

# **TEST PRODUCT QUALIFICATION REPORT**

**TITLE:**

Qualification of AMKOR Technology Philippines (AP3), as  
an Alternate Test Site for ADM809 (SOT-23)

**PCN NUMBER:**

PCN #15\_0017

**REVISION:**

A

**DATE:**

27 February, 2015

## PROJECT BACKGROUND

The ADM809 supervisory circuits monitor the power supply voltage in microprocessor systems. It provides a reset output during power-up, power-down, and brownout conditions. On power-up, an internal timer holds reset asserted for 240ms. This holds the microprocessor in a reset state until conditions have stabilized. The reset output remains operational with VCC as low as 1V. ADM809 provide an active low reset signal (RESET) and have push-pull outputs. Seven reset threshold voltage options are available, suitable for monitoring a variety of supply voltages. The reset comparator features built-in glitch immunity, making it immune to fast transients on VCC. ADM809 consume only 17 $\mu$ A, making them suitable for low power, portable equipment. ADM809 is available in 3-lead SOT-23 and 3-lead SC70 packages.

ADM809 is currently being tested in Carsem Malaysia (CRS). To make sure that we can continue to serve customer demands on whatever situation, a study was done to look at the different discrete packages currently being manufactured in Carsem to check whether we can use another supplier as an alternate source. Amkor Technology Philippines (AP3) was qualified as an additional test site for ADI devices to support production of ADM809 (SOT-23).

## SUMMARY

The current test site for the ADM809 (SOT23) is Carsem Malaysia (CRS) and the alternate test site is Amkor Technology Philippines (AP3).

This report documents the successful completion of test qualification requirements of ADM809 (SOT-23) at Amkor Technology Philippines (AP3).

Test qualification was performed according to Analog Devices Specifications (ADI0012 / TST000137 / TST00095)

## TEST AND PRODUCT INFORMATION

Device: ADM809  
Package: SOT-23  
Leads: 3  
Tester Platform: CTS5040  
Handler: SRM XD248

## DESCRIPTION AND TEST RESULTS

Table 1 provides a description of the test qualification conducted and corresponding test results for ADM809 (SOT-23). All the units have undergone electrical tests on both CRS and AP3 using the same test platform. Any device that did not meet the electrical qualification requirements without further analysis and data to prove passing, the qualification would be considered failed.

Table1. Test Product Qual Criteria

Generic	Package	Lot Size	Existing Site	Receiving Site	Mean Shift =< 0.5sigma	Sigma Ratio =< 1.3
ADM809	SOT-23	100	CRS	AP3	Passed	Passed

ADM809 was qualified by running a qualification lot with 100 units both in CRS and AP3. Data between sites were analyzed as summarized in Table 1.

A passing result was recorded when the yield from receiving site met or exceeded yield from sending site as summarized in Table 2. Succeeding lots with increased quantity will be closely monitored once the device has started production run at AP3.

Table2. Test Product Qualification Lot Run

<b>GENERIC</b>	<b>Package</b>	<b>Lot Size</b>	<b>Test Site</b>	<b>Results</b>
ADM809	SOT-23	100	AP3	Passed

No valid rejects were encountered during the said evaluation in both CRS and AP3.

#### **REJECT VERIFICATION**

5 valid rejects tested from CRS were tested at AP3 and ended with the same result.

Table3. Setup verification using Reject units

<b>Unit #</b>	<b>CRS</b>	<b>AP3</b>
1	Failed	Failed
2	Failed	Failed
3	Failed	Failed
4	Failed	Failed
5	Failed	Failed

#### **CONCLUSION:**

ADM809 (SOT-23) test data on both sites are correlated. Data are already approved by Engineering and Technical Review Board, it is acceptable. AP3 is now ready to test ADM809 (SOT23) device.

#### **APPROVALS:**

Technical Review Board

#### **SUPPORTING DOCUMENTS:**

Technical Review Board: TRB#9681

#### **ADDITIONAL INFORMATION:**

Homepage: <http://www.analog.com/en/index.html>

Datasheet: <http://www.analog.com/en/power-management/supervisors/adm809/products/product.html>

Customer Service: [http://www.analog.com/en/content/technical\\_support\\_page/fca.html](http://www.analog.com/en/content/technical_support_page/fca.html)

# **TEST PRODUCT QUALIFICATION REPORT**

**TITLE:**

Qualification of AMKOR Technology Philippines (AP3), as  
an Alternate Test Site for ADM811 (SOT-143)

**PCN NUMBER:**

PCN #15\_0017

**REVISION:**

A

**DATE:**

27 February, 2015

## PROJECT BACKGROUND

ADM811 is a reliable voltage monitoring device suitable for use in most voltage monitoring applications. ADM811 is designed to monitor six different voltages, each allowing a 5% or 10% degradation of standard PSU voltages before a reset occurs. These voltages have been selected for the effective monitoring of 2.5 V, 3 V, 3.3 V, and 5 V supply voltage levels. Included in this circuit is a debounced manual reset input. Reset can be activated using an electrical switch (or an input from another digital device) or by a degradation of the supply voltage. The manual reset function is very useful, especially if the circuit in which the ADM811 is operating, enters into a state that can only be detected by the user. Allowing the user to reset a system manually can reduce the damage or danger that could otherwise be caused by an out-of-control or locked system.

ADM811 is currently being tested in Carsem Malaysia (CRS). To make sure that we can continue to serve customer demands on whatever situation, a study was done to look at the different discrete packages currently being manufactured in Carsem to check whether we can use another supplier as an alternate source. Amkor Technology Philippines (AP3) was qualified as an additional test site for ADI devices to support production of ADM811 (SOT-143).

## SUMMARY

The current test site for the ADM811 (SOT-143) is Carsem Malaysia (CRS) and the alternate test site is Amkor Technology Philippines (AP3).

This report documents the successful completion of test qualification requirements of ADM811 (SOT-143) at AP3

Test qualification was performed according to Analog Devices Specifications (ADI0012 / TST000137 / TST00095)

## TEST AND PRODUCT INFORMATION

Device: ADM811  
Package: SOT-143  
Leads: 4  
Tester Platform: CTS5040  
Handler: SRMXD248

## DESCRIPTION AND TEST RESULTS

Table 1 provides a description of the test qualification conducted and corresponding test results for ADM811 (SOT-143). All the units have undergone electrical tests on both CRS and AP3 using the same test platform. Any device that did not meet the electrical qualification requirements without further analysis and data to prove passing, the qualification would be considered failed.

Table1. Test Product Qual Criteria

Generic	Package	Lot Size	Existing Site	Receiving Site	Mean Shift =< 0.5sigma	Sigma Ratio =< 1.3
ADM811	SOT-143	100	CRS	AP3	Passed	Passed

ADM811 was qualified by running a qualification lot with 100 units both in CRS and AP3. Data between sites were analyzed as summarized in Table 1.

A passing result was recorded when the yield from receiving site met or exceeded yield from sending site as summarized in Table 2. Succeeding lots with increased quantity will be closely monitored once the device has started production run at AP3.

Table2. Test Product Qualification Lot Run

<b>GENERIC</b>	<b>Package</b>	<b>Lot Size</b>	<b>Test Site</b>	<b>Results</b>
ADM811	SOT-143	100	AP3	Passed

No valid rejects were encountered during the said evaluation in both CRS and on AP3.

#### **REJECT VERIFICATION**

5 valid rejects tested from CRS were tested at AP3 and ended with the same result.

Table3. Setup verification using Reject units

<b>Unit #</b>	<b>CRS</b>	<b>AP3</b>
1	Failed	Failed
2	Failed	Failed
3	Failed	Failed
4	Failed	Failed
5	Failed	Failed

#### **CONCLUSION:**

ADM811 (SOT-143) test data on both sites are correlated. Data are already approved by Engineering and Technical Review Board, it is acceptable. AP3 is now ready to test ADM811 (SOT143) device.

#### **APPROVALS:**

Technical Review Board

#### **SUPPORTING DOCUMENTS:**

Technical Review Board: TRB#9681

#### **ADDITIONAL INFORMATION:**

Homepage: <http://www.analog.com/en/index.html>

Datasheet: <http://www.analog.com/en/power-management/supervisors/ADM811/products/product.html>

Customer Service: [http://www.analog.com/en/content/technical\\_support\\_page/fca.html](http://www.analog.com/en/content/technical_support_page/fca.html)

## Material Set Change Description:

Package	Material	CARSEM	AMKOR
SOT23 3 Lead	Mold Compound	Hitachi CEL8240 HF10LX	Sumitomo G700LS
SOT143 4 Lead	Mold Compound	Hitachi CEL9220 HF13	Sumitomo G700LS
	Leadframe Material	Alloy 42	Copper 194

Mold Surface Finish: Smooth Surface Finish (Carsem) - Matte Surface Finish (Amkor)

**Qualification Results Summary of 3 Lead SOT23 and 4 Lead SOT143  
Packages at Amkor Philippines**

QUALIFICATION PLAN / STATUS			
TEST	SPECIFICATION	SAMPLE SIZE	RESULTS
Highly Accelerated Stress Test (HAST)*	JEDEC <i>JESD22-A110</i>	3 x 77	Pass
Temperature Cycle (TC)*	JEDEC <i>JESD22-A104</i>	3 x 77	Pass
Autoclave (AC)*	JEDEC <i>JESD22-A102</i>	3 x 77	Pass
High Temperature Storage Life (HTSL)	JEDEC <i>JESD22-A103</i>	3 x 77	Pass
Solder Heat Resistance (SHR)*	JEDEC/IPC <i>J-STD-020</i>	3 x 11	Pass
Electrostatic Discharge <i>Field-Induced Charged Device Model</i>	JEDEC <i>JESD22-C101</i>	3/voltage	Pass Class IV @ +/-1.25kV

\*Preconditioned per JEDEC/IPC J-STD-020