Product/Process Change Notice - PCN 21_0170 Rev. -

Analog Devices, Inc. One Analog Way, Wilmington, MA 01887

This notice is to inform you of a change that will be made to certain ADI products (see Appendix A) that you may have purchased in the last 2 years. **Any inquiries or requests with this PCN (additional data or samples) must be sent to ADI within 30 days of publication date.** ADI contact information is listed below.

PCN Title: Addition of alternative test site for ADBMS1818

Publication Date: 10-Aug-2021

Effectivity Date: 12-Nov-2021 *(the earliest date that a customer could expect to receive changed material)*

Revision Description:
Initial Release

Description Of Change:

ADI is adding STATS ChipPAC, China (SC3) as an alternative test site to Analog Devices General Trias (ADGT) for ADBMS1818.

Reason For Change:

The use of alternative test site for ADBMS1818 will ensure a continued source of product supply and to increase capacity.

Impact of the change (positive or negative) on fit, form, function & reliability:

There is no impact on the form, fit, function and reliability of the devices.

Product Identification *(this section will describe how to identify the changed material)*

Date Code and Lot number will be used for product identification.

Summary of Supporting Information:

Test correlation and validation has been performed per ADI's standard product site to site and/or platform change correlation procedure. See attached Qualification Report.

Supporting Documents

Attachment 1: Type: Test Correlation Report

ADI_PCN_21_0170_Rev_-_ADBMS1818 TEST QUALIFICATION REPORT Jul2021.pdf

For questions on this PCN, please send an email to the regional contacts below or contact your local ADI sales representatives.			
Americas:	**Europe:**	**Japan:**	**Rest of Asia:**
PCN_Americas@analog.com	PCN_Europe@analog.com	PCN_Japan@analog.com	PCN_ROA@analog.com

Appendix A - Affected ADI Models				
Added Parts On This Revision - Product Family / Model Number (3)				
ADBMS1818 / ADBMS1818ASWZ	ADBMS1818 / ADBMS1818ASWZ-R7	ADBMS1818 / ADBMS1818ASWZ-RL		

Appendix B - Revision History			
Rev	**Publish Date**	**Effectivity Date**	**Rev Description**
Rev. -	10-Aug-2021	12-Nov-2021	Initial Release

TEST PRODUCT QUALIFICATION REPORT

TITLE:

ADBMS1818 Test Site Transfer from Analog Devices Philippine (ADGT) to JCET-STATSChipPAC China (SC3)

PCN Number: 21_0170

REVISION: A

DATE: 31Jul, 2021

PROJECT BACKGROUND:

The ADBMS1818 is currently undergoing production testing at the Analog Devices Philippine (ADGT). It is a business strategic decision to qualify JCET-STATSChipPAC China (SC3) to be additional test site to ensure continuity in supply.

SUMMARY:

The ADBMS1818 is a multicell battery stack monitor that measures up to 18 series connected battery cells with a total measurement error (TME) of less than 3.0 mV. The cell measurement range of 0V to 5V makes the ADBMS1818 suitable for most battery chemistries. All 18 cells can be measured in 290 µs, and lower data acquisition rates can be selected for high noise reduction.
Multiple ADBMS1818 devices can be connected in series, permitting simultaneous cell monitoring of long, high voltage battery strings. Each ADBMS1818 has an isoSPI™ interface for high speed, RF immune, long distance communications. Multiple devices are connected in a daisy chain with one host processor connection for all devices. This daisy chain can be operated bidirectionally, ensuring communication integrity, even in the event of a fault along the communication path.
The ADBMS1818 can be powered directly from the battery stack or from an isolated supply. The ADBMS1818 includes passive balancing for each cell, with individual pulse-width modulation (PWM) duty cycle control for each cell. Other features include an on-board 5 V regulator, nine general-purpose I/O lines, and a sleep mode, where current consumption is reduced to 6 µA.

Test product transfer qualification was performed according to Analog Devices Specification TST0095/TST0137 to ensure two test sites are statistically equivalent. Same tester platform, test hardware is used in both sites, there is no change to the form, fit, function, quality and reliability of the product.

This report documents the successful completion of the product test transfer requirements for the release of ADBMS1818 in SC3.

TEST AND PRODUCT INFORMATION:

Device:	ADBMS1818
Package:	LQFP_EP (10x10mm)
Leads:	64 leads

Affected products:

Generics	FGs
ADBMS1818	ADBMS1818ASWZ
	ADBMS1818ASWZ-RL
	ADBMS1818ASWZ-R7

Tester Platform:	ETS364B
Device Interface Board:	L-59199
Test socket:	GMK050-0064KJ18

DESCRIPTION AND TEST RESULTS:

Below tables provide description of the qualification tests conducted and corresponding test results for ADBMS1818. All the units have undergone electrical tests on both the sending and receiving sites on the same test platform. Any device that will not meet the electrical qualification requirements will mean failure of the qualification and require solid corrective actions and a repeat of the qualification process. Qualification activities performed, and acceptance criteria is shown on Table 1 below:

Table 1: *Qualification Activities and Acceptance Criteria*

Qualification Activity	Sample Quantity	Accept Criteria
Correlation device run	5 correlation device units	*100% Passing correlation devices
Parametric Correlation	Minimum of 100 known Bin1 units tested in full product test flow (ALL temperature passes) in Sending site (ADGT) and Receiving site (SC3).	*CpK≥1.67 * For tightened limits, Mean Shift Criteria and sigma-spread criteria to apply - Mean Shift ≤ 5% - Sigma-spread ≤ 1.3
Validation Lot Run	Minimum of 2,500 fresh units in full product test flow	yield between receiving site vs. historical yield of sending site should be comparable
Untrimmed/Fresh unit verification using QA program	5 Fresh (Untrimmed) unit tested in QA Program.	QC program must detect untrimmed or fresh parts

To validate full set-up functionality such as hardware, software, test paraphernalia and tester platform, 5 correlation devices of ADBMS1818 were tested both in ADGT and SC3. Data between sites were analyzed and summarized in Table 2.

Table 2: *Correlation Device Run result*

Generic	Package	No. of correlation device	ALL correlation devices passed?
ADBMS1818	64L LQFP	5 units	YES

The LT8611 was further analyzed by testing a sample of 124 known-good-units in both ADGT and SC3. This is to capture variation in tester and set-up condition thru mean shift and sigma spread analysis, to ensure the parameter measurement are still within the accepted range of variations. Data between sites were analyzed and summarized in Table 3.

Table 3: *Product Site Transfer Correlation*

Temperature	Generic	Package	Lot Number	Lot Size	Sending Site	Receiving Site	Total No. of Correlation Parameters	Result
Controlled 25C	ADBMS1818	64L LQFP	SE70240.4	124	ADGT	SC3	2082	ALL PASSED

The ADBMS1818 was qualified by running a validation lot with minimum 2,500 units in SC3 and was compared to ADGT historical yield. Comparison result is summarized in Table 4.

Table 4: *Manufacturing Validation Lot Run*

Generic	Package	FT lot number	Lot Size	Test Site	lot yield comparison between ADGT and SC3
ADMBS1818	64L LQFP	5438666.1	3557	SC3	Matched

To ensure QA Program does not trim untrimmed/fresh parts, samples of untrimmed or fresh parts were tested using QA Program. Results were analyzed and summarized in Table 5.

Table 5: *Untrimmed/Fresh unit verification using QA program*

Generic	Package	Lot Number	No. of Untrimmed/Fresh units tested on QC program	QA Program detected untrimmed or fresh parts?
ADMBS1818	64L LQFP	SE70240.4	5	YES

APPROVALS:

Technical Review Board No. TRB-64072- ADGT to SC3 Test Transfer

ADDITIONAL INFORMATION:

Homepage: https://www.analog.com/en/index.html

Product datasheet: ADBMS1818 (Rev.0) (analog.com)

Customer Service: https://www.analog.com/en/support/technical-support.html