

		<b>APPLICATION FOR EXTENSION OF ESCC TECHNOLOGY FLOW APPROVAL</b>			Page 1
		Component Title:	<b>Integrated Circuits, Silicon, Monolithic, CMOS, Cell-Based Array, based on Type ATC18RHA</b>		Appl. No.
		Executive Member:	<b>CNES</b>	Date:	<b>15/11/2023</b>
					<b>357B</b>
Technology Flow submitted for Extension of Qualification Approval:					1
SUMMARY DESCRIPTION		TEST STRUCTURES		COMPONENTS PROPOSED FOR QUALIFICATION	
ATC18RHA ASICs		See Annex 1		ATC18RHA ASICs AT697F AT7991	
Component Manufacturer		Location of Manufacturing Plant(s)		Date of original qualification approval:	
MICROCHIP TECHNOLOGY NANTES (ex-ATMEL NANTES)		MCHP Nantes (design & test) UMC Taiwan (wafer fab) MMT Thailand (assembly) HCM La Rochelle (column mounting)		Date: 30/08/2021 Certificate Ref No. 357A	
ESCC Specifications used for Maintenance testing:		Deviations to LVT testing and Detail Specification used:		Qualification Extension Report reference and date:	
Generic: 9000 Issue: 11 Detail(s): 9202/080 Issue: 5 9512/005 Issue: 1		No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (supply details in Box 15) Deviation from current Specifications: No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (Supply details)		ATC18RHA ESCC QML - qualification maintenance request 2023-06 rev0	
Summary of procurement or equivalent test results during current validity period in support of this application (those to ESCC listed first)					8
Customer	Component	LVT	Date code	Quantity Delivered	
See Qualification Extension report					
PID changes since last maintenance of qualification		Current PID Verified by:		D. Dangla, CNES	
None <input checked="" type="checkbox"/> Minor* <input type="checkbox"/> Major* <input type="checkbox"/> *Provide details in box:		Name of Executive Representative			
19		Ref No: ATC18RHA PID 0032 – Rev F – 14/11/2023			
		Ref No: MMT PID FOR MCHP NANTES – 1G-QM-0105 – 04/02/2019			
		Ref No:			
Current Manufacturing facilities surveyed by:		S. Hernandez, ESA and D. Dangla, CNES		on 14/09/2022	
		(Name of Executive Representative)		(Date)	
Satisfactory:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explain			
Report Reference:		DTN QE EC 2022-13648 CR-ESCC QML survey MCHP-14.15092022			

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Failure Analysis, DPA, NCCS available:    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (Supply data)		12
Ref. No's and purposes: <b>2CMIC301 delay of extension of qualification approval CLOSED</b>		
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.		13
Date: <b>15/11/2023</b>	 <b>G. QUADRI, CNES</b> (Signature of the Executive Coordinator)	
Continuation of Boxes above:		14
<b>Box 1:</b> <b>An End-Of-Life of the ATC18RHA ASIC offer for new design has been announced by Microchip ADG in January 2021.</b> <ul style="list-style-type: none"> <li>• ADG Microchip has stopped the wafer manufacturing launch in December 2021.</li> <li>• ADG Microchip maintains Flight Models manufacturing from this wafer/die stock.</li> </ul> <p>As stated in QCI-39010-002, when no production on a package family, no monitoring is required and shall restarted when production will restart. Nevertheless, in case of prolonged stoppage of one package family production, the TRB shall assess the need for additional verifications before restart.</p> <p>The AT697 and AT7991 products are not concerned by the discontinuation of wafer production, only ASICs are. For these 2 standard products, each batch of wafer is qualified by a life test.</p>		
<b>Box 7:</b> <b>ESCC QML qualification of UMC 8S wafer fab with MMT assembly based on: ATC18RHA ESCC QML - qualification maintenance request 2023-06 rev0 and associated reports:</b> <b>- ATC18RHA Process Identification Document - PID0032 revF</b>		



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Non compliance to ESCC requirements:

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No.:	Specification	Paragraph	Non compliance

Additional tasks required to achieve full compliance for ESCC qualification or rationale for acceptability of noncompliance:

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**None**

Executive Manager Disposition

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Application Approval: Yes  No

Action / Remarks:

Date:

B. Schade: Head of the Product Assurance and Safety Department



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**ANNEX 1: LIST OF TESTS DONE TO SUPPORT EXTENSION OF QUALIFICATION**

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Tests conducted in compliance with:

- ESCC 9000 generic specification; Chart F4 (for ESCC/QPL parts);
- or PID-TFD **ATC18RHA PID 0032 - Rev F** (for ESCC/QML parts)

Tests vehicle identification/description:

**CQFP multi-decks family**

DateCode	Package	Lot	
DC2120 to DC2146	CQFP132	Z5801A2AFS	ink, wire 32 $\mu$ , attach JM7000
DC2146 to DC2220	CQFP256	1S7985-5	ink, wire 32 $\mu$ , attach JM7000
DC2220 to DC2246	CQFP256	Z58442	ink, wire 32 $\mu$ , attach JM7000
DC2247 to DC2321	CQFP032	A8B8ZA2AGG	ink, wire 25 $\mu$ , attach JM7000

Detail Specification reference: **9202/080**

**CQFP multi-decks packages family**

Chart F4	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical Shock	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2002B	1S7985-5 DC2146 (CQFP-256)  A8B8ZA2AGG DC2247 (CQFP-032)  Coverage → 2447	15	0	
	Vibration	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2007A		15	0	
	Constant Acceleration	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2001D		15	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1014 A&C		15	0	
	Intermediate and End-Point Electrical Measurements	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements in the Detail Specification		15	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500		15	0	MIL-STD-883, Test Method 2009
	Thermal Shock	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1011C		15	0	
	Temperature Cycling	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1010C		15	0	
	Moisture Resistance	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1004		15	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1014 A&C		15	0	
	Intermediate and End-Point Electrical Measurements	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements in the Detail Specification		15	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500		15	0	MIL-STD-883, Test Method 2009

Assembly Capability Subgroup	Terminal Strength (**)	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2004	1S7985-5 DC2146 (CQFP-256)  A8B8ZA2AGG DC2247 (CQFP-032)  Coverage → 2447	3	0	
	Internal Visual Inspection (*)	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20400		4	0	MIL-STD-883 Test Method 2010A
	Bond Strength (*)	<input checked="" type="checkbox"/>	MIL-STD-883 Test Method 2011		4	0	(*) Done on each assembly lot  (**) SubGrD2
	Substrate Attach Strength (*)	<input checked="" type="checkbox"/>	MIL-STD-883 Test Method 2027		3	0	
	Permanence of Marking (*)	<input checked="" type="checkbox"/>	MIL-STD-883 Test Method 2015		3	0	
	Solderability (*)	<input checked="" type="checkbox"/>	MIL-STD-883 Test Method 2003		3	0	

Note:

CCGA multi-decks family: no manufacturing over the period

Endurance subgroup (Sub-Gr 2): no wafer manufacturing anymore

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**357B****NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION EXTENSION APPROVAL****ENTRIES**

Form heading	shall indicate: - the title of the component as given in its detail specification or the name of the series, family; - the Executive Member; - the entering date; - the certificate number and its sequential suffix.
Box 1	shall provide details given in the table; in particular there shall be listed: - the variants or range of variants; - the range of components (the ESCC code is recommended to indicate the values or values range, the tolerance, the voltage, etc); the designation given in the detail specification as 'base on'; - under Test Vehicle enter either an ESCC code or the specific characteristic capable of identifying the component tested (e.g., voltage of coil for a relay); - under component similar enter a cross if relevant.
Box 2; 3 and 4	As per QPL entry; otherwise, an explanation of the changes must be supplied.
Box 5	Will show the ESCC Generic and Detail specifications, including issue number and revision letter, current at the time the tests reported were performed. If the specifications are different from those current on the date of the application, see Box 6.
Box 6	Will show the deviations from the Generic and Detail Specifications listed in Box 5, in particular deviations from testing. In case of deviations this must be listed in Box 15. In case the referenced specification in Box 5 have currently a different issue and/or revision indicate also whether the test data deviates or not from such current documents.
Box 7	Must reference the report(s) supplied in support of the application.
Box 8	Should provide the details of procurement to the full ESCC System, documentation of all of which should already have been delivered to the ESCC Executive under the terms of the relevant Generic Specification. An appropriate table has been drawn in this box.
Box 9	If the PID evolved after the Original Qualification or after the last Extension of Qualification, adequate details of such evolution shall be provided together with the reasons for the changes. Major changes shall be clearly marked.
Box 10	Identify the current PID issue status, date and actual date of verification. The date of verification of the current PID should be arranged as close as possible to the required date of extension.
Box 11	This box can be completed only after a physical visit to the plant to confirm that no unexplained changes occurred and that the practices, procedures, material, etc. used in manufacturing the components are as described in the PID. This survey shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and its findings shall be recorded.
Box 12	Provide details of, or reference to, any Destructive Physical Analysis (DPA) and Failure Analysis reports as well as any Nonconformance(s) (NCCS) occurred during the qualification validity period, stating if established corrective action have produced satisfactory results.
Box 13	Enter only the name of the Executive Member (i.e., CNES, DLR, ESTEC, etc.) and the signature of the responsible Executive Coordinator.
Box 14	To be used when there is a need to expand any of the boxes from 1 through 12. Identify box affected and reference the Box 14 in the relevant Box. Box 14 can be broken into 14a, 14b, etc. if several boxes have to be expanded.
Box 15	Fill in Table as requested.
Box 16	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 17	All Executive Manager recommendations on the application itself, special conditions or restrictions, modifications of the QPL or QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 19, signed by the representative for ESA, and dated.
Box 18	Fill in Table as requested.
Box 19	Confidential Details of PID changes including those of a confidential nature, shall be provided.
Box 20	State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 16 each nonconformance shall be sequentially numbered. If relevant state 'None'.
Box 21	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 22	Additional Comments.