

STANDARD RT LOT TRAVELER

SPEC ID #	REV.	STANDARD RT DEVICE TYPE	PACKAGE TYPE	ORIGINATOR
05-08-5753	0	RT6804-1	G48	SPEC REVIEW

COVERPAGE
CLASS N, NON-SL ASSEMBLY AND TEST TRAVELER
(REFERENCE DOCUMENT 05-08-5752)

ECN #	REV	DATE	REASON FOR REVISION
21-C53535	0	10/14/21	INITIAL RELEASE

CAUTION: ELECTROSTATIC DISCHARGE SENSITIVE PART

REVISION	PAGE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
INDEX	REVISION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
REVISION	PAGE NO.																	
INDEX	REVISION																	

	ORIG				TITLE: ANALOG DEVICE INC MILPITAS, CALIFORNIA Power Management; Battery Management; RT6804-1 Radiation Tolerant Multicell Battery Monitor			
	DSGN							
	ENGR							
	MFG							
	CM							
	QA				SIZE	CAGE CODE	DRAWING NUMBER	REV
	PROG					64155	05-08-5753	0
APPLICATION	FUNCT	SIGNOFFS	DATE	CONTRACT:				

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1.0 SCOPE:

1.1 This specification defines the performance and test requirements for a microcircuit processed to Analog Devices Inc. Radiation Tolerant Plastic Package “RT” manufacturing flow.

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, General Specification for
MIL-STD-883	Test Method and Procedures for Microcircuits
MIL-STD-1835	Microcircuits Case Outlines
PEM	Plastic Enhanced Monolithic

3.0 REQUIREMENTS:

3.1 General Description: This specification details the requirements for the RT6804-1, Radiation Tolerant Multicell Battery Monitor, Radiation Tested and processed to Analog Device Radiation Tolerant Manufacturing flow based on the G12 PEM specification.

3.2 Part Number: **RT6804HG-1 (Plastic SSOP 48 lead package)**

3.3 Part Marking Includes:

- a. ADI Logo
- b. ADI Part Number
- c. Date Code
- d. Serial Number
- e. “RT” (indicating Radiation Tolerant manufacturing flow)

3.4 The Absolute Maximum Ratings: Note 1

Total Supply Voltage V^+ to V^-	75V
Input Voltage (Relative to V^-)	
C0.....	-0.3V to 0.3V
C12.....	-0.3V to 75V
C(n).....	-0.3V to MIN (8 • n, 75V)
S(n).....	-0.3V to MIN (8 • n, 75V)
IPA, IMA, IPB, IMB.....	-0.3V to $V_{REG} + 0.3V$
DRIVE Pin.....	-0.3V to 7V
All Other Pins.....	-0.3V to 6V
Voltage Between Inputs	
V^+ to C12.....	-5.5V
C(n) to C(n - 1).....	-0.3V to 8V
S(n) to C(n - 1).....	-0.3V to 8V
C12 to C8.....	-0.3V to 25V
C8 to C4.....	-0.3V to 25V
C4 to C0.....	-0.3V to 25V
Current In/Out of Pins	
All Pins Except V_{REG} , IPA, IMA, IPB, IMB, S(n).....	10mA
IPA, IMA, IPB, IMB.....	30mA
Operating Temperature Range	
RT6804H.....	-40°C to 125°C
Specified Temperature Range	
RT6804H.....	-40°C to 125°C
Junction Temperature.....	150°C
Storage Temperature.....	-65°C to 150°C
Lead Temperature (Soldering, 10sec).....	300°C

Note 1: Stress beyond those listed may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect the device reliability and lifetime.

3.5 Electrical Performance Characteristics: The electrical performance characteristics shall be as specified in the RT6804-1 datasheet pg3-5.

3.6 Electrical Test Requirements: Screening requirements shall be in accordance with the Electrical Characteristics herein,

Mil-Std-883 Test Requirements	SUBGROUP
Final Electrical Requirements (Method 5004)	1*,2,3,4,5,6
Group A Test Requirements (Method 5005)	1,2,3,4,5,6
Group B, C and D Class N. End Point Electrical Parameters (Method 5005)	1,2,3

*PDA applies to Subgroup1. See PDA Test Notes

PDA Test Notes

The PDA is specified as 5% based on failures from Group A, Subgroup 1, tests after cooldown as the final electrical test in accordance with method 5004 of Mil-Std-883. The verified failures of Group A, Subgroup 1, after burn-in divided by the total number of devices submitted for burn-in in that lot shall be used to determine the percent for the lot.

Analog Devices reserves the right to test to tighter limits than those given.

3.7 Burn-In Requirement: Static Burn-In & Dynamic Burn-In, see Detailed Figures in RT6804-1 datasheet on pg6. Dynamic Burn-in is per diagram. Static Burn-in uses same bias circuit but the signals on Channel 7,8, and 9 are different.

3.8 Delta Limit Requirement: Delta limit parameters are specified in the datasheet on pg5, are calculated after each burn-in, and the delta rejects are included in the PDA calculation.

- 3.9 Design, Construction, and Physical Dimensions: Detail design, construction, physical dimensions, and electrical requirements per the data sheet:
 - 3.9.1 Mechanical / Packaging Requirements: Case outlines and dimensions are in accordance with package description in the datasheet on pg10.
 - 3.9.2 Terminal Connections: The terminal connections shall be as specified in Pin Configuration in the datasheet on pg2.
 - 3.10 Radiation Hardness Assurance (RHA):
 - 3.10.1 The manufacturer shall perform a lot sample test as an internal process monitor for total dose radiation tolerance. The sample test is performed with MIL-STD-883 TM1019 Condition A as a guideline.
 - 3.10.2 For guaranteed radiation performance to MIL-STD-883, Method 1019, total dose irradiation, the manufacturer will provide certified RAD testing and report when required as a customer purchase order line item.
 - 3.10.3 Total dose bias circuit is specified in Total Dose Bias Circuit Diagram in the datasheet on pg6.
 - 3.11 Wafer Lot Acceptance: Wafer lot acceptance shall be in accordance with MIL-PRF-38535, Appendix A.
 - 3.12 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.
- 4.0 VERIFICATION (QUALITY ASSURANCE PROVISIONS)
- 4.1 Quality Assurance Provisions: Quality Assurance provisions shall be in accordance with MIL-PRF-38535. Analog Devices is a QML certified company and this device is assembled in a qualified Class N Analog Devices manufacturing site.
 - 4.2 Screening: Screening requirements shall be in accordance with MIL-STD-883, Method 5004. Electrical testing shall be as specified in the Electrical Test Requirements in the datasheet pg5.
 - 4.2.1 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.
 - 4.3 Quality Conformance Inspection: Quality conformance inspection shall be in accordance with 4.2 and 4.3 herein and as follows:
 - 4.3.1 Group A Inspection: Group A inspection shall be performed in accordance per MIL-STD-883, Method 5005, and specified in the datasheet.

4.3.2 Group B Inspection: When purchased, a full Group B is performed on an inspection lot. As a minimum, Subgroup B1 (Resistance to Solvents / Mark Permanency) and Subgroup B3 (Solderability) are performed prior to the first shipment from any inspection lot and Attributes provided when a Full Space Data Pack is ordered. Subgroup C (Operating Life) is performed on each wafer lot. Attributes and variables data for this subgroup will be provided upon request.

4.3.2.1 All footnotes pertaining to Table IIa in MIL-STD-883, Method 5005 apply. The quantity (accept number) of all other subgroups are per MIL-STD-883, Method 5005, Table IIa.

4.4.3 Group D Inspection: When purchased, a full Group D is performed on an inspection lot.

4.5 Deliverable Data: Deliverable data that will ship with devices when a Space Data Pack is ordered:

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

4.5.2 100% attributes (completed lot specific traveler; includes Group A Summary)

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

4.5.4 Group B1, B3, and C Attributes (Variables data, if performed on lot shipping)

4.5.5 SEM photographs (3.12 herein)

4.5.6 Wafer Lot Acceptance Report (3.11 herein)

4.5.7 A copy of radiation report if ordered

4.5.8 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 4.5.8 will be delivered as a minimum, with each shipment. This is noted on the Purchase Order Review Form as "No Charge Data".

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.