature	#Failed/Total			
					0h	168h	500h	1000h
22355	TDAF21470	D0317AT	A	25°C	0/80	0/80	0/80	0/80
		D0317AU			0/80	0/80	0/80	0/80
		D0317AS			0/80	0/80	0/80	0/80

MSL2 preconditioning at 260°C peak reflow performing prior to reliability testing.



RELIABILITY TEST REQUIREMENTS

Stress Test	Ref	Test Description (Conditions) Test Requirements or Intervals	Sample Size	# of Fab / Assy Lots	Total Devices	Acceptance Criteria	Comments
HTSL	JA103	High Temperature Storage Life/ High Temperature Bake: (1000 hours at Ta=150C), (Test @ Rm), Test intervals: 0, 500, 1000 hrs.	80	3/3	240	0/240	Passed
PC	JA113	Preconditioning: MSL2 @ PRT=260C	Moisture Preconditioning prior to uHAST, TC, IOL, and THB				Passed
uHAST	JA118	Unbiased Highly Accelerated Stress Test: (96 hours, Ta 130°C, 85%RH) Test intervals: 0, 96 hours	80	3/3	240	0/240	Passed
IOL	MIL-750 Method 1037	Intermittent Operating Life: 10,000 cycles, Δ Tj= 100°C (40 HS/ 40 LS) Test intervals: 0, 2500, 5000, 10000 cyc	80	3/3	240	0/240	Passed
THB	JA101	Temperature Humidity Bias: 1000 hours at Ta=85°C, 85%RH, bias Test intervals: 0, 168, 500, 1000 hours	80	3/3	240	0/240	Passed
TC	JA104	Accelerated Temp-Cycling: (1000 cycles, -65 to 150°C) Test intervals: 0, 250, 500, 1000 cycles	80	3/3	240	0/240	Passed
WBS or BPS	JESD47	Wire /Bond Pull Strength	30 Bonds	3/3	30 Bonds	0/30 Bonds Min 5 Devs	Passed
WBS or BS	JB116	Wire Bond Shear: (JESD47)	30 Bonds	3/3	30 Bonds	0/30 Bonds Min 5 Devs	Passed



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SFET6 300mm RM218 Qualification

QUALIFICATION INFORMATION

Description	Voyager 300mm RM218 Qualification		
Qualification Level	Industrial	Qualification Type	Assembly
Reliability ID #	22355	Plan Author	Ryan Munson
PPN/CPN		Project Manager	Thomas Durand
CC List	Gil Alivio, Dennis Cerney		

VEHICLE PRODUCT INFORMATION

Product / Part #	TDA21470	Silicon Technology	TSMC BCD 0.18um 1P5M SFET6 25V
Fabrication Location	TSMC – IC IFX Villach – FETs	Silicon Process/GEN	TSMC BCD 0.18um 1P5M SFET6 25V
Package Type	PQFN 5x6 39L	Assembly Location	Carsem-S
MSL	2	Reflow Temperature	260°C

REVISION HISTORY

#	Date	Author	Description of Changes
A	7/21/2017	Ryan Munson	Initial Report
B	9/18/2017	Ryan Munson	Added VoyagerA Devices

INTRODUCTION

Based on successfully passing the reliability tests per qualification plan, the objective of this reliability test is to qualify 300mm SFET6 to be produced at IFX Villach, Austria and assembled in PQFN 5x6 39L packages at Carsem-S using RM218 solder for products listed in Table 1.

SUMMARY/CONCLUSION

TDA21470 completed uHAST, TC, IOL, and HTSL with no reliability related failures. The reliability test on the samples of qual vehicle TDA21470 completed the standard legacy International Rectifier Industrial-Level qualification.

Refer to Table 1 for the list of products covered under this qualification.



PRODUCT QUALIFIED GENERICALLY

Table 1

Part Number	Product Name	Current
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		I0217ET			0/80	0/80	0/80	0/80
		I0317DC			0/80	0/80	0/80	0/80

MSL2 preconditioning at 260°C peak reflow performing prior to reliability testing.

Unbiased Highly Accelerated Stress Test (uHAST)

Test Conditions: A: $T_A = 130^{\circ}\text{C}/85\%\text{RH}/18.6\text{PSIG}$

Rel #	Part Number	Assembly lot #	Test Conditions	Temperature	#Failed/Total	
					0h	96h
22355	TDA21470	I0217BX	A	25°C	0/80	0/80
		I0217ET			0/80	0/80
		I0317DC			0/80	0/80

MSL2 preconditioning at 260°C peak reflow performing prior to reliability testing.



High Temperature Storage Life (HTSL)

Test Conditions: A: $T_A = +150^{\circ}\text{C}$, Unbiased

Rel #	Part Number	Assembly lot #	Test Conditions	Temperature	#Failed/Total		
					0h	500h	1000h
22355	TDA21470	I0217BX	A	25°C	0/80	0/80	0/80
		I0217ET			0/80	0/80	0/80
		I0317DC			0/80	0/80	0/80

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WBS or BPS	JESD47	Wire /Bond Pull Strength	30 Bonds	3/3	30 Bonds	0/30 Bonds Min 5 Devs	Passed
WBS or BS	JB116	Wire Bond Shear: (JESD47)	30 Bonds	3/3	30 Bonds	0/30 Bonds Min 5 Devs	Passed



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