



Generic RH Spec Document

1.0 SCOPE

This specification documents the detailed requirements for an internally defined equivalent flow per MIL-PRF-38535 Level V except as modified herein.

This document will apply to all space grade RH products found in Table I herein.

This document is replacing all legacy LTC Spec documents listed within Table I herein.

2.0 Applicable Documents:

2.1. Government Specifications and Standards: the following documents listed in the Department of Defense Index of Specifications and Standards, of the issue in effect on the date of solicitation, form a part of this specification to the extent specified herein.

Specifications:

MIL-PRF-38535	Integrated Circuits (Microcircuits) Manufacturing
MIL-STD-883	Test Method and Procedures for Microcircuits
MIL-STD-1835	Microcircuits Case Outlines

3.0 Requirements

3.1. General Description: This specification details the requirements for the RH products listed in Table I processed to space level manufacturing flow.

3.2. Product Name:

TABLE I – RH PRODUCTS

Generic	Product Name	Legacy Spec #
RH1086	RH1086MH	05-08-5021
	RH1086MK	05-08-5021
RH117	RH117H	05-08-5024
RH1185	RH1185AMK	05-08-5206
RH137	RH137H	05-08-5028
RH1011	RH1011H	05-08-5012
	RH1011W	05-08-5012
	RH1011J8	05-08-5012

Generic	Product Name	Legacy Spec #
RH101A	RH101AW	05-08-5015
RH1028M	RH1028MW	05-08-5217
RH1056A	RH1056AMH	05-08-5019
	RH1056AMW	05-08-5019
RH1078M	RH1078MH	05-08-5020
	RH1078MW	05-08-5020
	RH1078MJ8	05-08-5020
RH108A	RH108AH	05-08-5022

Rev. A

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Generic	Product Name	Legacy Spec #
RH1016M	RH1019MW	05-08-5222
RH119	RH119W	05-08-5026
	RH119H	05-08-5026
	RH119J	05-08-5026
RH1013M	RH1013MW	05-08-5013
	RH1013MH	05-08-5013
	RH1013MJ8	05-08-5013
RH1014M	RH1014MW	05-08-5014
	RH1014MH	05-08-5014
	RH1014MJ8	05-08-5014

Generic	Product Name	Legacy Spec #
RH108A	RH108AW	05-08-5022
RH1128M	RH1128MW	05-08-5218
RH118	RH118W	05-08-5025
	RH118H	05-08-5025
RH1498M	RH1498MW	05-08-5201
RH1499M	RH1499MW	05-08-5199
RH1814M	RH1814MW	05-08-5204
RH27	RH27CW	05-08-5029
	RH27CJ8	05-08-5029
	RH27EW	05-08-5029
	RH27EH	05-08-5029
	RH27AEW	05-08-5029

3.3. Part Marking Includes:

- 3.3.1 LTC Logo
- 3.3.2 ADI Product Name (Per Section 3.2 herein)
- 3.3.3 Date Code
- 3.3.4 Serial Number
- 3.3.5 ESD Identifier per MIL-PRF-38535, Appendix A

3.4. Electrical Test Requirements: Screening requirements shall be in accordance with 4.3 herein and as specified in Table II herein.

3.5. Radiation Hardness Assurance (RHA):

- 3.5.1 The manufacturer shall perform a wafer/ wafer-lot Total Ionizing Dose (TID) qualification. The qualification test is performed with MIL-STD-883 TM1019 Condition A as a guideline.
- 3.5.2 For guaranteed radiation performance to MIL-STD-883, Method 1019, total dose irradiation, the manufacturer will provide certified RAD testing with a report when required as a customer purchase line item.

3.6. Wafer Lot Acceptance Report: SEM is performed per MIL-STD-883, Method 2018 and copies of SEM photographs shall be supplied with the Wafer Lot Acceptance Report as part of a Space Data Pack when specified as a customer purchase order line item.

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4.0 Verification (Quality Assurance Provisions)

- 4.1. Quality Assurance Provisions: Quality Assurance Provisions shall be in accordance with MIL-PRF-38535. Analog Devices Gen. Trias, Cavite, and Philippines are QML certified, and all Rad Hard candidates are assembled on qualified Class S manufacturing lines.
- 4.2. Sampling and Inspection: Sampling and Inspection shall be in accordance with MIL-STD-883, Test Method 5005 with QML allowed and TRB approved deviations in conjunction with sections 3.1, 3.1.1, and 3.4 of the Test Method 5005.
- 4.3. Screening: Screening requirements shall be in accordance with MIL-STD-883, Test Method 5004 with QML allowed and TRB approved deviations in conjunction with sections 3.1, 3.1.1, and 3.4 of the Test Method 5004. Electrical testing shall be as specified in Table II herein.
 - 4.3.1 Analysis of catastrophic (open/short) failures from burn-in will be conducted only when a lot fails the burn-in or re-burn in PDA requirements.

TABLE II – ELECTRICAL TEST REQUIREMENTS

Test Requirements	Subgroups (in accordance with MIL-PRF-38535, Table III)
Interim Electrical Parameters	1, 4
Final Electrical Parameters	1, 4
Group A Test Requirements	1, 2, 3, 4, 5, 6
Group C end-point electrical parameters	1, 4
Group D end-point electrical parameters	1, 4
Group E end-point electrical parameters	1, 4

TABLE II Note:
1/ PDA applies to subgroup 1

- 4.4. Quality Conformance Inspection: Quality Conformance Inspection shall be in accordance with section 4.2 herein and as follows:
 - 4.4.1 Group A Inspection: Group A Inspection shall be performed in accordance with 4.1 herein, per MIL-STD-883, Method 5005, and specified in Table II herein.
 - 4.4.2 Group B Inspection: Group B subgroups 1, 4, and 6 are performed within Group D. Group B subgroup 5 is performed within Group C. Group B subgroups 2 and 3 are being performed per MIL-PRF-38535.
 - 4.4.3 Group C Inspection: Group C is performed per MIL-PRF-38535, Table IV with attributes and variables.

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4.4.4 Group D Inspection: When purchased, a full Group D is performed on an inspection lot, As a minimum, periodic full Group D sampling is performed on each package family for each assembly location every 26 weeks. A generic Group D Summary is provided when a full Space Data Pack is ordered.

4.4.4.1. Group D, Subgroups 3, 4, and 5 = 15(0) each (Sample Size Series)

4.4.4.2. All footnotes pertaining to Table IV in MIL-STD-883, Method 5005 apply. The quantity (accepting number) or sample number and accept number of all other subgroups are per MIL-STD-883, Method 5005, Table IV.

4.4.5 Group E Inspection is performed per MIL-STD-883 T.M. 1019. Electrical characteristics are outlined in each respective product datasheet. Group E will be performed on a wafer-lot level.

4.5. Deliverable Data:

4.5.1 Lot Serial Number Sheets identifying all devices accepted through final inspection by serial number.

4.5.2 Screening Attributes Summary (Includes Group A Summary)

4.5.3 Burn-In Variables Data and Deltas (if applicable)

4.5.4 Group B data (4.4.2 herein)

4.5.5 Group D data (4.4.4 herein)

4.5.6 SEM Photographs

4.5.7 Wafer Lot Acceptance Report

4.5.8 Radiation Report

4.5.9 X-Ray Negatives and Radiographic Report

4.5.10 Certificate of Conformance certifying that the devices meet all the requirements of this specification and have successfully completed the mandatory tests and inspections herein.

Note: Items 4.5.1 and 4.5.10 will be delivered as a minimum, with each shipment. This is noted on the Purchase Order Review Form as "No Charge Data". Items 4.5.2 through 4.5.8 will be provided with the Space Data Pack when ordered as a separate line item on the Purchase Order. Item 4.5.9 will be provided with the X-Ray report when ordered as a separate line item on the Purchase Order.

5.0 Packaging Requirements: Packaging shall be in accordance with Appendix A. of MIL-PRF-38535. All devices shall be packaged in conductive material or packaged in anti-static material with an external conductive field shielding barrier.

Revision History	
Rev	Date
A	12/04/2024

