

TEST PRODUCT QUALIFICATION REPORT

TITLE:

ADSP-2148x 176pin LQFP

Test Second Source UTAC (Singapore) Qualification

PCN NUMBER:

23_0099

REVISION:

A

DATE:

20 September 2023

PROJECT BACKGROUND

Test correlation is carried out to qualify UTAC Singapore as an additional final test site for ADI devices to support production.

SUMMARY

All references to ADSP-2148x in this report, apply to all 176pin LQFP ADSP-21483/86/87/88/89 products.

ADSP-2148x is released at UTAC as 2nd source test solution.

There is no change to the form, fit, function, quality, or reliability between platforms.

This report documents the successful completion of the product test correlation requirements of ADSP-2148x 176pin LQFP between STATS ChipPAC and UTAC sites.

Test product qualification was performed according to Analog Devices Specification

TEST AND PRODUCT INFORMATION

Device	ADSP-2148x
Package	176pin LQFP, 24x24x1.4mm, 0.5mm lead pitch
Tester Platform	HP93K_6

Description and Test Results

Table 1 provides a description of the qualification tests conducted and corresponding test results for ADSP-2148x. All the units have undergone electrical tests on both the sending and receiving sites on 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.

Table 1. Test Product Transfer Qualification Criteria

Generic	Package	Lot Size	Sending Site	Receiving Site	Mean Shift = $<$ 5%	Sigma Ratio = $<$ 1.3
ADSP-2148x	176pin LQFP, 24x24x1.4mm, 0.5mm lead pitch	100	SCS	UTAC	Passed	Passed

The ADSP-2148x was qualified by running a qualification lot with 100 units both in STATS ChipPAC and UTAC.

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 at UTAC.

Table 2. Test Product Transfer Qualification Lot Run

GENERIC	Package	Lot Size	Test Site	Results
ADSP-2148x	176pin LQFP, 24x24x1.4mm, 0.5mm lead pitch	100	UTAC	Passed

No valid rejects were encountered during the said evaluation in both sending and receiving sites.

Rejects Verifications

5 valid rejects tested in STATS ChipPAC and UTAC having the same result.

Table 3. Setup verification using Reject units.

Unit #	SCS	UTAC
1	Failed	Failed
2	Failed	Failed
3	Failed	Failed
4	Failed	Failed
5	Failed	Failed

ADSP-2148x Initial Process Study (Test Temperature = 130 degC)

Key Datasheet Parameter	Datasheet Specs				Site (STATS-ChipPac Singapore)			Site (UTAC Singapore)				
	Min	Nom	Max	Units	Mean	Stdv	Cpk	Mean	Stdv	Cpk	GR&R (%)	NDC
SIDD			1.6	A	0.417	0.051	>2	0.388	0.059	>2	2.84676	50
IIL			10	uA	-0.031	0.005185	>10	-0.028	0.005741	>10	0.147	1918
IIH			10	uA	0.011	0.002222	>10	0.013	0.002407	>10	0.251	1126
IOZL			10	uA	-0.032	0.004444	>10	-0.027	0.005185	>10	0.0872	3245
IOZH			10	uA	0.01	0.002963	>10	0.009	0.002222	>10	0.105	2702
VIL	-0.3		0.8	V	1.175	0.007407	>10	1.185	0.007407	>10	9.096	11
VIH	2		3.6	V	1.695	0.007407	>10	1.705	0.007407	>10	2.909	61
VOL			0.4	V	0.045	0.011111	>10	0.039	0.007407	>10	0.6212	228
VOH	2.4			V	3.075	0.011111	>10	3.082	0.007407	>10	0.1277	494