



Reliability Report

Reliability Data for LCAS 75XX/76XX Series Products (16L/20L/28L SOIC)

Report Title: **Reliability Data for LCAS 75XX/76XX Series
Products (16L/20L/28L SOIC)**

Report Number: **2013-005**

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Introduction:

This report summarizes the Reliability data of IXYS Integrated Circuits Division LCAS 75XX/76XX Series Products . The Reliability data presented here were collected during IXYS IC Division product qualification. The purpose of this qualification was to verify IXYS IC Division Quality and Reliability requirements as outlined in IXYS IC Division internal specifications. The LCAS 75XX/76XX Series Products are manufactured at IXYS IC Division and assembled at ATEC in the Philippines. The process is IXYS IC Division P10 and LCAS 75XX/76XX is available in a 16L/20L/28L SOIC package type.

Reliability Tests:

Table 1 below provides the qualification tests that were performed. The stress tests and sample size are chosen based on the IXYS IC Division internal specifications and with the approval of the product development team and quality assurance.

Table 1: LCAS 75XX/76XX Series Products Reliability Tests

Product Package	Stress Test	Applicable Specs and Readpoints	Stress Conditions	# Lots	Sample Size	Total
CPC7692BC 16L SOIC	HTRB	JESD22-A108	125C, 80% WVDC, 1000 hrs	1	109	109
CPC7692BC 16L SOIC	ESD HBM	JESD22, A114-E	1.5kΩ, 100pF	1	15	15

Reliability Test Results:

The stress tests and associated results for LCAS 75XX/76XX Series Products qualification are summarized in Table 2. The devices chosen for the qualification were from standard material manufactured through normal production test flow and electrically tested to datasheet limits prior to stressing. Then reliability stresses were conducted and electrically tested to datasheet limit at each interval and final readpoints.

Table 2: LCAS 75XX/76XX Series Products Reliability Test Results

Product/ Package	Stress/ Kits	Readpoint 1 / Reject/ SS	Readpoint 2 / Reject/ SS	Comments
CPC7692BC 16L SOIC	HTRB	500 hrs.	1000 hrs.	Qual #1 Data
	TE3169	0/109	0/109	

ESD Testing Results:

As part of this qualification, the product LCAS 75XX/76XX Series Products was subjected to Human Body Model (HBM) ESD Sensitivity Classification testing using a KeyTek Zapmaster system. The results are summarized in Table 3. All samples were electrically tested to data sheet limits before and after ESD stressing and they passed after +/-1000V zapping.

Table3: LCAS 75XX/76XX Series Products ESD Characterization Results

ESD Model	Kit Number	Package	ESD Test Spec	RC Network	Highest Passed	Class
HBM	CPC7692BC TE3169	SOIC – 16L	JESD22, A114-E	1.5kΩ, 100pF	1000V	1C

FIT (Failure in Time) Rate of LCAS 75XX/76XX Series Products

Table 4 below summarizes the FIT rate from the HTRB data. Using the Reliability HTRB data, FIT rate was calculated based on the equivalent device hours at use condition of 40°C and stressed condition of 125°C at 0.7eV of activation. The FIT rate came out to be 33.05 FITs.

Table 4: LCAS 75XX/76XX Series Products FIT Rate Summary

Product/ Stress	Lot Number	# of Devices	# of Failed	Hours Tested	Test Temp (°C)	Eq. Device Hours	FITs @ 60% CL
CPC7692BC/ HTRB	TE3169	109	0	1000	125	27,839,250	33.05

Conclusion:

The qualification of the product LCAS 75XX/76XX Series Products has been successfully completed for the production release.

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