

ESD (MACHINE MODE) TEST REPORT

Company : RAIO Technology Inc.
Model Name : RA0086A
Date Code : 1126-N
Date Received : MAR 28, 2012
Date Tested : MAR 30, 2012

TESTING LABORATORY IS ACCREDITED BY:



IEC/IECQ 17025 certificate of independent test laboratory approval

 Certificate No. : T1091

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	Tina Lin		Apr 02, 2012
Manager	Even Lin		Apr 02, 2012

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.
5. The failure criteria should be based on parametric and functional testing; the curve trace provided in this report is for reference only.





TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 DESCRIPTION OF UNIT	2
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2. ESD (MACHINE MODE) TEST

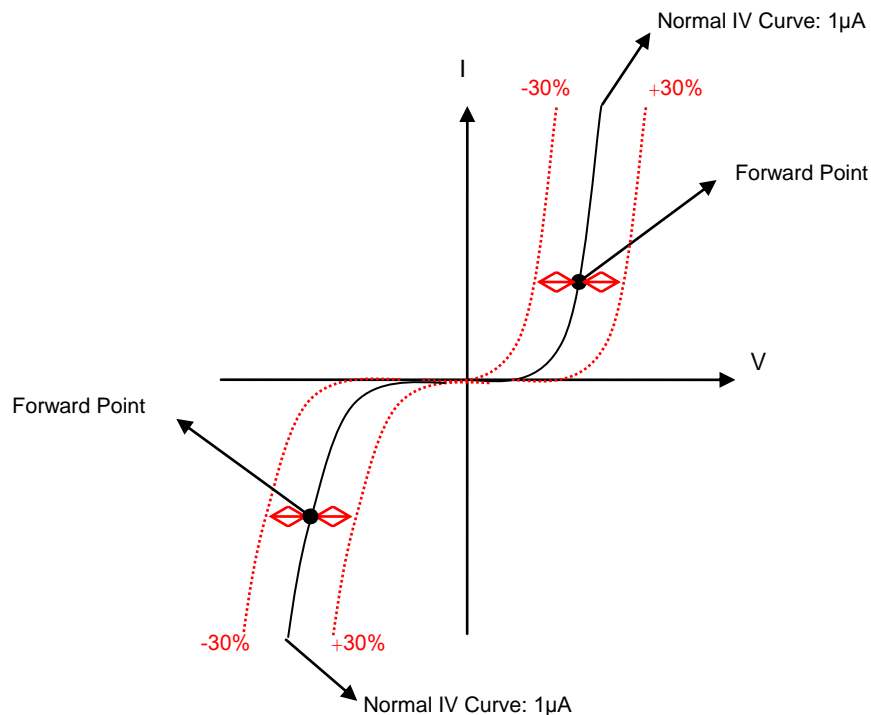
2.1 TEST EQUIPMENT	3
2.2 LABORATORY AMBIENCE CONDITION	3
2.3 REFERENCE DOCUMENT	3
2.4 TEST CONDITION	3
2.5 SUMMARY OF TEST	3
2.6 CONTENTS OF TEST	4

1. GENERAL INFORMATION

1.1 DESCRIPTION OF UNIT

MANUFACTURER : RAIO Technology Inc.
DEVICE NAME : RA0086A
DATE CODE : 1126-N
PACKAGE / PIN COUNT : LQFP-100
REFERENCE DOCUMENT : JEDEC EIA/JESD22-A115
TEST VOLTAGE : 200V ~ 400V(±), Step: 100V(±)
SAMPLE QUANTITY : 18 ea
FAILURE CRITERIA : FOR V CHANGE AT 1 μ A \pm 30%

※ Failure Judgment: IV curve shift over 1 μ A \pm 30% at forward point.



2. ESD (MACHINE MODE) TEST

2.1 TEST EQUIPMENT

Test Equipment	Equipment Number	Tester
KEYTEK ZAPMASTER	#2	10116

2.2 LABORATORY AMBIENCE CONDITION

Temperature : 25±5°C

Relative humidity : 55%±10% (RH)

2.3 REFERENCE DOCUMENT

The test method refers to JEDEC EIA/JESD22-A115

2.4 TEST CONDITION

ALL – VSS (+)

ALL – VSS (-)

ALL – VCC (+)

ALL – VCC (-)

VCC – VSS (+)

VCC – VSS (-)

2.5 SUMMARY OF TEST

Test Model : MM	ESD Sensitivity Passed : <u>±300V</u>		JEDEC Classification Class : <u> B </u>
Test condition	Sample Quantity	Passed Volts	Class A : < 200V.
ALL – VSS (+)	3	+400V	Class B : ≥ 200V , < 400V
ALL – VSS (-)	3	-300V	Class C : ≥ 400V
ALL – VCC (+)	3	+400V	
ALL – VCC (-)	3	-400V	
VCC – VSS (+)	3	+400V	
VCC – VSS (-)	3	-400V	

ALL:1-54,56-58,60-62,64,66-100
 I/O:54,66-69,73
 I/P:56-58,60-62,64,70-72

O/P:1-53,74-100
 VCC:59,63
 VSS:55,65

2.6 CONTENTS OF TEST

ALL – VSS (+) (UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
1		PASS	PASS	PASS	25		PASS	PASS	PASS
2		PASS	PASS	PASS	26		PASS	PASS	PASS
3		PASS	PASS	PASS	27		PASS	PASS	PASS
4		PASS	PASS	PASS	28		PASS	PASS	PASS
5		PASS	PASS	PASS	29		PASS	PASS	PASS
6		PASS	PASS	PASS	30		PASS	PASS	PASS
7		PASS	PASS	PASS	31		PASS	PASS	PASS
8		PASS	PASS	PASS	32		PASS	PASS	PASS
9		PASS	PASS	PASS	33		PASS	PASS	PASS
10		PASS	PASS	PASS	34		PASS	PASS	PASS
11		PASS	PASS	PASS	35		PASS	PASS	PASS
12		PASS	PASS	PASS	36		PASS	PASS	PASS
13		PASS	PASS	PASS	37		PASS	PASS	PASS
14		PASS	PASS	PASS	38		PASS	PASS	PASS
15		PASS	PASS	PASS	39		PASS	PASS	PASS
16		PASS	PASS	PASS	40		PASS	PASS	PASS
17		PASS	PASS	PASS	41		PASS	PASS	PASS
18		PASS	PASS	PASS	42		PASS	PASS	PASS
19		PASS	PASS	PASS	43		PASS	PASS	PASS
20		PASS	PASS	PASS	44		PASS	PASS	PASS
21		PASS	PASS	PASS	45		PASS	PASS	PASS
22		PASS	PASS	PASS	46		PASS	PASS	PASS
23		PASS	PASS	PASS	47		PASS	PASS	PASS
24		PASS	PASS	PASS	48		PASS	PASS	PASS

ALL – VSS (+)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
49		PASS	PASS	PASS	77		PASS	PASS	PASS
50		PASS	PASS	PASS	78		PASS	PASS	PASS
51		PASS	PASS	PASS	79		PASS	PASS	PASS
52		PASS	PASS	PASS	80		PASS	PASS	PASS
53		PASS	PASS	PASS	81		PASS	PASS	PASS
54		PASS	PASS	PASS	82		PASS	PASS	PASS
56		PASS	PASS	PASS	83		PASS	PASS	PASS
57		PASS	PASS	PASS	84		PASS	PASS	PASS
58		PASS	PASS	PASS	85		PASS	PASS	PASS
60		PASS	PASS	PASS	86		PASS	PASS	PASS
61		PASS	PASS	PASS	87		PASS	PASS	PASS
62		PASS	PASS	PASS	88		PASS	PASS	PASS
64		PASS	PASS	PASS	89		PASS	PASS	PASS
66		PASS	PASS	PASS	90		PASS	PASS	PASS
67		PASS	PASS	PASS	91		PASS	PASS	PASS
68		PASS	PASS	PASS	92		PASS	PASS	PASS
69		PASS	PASS	PASS	93		PASS	PASS	PASS
70		PASS	PASS	PASS	94		PASS	PASS	PASS
71		PASS	PASS	PASS	95		PASS	PASS	PASS
72		PASS	PASS	PASS	96		PASS	PASS	PASS
73		PASS	PASS	PASS	97		PASS	PASS	PASS
74		PASS	PASS	PASS	98		PASS	PASS	PASS
75		PASS	PASS	PASS	99		PASS	PASS	PASS
76		PASS	PASS	PASS	100		PASS	PASS	PASS

ALL – VSS (-)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
1		PASS	PASS	PASS	25		PASS	PASS	PASS
2		PASS	PASS	PASS	26		PASS	PASS	PASS
3		PASS	PASS	PASS	27		PASS	PASS	PASS
4		PASS	PASS	PASS	28		PASS	PASS	PASS
5		PASS	PASS	PASS	29		PASS	PASS	PASS
6		PASS	PASS	PASS	30		PASS	PASS	PASS
7		PASS	PASS	PASS	31		PASS	PASS	PASS
8		PASS	PASS	PASS	32		PASS	PASS	PASS
9		PASS	PASS	PASS	33		PASS	PASS	PASS
10		PASS	PASS	PASS	34		PASS	PASS	PASS
11		PASS	PASS	PASS	35		PASS	PASS	PASS
12		PASS	PASS	PASS	36		PASS	PASS	PASS
13		PASS	PASS	PASS	37		PASS	PASS	PASS
14		PASS	PASS	PASS	38		PASS	PASS	PASS
15		PASS	PASS	PASS	39		PASS	PASS	PASS
16		PASS	PASS	PASS	40		PASS	PASS	PASS
17		PASS	PASS	PASS	41		PASS	PASS	PASS
18		PASS	PASS	PASS	42		PASS	PASS	PASS
19		PASS	PASS	PASS	43		PASS	PASS	PASS
20		PASS	PASS	PASS	44		PASS	PASS	PASS
21		PASS	PASS	PASS	45		PASS	PASS	PASS
22		PASS	PASS	PASS	46		PASS	PASS	PASS
23		PASS	PASS	PASS	47		PASS	PASS	PASS
24		PASS	PASS	PASS	48		PASS	PASS	PASS

ALL – VSS (-)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
49		PASS	PASS	PASS	77		PASS	PASS	PASS
50		PASS	PASS	PASS	78		PASS	PASS	PASS
51		PASS	PASS	PASS	79		PASS	PASS	PASS
52		PASS	PASS	PASS	80		PASS	PASS	PASS
53		PASS	PASS	PASS	81		PASS	PASS	PASS
54		PASS	PASS	PASS	82		PASS	PASS	PASS
56		PASS	PASS	PASS	83		PASS	PASS	PASS
57		PASS	PASS	PASS	84		PASS	PASS	PASS
58		PASS	PASS	PASS	85		PASS	PASS	PASS
60		PASS	PASS	PASS	86		PASS	PASS	PASS
61		PASS	PASS	PASS	87		PASS	PASS	PASS
62		PASS	PASS	PASS	88		PASS	PASS	PASS
64		PASS	PASS	PASS	89		PASS	PASS	PASS
66	-400	PASS	PASS	-400	90		PASS	PASS	PASS
67		PASS	PASS	PASS	91		PASS	PASS	PASS
68	-400	PASS	PASS	PASS	92		PASS	PASS	PASS
69		PASS	PASS	PASS	93		PASS	PASS	PASS
70		PASS	PASS	PASS	94		PASS	PASS	PASS
71		PASS	PASS	PASS	95		PASS	PASS	PASS
72		PASS	PASS	PASS	96		PASS	PASS	PASS
73		PASS	PASS	PASS	97		PASS	PASS	PASS
74		PASS	PASS	PASS	98		PASS	PASS	PASS
75		PASS	PASS	PASS	99		PASS	PASS	PASS
76		PASS	PASS	PASS	100		PASS	PASS	PASS

ALL – VCC (+)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
1		PASS	PASS	PASS	25		PASS	PASS	PASS
2		PASS	PASS	PASS	26		PASS	PASS	PASS
3		PASS	PASS	PASS	27		PASS	PASS	PASS
4		PASS	PASS	PASS	28		PASS	PASS	PASS
5		PASS	PASS	PASS	29		PASS	PASS	PASS
6		PASS	PASS	PASS	30		PASS	PASS	PASS
7		PASS	PASS	PASS	31		PASS	PASS	PASS
8		PASS	PASS	PASS	32		PASS	PASS	PASS
9		PASS	PASS	PASS	33		PASS	PASS	PASS
10		PASS	PASS	PASS	34		PASS	PASS	PASS
11		PASS	PASS	PASS	35		PASS	PASS	PASS
12		PASS	PASS	PASS	36		PASS	PASS	PASS
13		PASS	PASS	PASS	37		PASS	PASS	PASS
14		PASS	PASS	PASS	38		PASS	PASS	PASS
15		PASS	PASS	PASS	39		PASS	PASS	PASS
16		PASS	PASS	PASS	40		PASS	PASS	PASS
17		PASS	PASS	PASS	41		PASS	PASS	PASS
18		PASS	PASS	PASS	42		PASS	PASS	PASS
19		PASS	PASS	PASS	43		PASS	PASS	PASS
20		PASS	PASS	PASS	44		PASS	PASS	PASS
21		PASS	PASS	PASS	45		PASS	PASS	PASS
22		PASS	PASS	PASS	46		PASS	PASS	PASS
23		PASS	PASS	PASS	47		PASS	PASS	PASS
24		PASS	PASS	PASS	48		PASS	PASS	PASS

ALL – VCC (+)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
49	PASS	PASS	PASS	PASS	77	PASS	PASS	PASS	PASS
50	PASS	PASS	PASS	PASS	78	PASS	PASS	PASS	PASS
51	PASS	PASS	PASS	PASS	79	PASS	PASS	PASS	PASS
52	PASS	PASS	PASS	PASS	80	PASS	PASS	PASS	PASS
53	PASS	PASS	PASS	PASS	81	PASS	PASS	PASS	PASS
54	PASS	PASS	PASS	PASS	82	PASS	PASS	PASS	PASS
56	PASS	PASS	PASS	PASS	83	PASS	PASS	PASS	PASS
57	PASS	PASS	PASS	PASS	84	PASS	PASS	PASS	PASS
58	PASS	PASS	PASS	PASS	85	PASS	PASS	PASS	PASS
60	PASS	PASS	PASS	PASS	86	PASS	PASS	PASS	PASS
61	PASS	PASS	PASS	PASS	87	PASS	PASS	PASS	PASS
62	PASS	PASS	PASS	PASS	88	PASS	PASS	PASS	PASS
64	PASS	PASS	PASS	PASS	89	PASS	PASS	PASS	PASS
66	PASS	PASS	PASS	PASS	90	PASS	PASS	PASS	PASS
67	PASS	PASS	PASS	PASS	91	PASS	PASS	PASS	PASS
68	PASS	PASS	PASS	PASS	92	PASS	PASS	PASS	PASS
69	PASS	PASS	PASS	PASS	93	PASS	PASS	PASS	PASS
70	PASS	PASS	PASS	PASS	94	PASS	PASS	PASS	PASS
71	PASS	PASS	PASS	PASS	95	PASS	PASS	PASS	PASS
72	PASS	PASS	PASS	PASS	96	PASS	PASS	PASS	PASS
73	PASS	PASS	PASS	PASS	97	PASS	PASS	PASS	PASS
74	PASS	PASS	PASS	PASS	98	PASS	PASS	PASS	PASS
75	PASS	PASS	PASS	PASS	99	PASS	PASS	PASS	PASS
76	PASS	PASS	PASS	PASS	100	PASS	PASS	PASS	PASS

ALL – VCC (-)									(UNIT:V)
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
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5		PASS	PASS	PASS	29		PASS	PASS	PASS
6		PASS	PASS	PASS	30		PASS	PASS	PASS
7		PASS	PASS	PASS	31		PASS	PASS	PASS
8		PASS	PASS	PASS	32		PASS	PASS	PASS
9		PASS	PASS	PASS	33		PASS	PASS	PASS
10		PASS	PASS	PASS	34		PASS	PASS	PASS
11		PASS	PASS	PASS	35		PASS	PASS	PASS
12		PASS	PASS	PASS	36		PASS	PASS	PASS
13		PASS	PASS	PASS	37		PASS	PASS	PASS
14		PASS	PASS	PASS	38		PASS	PASS	PASS
15		PASS	PASS	PASS	39		PASS	PASS	PASS
16		PASS	PASS	PASS	40		PASS	PASS	PASS
17		PASS	PASS	PASS	41		PASS	PASS	PASS
18		PASS	PASS	PASS	42		PASS	PASS	PASS
19		PASS	PASS	PASS	43		PASS	PASS	PASS
20		PASS	PASS	PASS	44		PASS	PASS	PASS
21		PASS	PASS	PASS	45		PASS	PASS	PASS
22		PASS	PASS	PASS	46		PASS	PASS	PASS
23		PASS	PASS	PASS	47		PASS	PASS	PASS
24		PASS	PASS	PASS	48		PASS	PASS	PASS

ALL – VCC (-)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
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54		PASS	PASS	PASS	82		PASS	PASS	PASS
56		PASS	PASS	PASS	83		PASS	PASS	PASS
57		PASS	PASS	PASS	84		PASS	PASS	PASS
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60		PASS	PASS	PASS	86		PASS	PASS	PASS
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64		PASS	PASS	PASS	89		PASS	PASS	PASS
66		PASS	PASS	PASS	90		PASS	PASS	PASS
67		PASS	PASS	PASS	91		PASS	PASS	PASS
68		PASS	PASS	PASS	92		PASS	PASS	PASS
69		PASS	PASS	PASS	93		PASS	PASS	PASS
70		PASS	PASS	PASS	94		PASS	PASS	PASS
71		PASS	PASS	PASS	95		PASS	PASS	PASS
72		PASS	PASS	PASS	96		PASS	PASS	PASS
73		PASS	PASS	PASS	97		PASS	PASS	PASS
74		PASS	PASS	PASS	98		PASS	PASS	PASS
75		PASS	PASS	PASS	99		PASS	PASS	PASS
76		PASS	PASS	PASS	100		PASS	PASS	PASS



VCC – VSS (+)				
Test Pin	FAIL VOLTAGE	#1	#2	#3
	59	PASS	PASS	PASS
	63	PASS	PASS	PASS

VCC – VSS (-)				
Test Pin	FAIL VOLTAGE	#1	#2	#3
	59	PASS	PASS	PASS
	63	PASS	PASS	PASS