

EFT TEST REPORT

Company: 武汉力源半导体有限公司
Address: 武汉市东湖新技术开发区武大园三路 5 号 9 楼
Product Name: CW32F030
Lot No.: NA
D/C: NA
Application Date: OCT. 29, 2021
Date Finished: NOV. 05, 2021



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.

Tested by	Reviewed by	Approved by
王文新	不国菜	魏垂五

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 Giga Force.
4. According to the international standards, the final failure criteria of all EFT tests must be based on the result of parametric and functional testing.

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1. BACKGROUND INFORMATION

1.1 DESCRIPTION OF TESTED UNIT

MANUFACTURER	: NA
PRODUCT NO. / MODEL NO.	: CW32F030
PACKAGE TYPE / PIN COUNT	: LQFP48
SAMPLE QUANTITY	: 4 PCS

1.2 THE REFERENCE STANDARD OF THIS TEST

REFERENCE STANDARD	: IEC61000-4-4-2012, GB/T 17626.4-2008
●EFT FOR POWER PORTS, EARTH PORT(PE)	
TEST VOLTAGE	: ±2.0KV,±3.0KV, ±4.0KV,±4.8KV
REPETITION FREQUENCY	: 5KHZ;100KHZ
BURST DURATION	: 15ms ± 3ms
BURST PERIOD	: 300ms ± 60ms
DURATION OF TEST PER PORT	: 60s
SPIKE	: 75 PCS
COUPLING MODE	: ●Asynchronous ○Synchronous at phase___degree
●EFT FOR SIGNAL AND CONTROL PORTS	
TEST VOLTAGE	: ±1.0KV, ±2.0KV,±3.0KV, ±3.5KV, ±4.0KV, ±4.2KV,±4.8KV, ±4.5KV
REPETITION FREQUENCY	: 5KHZ
BURST DURATION	: 15ms ± 3ms
BURST PERIOD	: 300ms ± 60ms
DURATION OF TEST PER PORT	: 60s
SPIKE	: 75 PCS
COUPLING MODE	: ●OUT-I/O(COAXIAL, 50Ω)

1.3 ESD FAILURE CRITERIA


FAILURE CRITERIA-1	: a) normal performance within limits specified by the manufacturer, requestor or purchaser; : b) normal temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention; : c) normal temporary loss of function or degradation of performance, the correction of which requires operator intervention; : d) normal loss of function or degradation of performance which is not recoverable, due to damage to hardware or software, or loss of data;
FAILURE CRITERIA-2	: Functional Testing Results(Performed By Customer)

2. EFT TEST INFORMATION

2.1 TEST EQUIPMENT

Test Equipment	Equipment Number	Calibration Date:	Recommended Due Date:
EFT61004TA	PR17114793	December 05, 2020	December 04, 2021

2.2 TEST UNIT AND FIXTURE

Test Fixture	Test Unit(IC)	Test Unit(EUT)
	NA	NA
EFT-Power Ports		
NA		
EFT-IO Ports		
NA		

2.3 LABORATORY AMBIENCE CONDITION

Temperature	25 °C	Must be 25 °C ± 10°C
Relative humidity	44 %	Must be 50 % ± 25 % (RH)

2.4 TEST CONDITION AND SUMMARY

According to failure judgment before and after zapping, the EFT Sensitivity of the samples provided to Giga-Force can PASS: [±4800V\(Power\)/ ±4000V\(IO\)](#)

IEC61000-4-4 Classification, **Class : [4\(Power\)/4\(IO\)](#)**

Level	Power ports, earth port (PE)		Signal and control ports	
	Voltage peak (kV)	Repetition frequency (kHz)	Voltage peak (kV)	Repetition frequency (kHz)
1	0.5	5 or 100	0.25	5 or 100
2	1	5 or 100	0.5	5 or 100
3	2	5 or 100	1	5 or 100
4	4	5 or 100	2	5 or 100
X ^a	Special	Special	Special	Special

The use of 5 kHz repetition frequency is traditional, however, 100 kHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types.

With some products, there may be no clear distinction between power ports and signal ports, in which case it is up to product committees to make this determination for test purposes.

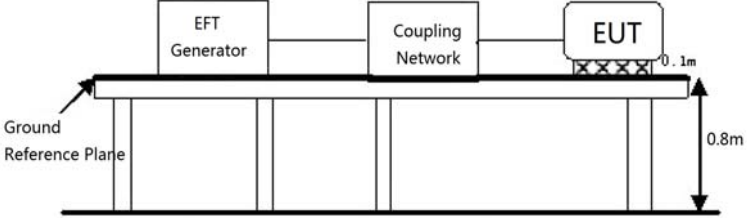
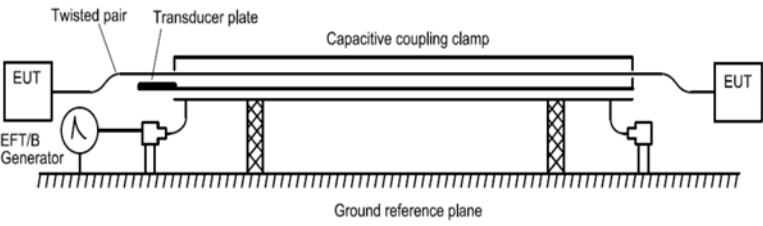
" X^a" can be any level, above, below or in between the others. The level shall be specified in the dedicated equipment specification.

***V:** DUT failed at the first level of test condition;

2.5 PIN ASSIGNMENT

NA

2.6 TEST RESULTS

NO	Test Item and Condition	Example of test setup
1	<p>电快速瞬变脉冲群抗扰度检验</p> <ol style="list-style-type: none"> 1. 环境条件: 依据 2.3 2. 等级: 3 级 1000V~4000V, Step: 500V(±)/5kHz; 3. 检验回路: EFT DC Power; 4. 检验时间: 60s; 5. EUT 工作状态: 直流输入 VCC +5.5V, PA01, PA02 接地, RESET 后, LED-A04/A03/D06 先交替闪烁, 然后同时交替闪灭; 6. 考核条件: <ol style="list-style-type: none"> 6.1 干扰过程中, EUT 不应损坏, LED-A04/A03/D06 同时交替闪灭; 6.2 干扰结束后, EUT 工作正常 LED 灯闪烁正常 7. 测试样品: #4 	<p>连接示意图</p> 
2	<p>电快速瞬变脉冲群抗扰度检验</p> <ol style="list-style-type: none"> 1. 环境条件: 依据 2.3 2. 等级: 3 级 500V~2000V, Step: 500V/5kHz; 3. 检验回路: EFT-I0; 4. 检验时间: 60s; 5. EUT 工作状态: 直流输入 VCC +5.5V, 发送端 PA01 接 5.5V, PA02 接地, EFT-I0 TX, RESET 后, LED-A04/A03/D06 先交替闪烁, 随后发送成功 A04 (绿) 闪灭 EFT-I0 RX, RESET 后, LED-A04/A03/D06 先交替闪烁, 随后接收成功 D06 (蓝) 闪灭 6. 考核条件: 干扰过程中, EUT 不应损坏, 发送端 A04(绿) 闪灭, 接收端 D06 (蓝) 闪灭 7. 测试样品: #4, #1 	<p>连接示意图</p> 

EFT(IEC61000-4-4) to Power						
工作状态描述	工作状态： 两块测试板均直流输入+5.5V，通讯指示灯闪烁正常；					
DUT	电压	频率	时间	Coupling	结果	故障现象
CW32F030	± 2.0, 3.0KV	5kHz	60S	SEQ. L, PE	Pass (A类)	1: 干扰过程中，电源电流正常，通讯正常，指示灯闪烁正常； 2: 干扰结束后，通讯正常，指示灯闪烁正常；
		5kHz	60S	SEQ. L, PE		
	±4.0KV	100kHz	60S	SEQ. L, PE	Pass (A类)	1: 干扰过程中，电源电流正常，通讯正常，指示灯闪烁正常； 2: 干扰结束后，通讯正常，指示灯闪烁正常；
		5kHz	60S	SEQ. L, PE		
	±4.8KV	100kHz	60S	SEQ. L, PE	Pass (A类)	1: 干扰过程中，电源电流正常，通讯正常，指示灯闪烁正常； 2: 干扰结束后，通讯正常，指示灯闪烁正常；
		5kHz	60S	SEQ. L, PE		
EFT(IEC61000-4-4) to IO						
工作状态描述	工作状态： 两块测试板均直流输入+5.5V，通讯指示灯闪烁正常；					
DUT	电压	频率	时间	Coupling	结果	故障现象
CW32F030	± 1.0, 2.0, 3.0, 3.5KV	5kHz	60S	OUT	Pass (A类)	1: 干扰过程中，电源电流正常，通讯正常，指示灯闪烁正常； 2: 干扰结束后，通讯正常，指示灯闪烁正常；
		5kHz	60S	OUT		
	±4.0KV	100kHz	60S	OUT	Pass (A类)	1: 干扰过程中，电源电流正常，通讯正常，指示灯闪烁正常； 2: 干扰结束后，通讯正常，指示灯闪烁正常；
		5kHz	60S	OUT		
	+4.2KV	100kHz	60S	OUT	Pass (A类)	1: 干扰过程中，电源电流正常，通讯正常，指示灯闪烁正常； 2: 干扰结束后，通讯正常，指示灯闪烁正常；
		5kHz	60S	OUT		

	-4. 2KV	5kHz	60S	OUT	Fail (C类)	1: 干扰过程中, 出现大电流, 通讯异常, 指示灯异常; 2: 干扰结束后, 重启电源恢复正常;
	+4. 5KV	5kHz	60S	OUT	Pass (A类)	1: 干扰过程中, 电源电流正常, 通讯正常, 指示灯闪烁正常; 2: 干扰结束后, 通讯正常, 指示灯闪烁正常;
	-4. 5KV	5kHz	60S	OUT	Fail (C类)	1: 干扰过程中, 出现大电流, 通讯异常, 指示灯异常; 2: 干扰结束后, 重启电源恢复正常;
	+4. 8KV	5kHz	60S	OUT	Pass (A类)	1: 干扰过程中, 电源电流正常, 通讯正常, 指示灯闪烁正常; 2: 干扰结束后, 通讯正常, 指示灯闪烁正常;
	-4. 8KV	5kHz	60S	OUT	Fail (C类)	1: 干扰过程中, 出现大电流, 通讯异常, 指示灯异常; 2: 干扰结束后, 重启电源恢复正常;

3.1 EUT FUNCTIONAL TESTING RAWDATA

NA

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