

# LATCH UP TEST REPORT

Company : RAIO Technology Inc.  
 Model Name : RA8873M  
 Date Received : APR 05, 2017  
 Date Tested : APR 10, 2017

**TESTING LABORATORY IS ACCREDITED BY:**


IEC/IECQ 17025 certificate of independent test laboratory approval

 Certificate No. : 1.72.0031

ISO 9001 certificate is approved by TUV CERT certification body of TUV NORD Cert GmbH

**WE HEREBY CERTIFY THAT:**

The test(s) shown in the attachment were conducted according to the indicating procedures. We assume full responsibility for the accuracy and completeness of these tests and vouch for the qualifications of all personnel performing them.

	Name	Signature	Date
Test Engineer	Ada		Apr 11, 2017
Manager	Even Lin		Apr 11, 2017

**Note :**

1. This report will be invalid if reproduced in whole or in part.
2. This report refers only to the specimen(s) submitted to test, and is invalid if used separately.
3. This report is ONLY valid with the examination seal and signature of this institute.
4. The tested specimen(s) will only be preserved for thirty days from the date issued, if not collected by the applicant.





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## 1. GENERAL INFORMATION

### 1.1 DESCRIPTION OF UNIT

MANUFACTURER	: RAIO Technology Inc.
DEVICE NAME	: RA8873M
PACKAGE / PIN COUNT	: LQFP-128
REFERENCE DOCUMENT	: JEDEC STANDARD EIA/JESD78
TRIGGER CURRENT	: 50 mA ( $\pm$ ) ~ 100 mA ( $\pm$ ), Step: 50 mA ( $\pm$ ) : 100 mA ( $\pm$ ) ~ 150 mA ( $\pm$ ), Step: 25 mA ( $\pm$ )
V SUPPLY OVER VOLTAGE TEST	: VCC3.3V: 3.5V ~ 5.5V (+), Step: 0.5V (+), limit at 500mA
MAXIMUM RATED TEMPERATURE	: 85°C
SAMPLE QUANTITY	: 9 ea
FAILURE CRITERIA	: < 25mA 10mA + I normal > 25mA 1.4 x I normal
I NORMAL	: VCC3.3V:30 mA

※Pin1,2 are not tested in Latch up.

## 2. LATCH UP TEST

### 2.1 TEST EQUIPMENT

Test Equipment	Equipment Number	Tester
KEYTEK ZAPMASTER	#MK1	12020

### 2.2 LABORATORY AMBIENCE CONDITION

Temperature : 85°C

### 2.3 REFERENCE DOCUMENT

The test is based on JEDEC STANDARD EIA/JESD78

### 2.4 TEST CONDITION

POSITIVE I

NEGATIVE I

Vsupply OVER VOLTAGE TEST

### 2.5 BIAS DESCRIPTION

VCC3.3V = 3.63V (MAX)

VSS = 0V

### 2.6 SUMMARY OF TEST

Trigger Mode	Test Pin	Sample Quantity	Tested Result	JESD78 Classification
I Trigger (+)	IP3.3V	3	PASS(+150mA)	<b>Class</b> : <u>II</u> Class I Latch-up testing performed at room temperature. Class II Latch-up testing performed at maximum rated temperature. <b>Level</b> : <u>A</u> Level A The trigger current value shall be "(Inom+100mA) or 1.5xInom", "-100mA or -0.5xInom" whichever is greater". Level B Special failure criteria. Supplier shall provide definition of failure criteria used.
	OP3.3V		PASS(+150mA)	
	IO3.3V		PASS(+150mA)	
I Trigger (-)	IP3.3V	3	PASS(-150mA)	
	OP3.3V		PASS(-150mA)	
	IO3.3V		PASS(-150mA)	
Over Volt Test Vsupply	VCC3.3V	3	PASS(+5.5V)	

VCC3.3V:3,23,42,62,75,88,97,109,121

IP3.3V:6-8,9-11,12,13,14,15,16,92

OP3.3V:17,36,4,63,111,128

IO3.3V:18-22,25-35,37-41,90-91,93-96,99-108,

112-113,116-120,123-127,114,115

GND:5,24,43,64,76,89,98,110,122

NC:44-61,65-74,77-87,1,2

T:39

## 2.7 CONTENTS OF TEST

POSITIVE I									
(UNIT: mA)									
Test Pin	TRIGGER CURRENT	#46	#47	#48	Test Pin	TRIGGER CURRENT	#46	#47	#48
4		PASS	PASS	PASS	63		PASS	PASS	PASS
6		PASS	PASS	PASS	90		PASS	PASS	PASS
7		PASS	PASS	PASS	91		PASS	PASS	PASS
8		PASS	PASS	PASS	92		PASS	PASS	PASS
9		PASS	PASS	PASS	93		PASS	PASS	PASS
10		PASS	PASS	PASS	94		PASS	PASS	PASS
11		PASS	PASS	PASS	95		PASS	PASS	PASS
12		PASS	PASS	PASS	96		PASS	PASS	PASS
13		PASS	PASS	PASS	99		PASS	PASS	PASS
14		PASS	PASS	PASS	100		PASS	PASS	PASS
15		PASS	PASS	PASS	101		PASS	PASS	PASS
16		PASS	PASS	PASS	102		PASS	PASS	PASS
17		PASS	PASS	PASS	103		PASS	PASS	PASS
18		PASS	PASS	PASS	104		PASS	PASS	PASS
19		PASS	PASS	PASS	105		PASS	PASS	PASS
20		PASS	PASS	PASS	106		PASS	PASS	PASS
21		PASS	PASS	PASS	107		PASS	PASS	PASS
22		PASS	PASS	PASS	108		PASS	PASS	PASS
25		PASS	PASS	PASS	111		PASS	PASS	PASS
26		PASS	PASS	PASS	112		PASS	PASS	PASS
27		PASS	PASS	PASS	113		PASS	PASS	PASS
28		PASS	PASS	PASS	114		PASS	PASS	PASS
29		PASS	PASS	PASS	115		PASS	PASS	PASS
30		PASS	PASS	PASS	116		PASS	PASS	PASS
31		PASS	PASS	PASS	117		PASS	PASS	PASS
32		PASS	PASS	PASS	118		PASS	PASS	PASS
33		PASS	PASS	PASS	119		PASS	PASS	PASS
34		PASS	PASS	PASS	120		PASS	PASS	PASS
35		PASS	PASS	PASS	123		PASS	PASS	PASS
36		PASS	PASS	PASS	124		PASS	PASS	PASS
37		PASS	PASS	PASS	125		PASS	PASS	PASS
38		PASS	PASS	PASS	126		PASS	PASS	PASS
39		PASS	PASS	PASS	127		PASS	PASS	PASS
40		PASS	PASS	PASS	128		PASS	PASS	PASS
41		PASS	PASS	PASS					

NEGATIVE									
(UNIT: mA)									
Test Pin	TRIGGER CURRENT	#49	#50	#51	Test Pin	TRIGGER CURRENT	#49	#50	#51
4		PASS	PASS	PASS	63		PASS	PASS	PASS
6		PASS	PASS	PASS	90		PASS	PASS	PASS
7		PASS	PASS	PASS	91		PASS	PASS	PASS
8		PASS	PASS	PASS	92		PASS	PASS	PASS
9		PASS	PASS	PASS	93		PASS	PASS	PASS
10		PASS	PASS	PASS	94		PASS	PASS	PASS
11		PASS	PASS	PASS	95		PASS	PASS	PASS
12		PASS	PASS	PASS	96		PASS	PASS	PASS
13		PASS	PASS	PASS	99		PASS	PASS	PASS
14		PASS	PASS	PASS	100		PASS	PASS	PASS
15		PASS	PASS	PASS	101		PASS	PASS	PASS
16		PASS	PASS	PASS	102		PASS	PASS	PASS
17		PASS	PASS	PASS	103		PASS	PASS	PASS
18		PASS	PASS	PASS	104		PASS	PASS	PASS
19		PASS	PASS	PASS	105		PASS	PASS	PASS
20		PASS	PASS	PASS	106		PASS	PASS	PASS
21		PASS	PASS	PASS	107		PASS	PASS	PASS
22		PASS	PASS	PASS	108		PASS	PASS	PASS
25		PASS	PASS	PASS	111		PASS	PASS	PASS
26		PASS	PASS	PASS	112		PASS	PASS	PASS
27		PASS	PASS	PASS	113		PASS	PASS	PASS
28		PASS	PASS	PASS	114		PASS	PASS	PASS
29		PASS	PASS	PASS	115		PASS	PASS	PASS
30		PASS	PASS	PASS	116		PASS	PASS	PASS
31		PASS	PASS	PASS	117		PASS	PASS	PASS
32		PASS	PASS	PASS	118		PASS	PASS	PASS
33		PASS	PASS	PASS	119		PASS	PASS	PASS
34		PASS	PASS	PASS	120		PASS	PASS	PASS
35		PASS	PASS	PASS	123		PASS	PASS	PASS
36		PASS	PASS	PASS	124		PASS	PASS	PASS
37		PASS	PASS	PASS	125		PASS	PASS	PASS
38		PASS	PASS	PASS	126		PASS	PASS	PASS
39		PASS	PASS	PASS	127		PASS	PASS	PASS
40		PASS	PASS	PASS	128		PASS	PASS	PASS
41		PASS	PASS	PASS					

V <sub>supply</sub> OVERVOLTAGE TEST (UNIT:V)									
Test Pin	FAIL VOLTAGE	#52	#53	#54	Test Pin	FAIL VOLTAGE	#52	#53	#54
	3	PASS	PASS	PASS		88	PASS	PASS	PASS
	23	PASS	PASS	PASS		97	PASS	PASS	PASS
	42	PASS	PASS	PASS		109	PASS	PASS	PASS
	62	PASS	PASS	PASS		121	PASS	PASS	PASS
	75	PASS	PASS	PASS					

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