

## APPLICATION FOR ESCC TECHNOLOGY FLOW QUALIFICATION

Component Title: Transistors, Microwave, GaN Hemt, Unmatched Power Bar in Metal Ceramic Package CHKxxxx-SYx

Page 1 Appl. No.

Summary Description of Technology flow   Detailed Service   Detailed Technology flow   Detailed Service   Detailed Servic				Executive Member: CNES					Date: 19/01/2024				388		
Attached as Appendix	Technology Flow submitted	for qualificat	ion												1
Chicago   Chic		Techno	Flow					200							
Chronouncern   Chro					GH50	-20			СН	CHK8101-SYC CHK8101-SYC					
Component Manufacturer									СН						
United Monolithic Semiconductors    WAFER FABRICATION: UNIS Gmib Wilhielm Runge Strasse 11 D-089081 UNIS GREEN CHICKOOK STAR Place Wilhield Strass 70 01454 Radeberg Gemeinny   CONTROL AND TEST: UNIS 38 10 avenue du Quebec 91140 Villebon Sur Yvette France Wilhield Strass 70 01454 Ref No: 30S RD_PID_GaN Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic															
United Monolithic Semiconductors    WAFER FABRICATION: UNIS Gmib Wilhielm Runge Strasse 11 D-089081 UNIS GREEN CHICKOOK STAR Place Wilhield Strass 70 01454 Radeberg Gemeinny   CONTROL AND TEST: UNIS 38 10 avenue du Quebec 91140 Villebon Sur Yvette France Wilhield Strass 70 01454 Ref No: 30S RD_PID_GaN Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 07/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic Package CHICKOOK-SYX Product family Issue: 03 Date: 04/12/2023   Power in metal Ceramic					1						1				
UMS Cambh Willelm Runge Strasse 11 D-089081   Generic: ESCC 5010 Issue 3	Component Manufact	urer	2		Location of Manufacturing Plant				3	ESCC S	pecification use	d for Qu	alificat	ion	4
Ri-le Microsystems Gmbh Heidestrass 70 01454   Radeberg Germany   Radeberg Germany   Radeberg Germany   Radeberg Germany   Sas 10 avenue du Quebec 91140 Villebon   Sas RD_PID_GAN Power in metal Ceramic Package CHKxxxx-SYx Product family   Issue: 03	United Monolithic Semiconductors				Gmbh Wi			asse 11 D-08	39081	Generic: ESCC 5010 Issue 3					
Qualification Report Reference and date: See Box 12  PID used for manufacturing Qualification Lot  Ref No: 30S_RD_PID_GaN Power in metal Ceramic Package CHKxxxxx-SYx Product family  Issue: 03 Date: 04/12/2023  PID changes since Original Qualification or last extension of Qualification.  None					<b>Microsyst</b>	ems (		estrass 70 01	1454	Detail/s:	ESCC 5614/	009 Issu	e 1		
See Box 12  Date:   See Box 12   Ref No:   30S_RD_PID_GaN Power in metal Ceramic Package CHKcocx-SYx Product family   Date:   04/12/2023    PID changes since Original Qualification or last extension of Qualification.   None   Manual					UMS SAS 10 avenue du Quebec 91140										
Ref No:   30S_RD_PID_GaN Power in metal Ceramic Package CHKxxxx-SYx Product family   Issue: 03   Date: 04/12/2023	1					7	5	PID used for	or manuf	anufacturing Qualification Lot					6
Date:	See Box 12														
Date:								Ref No:				al Ceram	ic Pac	kage	
Date: 04/12/2023   04/12/2023   04/12/2023   04/12/2023   05/10/2023	Date:							Issue:							
of Qualification.  None   Minor*  Provide detail QUR 723 refers  Ref No: 30S_RD_PID_GaN Power in metal Ceramic Package CHKxxxx-SYx Product family  Issue: 03 Date: 07/12/2023  Current Manufacturing facilities surveyed by:  A. Barnes, ESA / JL Roux, CNES on 03/10/2023  (Name of Executive Responsible) (Date)  Satisfactory: Yes  No Corrective Actions closed out Yes No N/A   Cuality and Reliability Data  Evaluation testing performed Yes  No Date: (supply data)  Ref. Nos. and purpose:	Date.								04/	12/2023					
Name of Executive Representative   Ref No:   30S_RD_PID_GaN Power in metal Ceramic Package CHKxxxx-SYx Product   family   Issue:   03   Date:   07/12/2023     9	TIB citatiges ontes original quantotation or last enterter					7	Current P	ID Verified	Verified by: J.L. Roux (CNES) 8					8	
Minor*	None ⊠				_					Name of E	xecutive Repre	sentative	е		
Current Manufacturing facilities surveyed by:  A. Barnes, ESA / JL Roux, CNES on 03/10/2023  (Name of Executive Responsible) (Date)  Satisfactory: Yes \omega No \omeg	Ref No:														
Current Manufacturing facilities surveyed by:  A. Barnes, ESA / JL Roux, CNES on 03/10/2023 (Name of Executive Responsible)  Satisfactory: Yes  No Corrective Actions closed out Yes No N/A   Quality and Reliability Data  Evaluation testing performed Yes  No Date: (supply data)  Equivalent Data:  Ref. Nos. and purpose:							03								
Current Manufacturing facilities surveyed by:  A. Barnes, ESA / JL Roux, CNES on 03/10/2023  (Name of Executive Responsible) (Date)  Satisfactory: Yes  No Corrective Actions closed out Yes No N/A   Quality and Reliability Data  Evaluation testing performed Yes  No Date: (supply data)  Equivalent Data:  Ref. Nos. and purpose:						Date: 07/12/2023									
Corrective Responsible   Responsible   Corrective Responsible															9
Satisfactory: Yes  No Corrective Actions closed out Yes No No N/A   Quality and Reliability Data  Evaluation testing performed Yes No No Failure analysis, DPA, NCCS Yes No No Separate	Current Manufacturing facilities surveyed by:  A. Barnes, ESA / JL						JL Roux, CN	ES	on		03/10/20	23			
Quality and Reliability Data  Evaluation testing performed Yes  No  Failure analysis, DPA, NCCS Yes  No  available   Report Ref. No.: See Box 12  Date:   Ref. Nos. and purpose:					(1)	Name	of Executi	ve Responsib	ole)			(Date)	)		
Evaluation testing performed Yes  No  Failure analysis, DPA, NCCS Yes  No  Failure analysis, DPA, NCCS Yes  No  Equivalent Data:  Ref. Nos. and purpose:	Satisfactory: Y	es 🗵		No			Correctiv	re Actions clo	sed out	Yes [	] No 🗆	N/A	٥	⊠	
available  Report Ref. No.: See Box 12 Date: (supply data)  Equivalent Data: Ref. Nos. and purpose:	Quality and Reliability Data														10
Equivalent Data: Ref. Nos. and purpose:	Evaluation testing performed	i Yes	$\boxtimes$		No					, DPA, NCCS	Yes		No	$\boxtimes$	
	Report Ref. No.: See Bo	x 12			Date:			(supply	data)						
Certification:	Equivalent Data:						Ref. Nos. and purpose:								
	Certification:														



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Executive Member: CNES Date: 19/01/2024 Appl. No. 388

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The undersigned hereby certifies on behalf of the ESCC Executive - that the above information is correct; that the appropriate documentation has been evaluated; - that full compliance to all ESCC requirements is evidence except as stated in box 15; - that the reports and data are available at the ESCC Executive and therefore applies on behalf of CNES as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

Date:

19/01/2024

Gianandrea Quadri
G.Quadri, CNES ((Signature of the Executive Coordinator)

Continuation of Boxes above:

Box 5 and 10:

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ESA-TECE-LAB-TR-02492 (28/09/2021): Multipactor and Corona tests on 4 packaged GaN Power Transistors at L-band ESA-TECE-LAB-TR-02492 (28/09/2021): Multipactor and Corona tests on 4 packaged GaN Power Transistors at L-b NE\_10S\_LAT\_Report\_CHK8201-SYA\_P101221 Rev. A (30/03/2022): Lot Acceptance Test report on CHK8201-SYA\_NE\_10S\_LAT\_Report\_CHKA012vSYA\_Rev. A (15/02/2023): Lot Acceptance Test report on CHKA012bSYA\_NE\_10S\_GH50-20\_SEE\_Radiation\_Test\_Plan\_Results\_NE\_10S\_Great2\_TN6\_Capability\_Approval\_Test\_Results\_OR\_P31\_UMS\_TN5A\_Rev. B (18/04/2023): Technical\_Note 5A- Definition of Capability\_Approval\_Domain\_G2P31\_UMS\_TN5A\_Rev. B (18/04/2023): Technical\_Note 5A- Definition\_or Capability\_Approval\_Domain\_G2P31\_UMS\_TN5A\_Rev. B (18/04/2023): Technical\_Note 5A- Definition\_or Capability\_Approval\_Domain\_G2P31\_UMS\_TN5A\_Rev. B (18/04/2023): Technical\_Note 5A- Definition\_or Capability\_Approval\_Test\_Results\_ESA-TECQEC-LAB-TR-2023-003545 Issue 1 (27/11/2023): CA on power GaN\_transistors from UMS

Box 9 : Five (5) Findings from the audit have been identified. These findings do not pertain to general reliability issues. Consequently, they do not necessitate any actions that would impact the manufacturing or testing of the domain intended for qualification.

## **ESCC**

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		Executive Memb	per: CNES	Date:	19/01/2024	388		
Non complia	ance to ESCC requirements:	•				L	13	
			Decemb		Non compliance			
No.:	Specification		Paragraph		Non compliance			
		,						
Additional ta	sks required to achieve full co	mpliance for ESC	qualification or rationale for acce	ptability of				
noncompliar	ice:						14	
N/A						L		
Executive M	anager Disposition						15	
Application A	Approval: Yes 🗵	No 🗆				-		
Action / Rem	narks:							
					20			
				ĺ	5 NI			
Date:								
				B. So ar	chade: Head of the Produc nd Safety Department	t Assurance		
Date:				B. Se	chade: Head of the Producted Safety Department	t Assurance		