LATCH UP TEST REPORT

Company ：成都启英泰伦科技有限公司

Address ：成都市高新区孵化园 **6** 号楼 **1** 楼 **106** 室

Model Name ：CI1102

Date Received ：September 7, 2019

Date Tested ：September 7, 2019

TESTING LABORATORY IS APPROVEDED BY:

IECQ Certificate of Approval No.: IECQ-L DEKRA 17.0004-01 For Independent Test Laboratory According to ISO/IEC 17025

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
Testing Engineer	Peng Zhao	Peng_Zhao	2019/9/7
Approving Manager	Kimi Lai	Kimi_Lai	2019/9/7

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.

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 DESCRIPTION OF UNIT

MANUFACTURER	：成都启英泰伦科技有限公司
DEVICE NAME	：CI1102
PACKAGED / PIN COUNT	：QFN56
REFERENCE DOCUMENT	：JEDEC STANDARD NO.78E NOVEMBER 2016
TRIGGER CURRENT	：50mA ~200mA, Step: 50mA (±)
V SUPPLY OVER VOLTAGE TEST	：3.5V～5.5V;Step:1.0V(+) 1.3V～2.0V;Step:0.1V(+)
PULSE DURATION	：10 ms
TEST TEMPERATURE	：ROOM TEMPERATURE
SAMPLE QUANTITY	：3 pcs
FAILURE CRITERIA	：If absolute Inom is < 25 mA, then absolute Inom + 10mA is used; Or If absolute Inom is > 25 mA, then > 1.4X absolute Inom is used;

2. LATCH UP TEST

2.1 TEST EQUIPMENT

Test Equipment	Equipment S/N	Calibration Date:	Recommended Due Date:
KEYTEK ZAPMASTER 7/4	9503392	July 4, 2019	July 3, 2020

2.2 LABORATORY AMBIENCE CONDITION

Temperature：25±5°C
Relative humidity：55%±10% (RH)

2.3 REFERENCE DOCUMENT

The test is based on JEDEC STANDARD NO.78E NOVEMBER 2016

2.4 TEST CONDITION

I Trigger
Over Voltage Test

2.5 SUMMARY OF TEST

Trigger Mode	Test Pin	Sample Quantity	Tested Result	V or I Limits	I Trigger : Class ＩA
I Trigger (+)	I/P3.3V	3	PASS +200mA	+5.5V	**Temperature Classification:**
	O/P3.3V		PASS +200mA	+5.5V	CLASS Ⅰ: For Latch-up test at room temperature
	I/O3.3V		PASS +200mA	+5.5V	
I Trigger (-)	I/P3.3V		PASS -200mA	-2.0V	
	O/P3.3V		PASS -200mA	-2.0V	CLASS Ⅱ: For Latch-up test at maximum-rate ambient temperature
	I/O3.3V		PASS -200mA	-2.0V	
Over Volt Test V_{supply}	VCC3.3V		PASS +5.5V	+500mA	**A: ≧100mA**
	VCC1.2V		PASS +2.0V	+500mA	**B: Other**

Group	Pins
VCC3.3V	8,21,37,44,48,52
VCC1.2V	1 ,7 ,36
I/P3.3V	3, 28, 29, 43
O/P3.3V	4, 45, 49, 51
I/O3.3V	5, 6, 9-20, 22-27, 30-35, 38-42, 53-56

2.6 CONTENTS OF TEST

No	1		
I Trigger (Positive)			
Tested Pins	Sample No. & Failed Volt		
	#4	#5	#6
3	PASS 200mA	PASS 200mA	PASS 200mA
28	PASS 200mA	PASS 200mA	PASS 200mA
29	PASS 200mA	PASS 200mA	PASS 200mA
43	PASS 200mA	PASS 200mA	PASS 200mA
4	PASS 200mA	PASS 200mA	PASS 200mA
45	PASS 200mA	PASS 200mA	PASS 200mA
49	PASS 200mA	PASS 200mA	PASS 200mA
51	PASS 200mA	PASS 200mA	PASS 200mA
5	PASS 200mA	PASS 200mA	PASS 200mA
6	PASS 200mA	PASS 200mA	PASS 200mA
9	PASS 200mA	PASS 200mA	PASS 200mA
10	PASS 200mA	PASS 200mA	PASS 200mA
11	PASS 200mA	PASS 200mA	PASS 200mA
12	PASS 200mA	PASS 200mA	PASS 200mA
13	PASS 200mA	PASS 200mA	PASS 200mA
14	PASS 200mA	PASS 200mA	PASS 200mA
15	PASS 200mA	PASS 200mA	PASS 200mA
16	PASS 200mA	PASS 200mA	PASS 200mA
17	PASS 200mA	PASS 200mA	PASS 200mA
18	PASS 200mA	PASS 200mA	PASS 200mA
19	PASS 200mA	PASS 200mA	PASS 200mA
20	PASS 200mA	PASS 200mA	PASS 200mA
22	PASS 200mA	PASS 200mA	PASS 200mA
23	PASS 200mA	PASS 200mA	PASS 200mA
24	PASS 200mA	PASS 200mA	PASS 200mA
25	PASS 200mA	PASS 200mA	PASS 200mA
26	PASS 200mA	PASS 200mA	PASS 200mA
27	PASS 200mA	PASS 200mA	PASS 200mA
30	PASS 200mA	PASS 200mA	PASS 200mA
31	PASS 200mA	PASS 200mA	PASS 200mA
32	PASS 200mA	PASS 200mA	PASS 200mA
33	PASS 200mA	PASS 200mA	PASS 200mA
34	PASS 200mA	PASS 200mA	PASS 200mA
35	PASS 200mA	PASS 200mA	PASS 200mA
38	PASS 200mA	PASS 200mA	PASS 200mA
39	PASS 200mA	PASS 200mA	PASS 200mA
40	PASS 200mA	PASS 200mA	PASS 200mA
41	PASS 200mA	PASS 200mA	PASS 200mA
42	PASS 200mA	PASS 200mA	PASS 200mA
53	PASS 200mA	PASS 200mA	PASS 200mA
54	PASS 200mA	PASS 200mA	PASS 200mA
55	PASS 200mA	PASS 200mA	PASS 200mA
56	PASS 200mA	PASS 200mA	PASS 200mA

No	2		
I Trigger (Negative)			
Tested Pins	Sample No. & Failed Volt		
	#4	#5	#6
3	PASS 200mA	PASS 200mA	PASS 200mA
28	PASS 200mA	PASS 200mA	PASS 200mA
29	PASS 200mA	PASS 200mA	PASS 200mA
43	PASS 200mA	PASS 200mA	PASS 200mA
4	PASS 200mA	PASS 200mA	PASS 200mA
45	PASS 200mA	PASS 200mA	PASS 200mA
49	PASS 200mA	PASS 200mA	PASS 200mA
51	PASS 200mA	PASS 200mA	PASS 200mA
5	PASS 200mA	PASS 200mA	PASS 200mA
6	PASS 200mA	PASS 200mA	PASS 200mA
9	PASS 200mA	PASS 200mA	PASS 200mA
10	PASS 200mA	PASS 200mA	PASS 200mA
11	PASS 200mA	PASS 200mA	PASS 200mA
12	PASS 200mA	PASS 200mA	PASS 200mA
13	PASS 200mA	PASS 200mA	PASS 200mA
14	PASS 200mA	PASS 200mA	PASS 200mA
15	PASS 200mA	PASS 200mA	PASS 200mA
16	PASS 200mA	PASS 200mA	PASS 200mA
17	PASS 200mA	PASS 200mA	PASS 200mA
18	PASS 200mA	PASS 200mA	PASS 200mA
19	PASS 200mA	PASS 200mA	PASS 200mA
20	PASS 200mA	PASS 200mA	PASS 200mA
22	PASS 200mA	PASS 200mA	PASS 200mA
23	PASS 200mA	PASS 200mA	PASS 200mA
24	PASS 200mA	PASS 200mA	PASS 200mA
25	PASS 200mA	PASS 200mA	PASS 200mA
26	PASS 200mA	PASS 200mA	PASS 200mA
27	PASS 200mA	PASS 200mA	PASS 200mA
30	PASS 200mA	PASS 200mA	PASS 200mA
31	PASS 200mA	PASS 200mA	PASS 200mA
32	PASS 200mA	PASS 200mA	PASS 200mA
33	PASS 200mA	PASS 200mA	PASS 200mA
34	PASS 200mA	PASS 200mA	PASS 200mA
35	PASS 200mA	PASS 200mA	PASS 200mA
38	PASS 200mA	PASS 200mA	PASS 200mA
39	PASS 200mA	PASS 200mA	PASS 200mA
40	PASS 200mA	PASS 200mA	PASS 200mA
41	PASS 200mA	PASS 200mA	PASS 200mA
42	PASS 200mA	PASS 200mA	PASS 200mA
53	PASS 200mA	PASS 200mA	PASS 200mA
54	PASS 200mA	PASS 200mA	PASS 200mA
55	PASS 200mA	PASS 200mA	PASS 200mA
56	PASS 200mA	PASS 200mA	PASS 200mA

No	3		
Over Voltage Test for Vsupply			
Tested Pins	Sample No. & Failed Volt		
	#4	#5	#6
8	PASS	PASS	PASS
21	PASS	PASS	PASS
37	PASS	PASS	PASS
44	PASS	PASS	PASS
48	PASS	PASS	PASS
52	PASS	PASS	PASS
1	PASS	PASS	PASS
7	PASS	PASS	PASS
36	PASS	PASS	PASS