

校准证书

CALIBRATION CERTIFICATE

证书编号:

Certificate No.



J202310234458-05-0001

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委托方

Client

京东方华灿光电(浙江)有限公司

联络信息

Contact Inf.

浙江省义乌市苏溪镇苏福路233号

仪器名称

Description

CDM半导体专用静电放电发生器CDM ESD Simulators for IC Testing

型号/规格

Model/Type

ESD-CDM

制造厂

Manufacturer

LISUN

出厂编号

Serial No.

H8KC3K24015

管理号

Asset No.

接收日期

Receipt Date

2024年09月18日

校准日期

Cal. Date

2024年09月18日

Y M D

发布日期

Issued Date

2024年09月18日

Y M D

批准

Approved by

张磊

审核

Inspected by

蒋骋杰

校准

Calibrated by

赵大星

证书专用章

(Stamp)

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联系电话(Tel.):400-602-0999

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网站(Website):http://www.grgtest.com

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扫一扫验真伪

校验码: 671408



校准说明
DIRECTIONS OF CALIBRATION

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- 本实验室的质量管理体系符合ISO/IEC 17025:2017标准的要求,校准结果均可溯源至国际单位制(SI)单位。(The quality system is in accordance with ISO/IEC 17025:2017,the calibration results are traceable to the International System of Units (SI).)
- 本结果仅对本次校准样品有效。未经实验室批准,不得部分复制。如有疑问请在15个工作日内反馈。(The result is only valid for the calibrated sample.The certificate shall not be reproduced except in full,without the written approval of our laboratory .please feedback to us within 15 days if you have any question.)
- 本证书编号具有唯一性,后缀若带有“-Gx”的证书为替换证书,自发出后原证书即刻作废。(Each certificate has a unique number. The suffix of "-Gx" will be added to the number as a replacement of the old version. The original certificate will be officially invalid once the new certificate number is issued.)
- 证书中最大允许误差、判定结果仅供参考,其中“P”代表“合格”,“F”代表“不合格”,“N/A”代表“不适用”。使用人员应结合实际测量需求,评估测量不确定度对符合性评定的影响。(MPE & judgement result in the datasheet is only for reference, "P" is "Pass", "F" is "Fail" and "N/A" is "Not Applicable".Whereas users should evaluate the effects of MU of calibration results on conformance assessment by actual measurement.)
- 校准地点、环境条件(Place and environmental conditions of the calibration):
地点: 无锡计量电子室
Place
温度: 21℃ 相对湿度: 52%
Temperature Relative Humidity
- 建议复校时间间隔: 1年,送校单位也可按实际使用情况自主决定。
Suggested calibration interval is 1 year or it can be altered depending on the actual usage of the user.
- 本次校准的技术依据。(Reference document for calibration.)

ANSI ESDA JEDECJS-002-2018 ElectrostaticDischargeSensitivityTestingChargedDeviceModel(CDM)-
DeviceLevel

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8. 本次校准使用的主要测量标准(Main Standards of Measurement Used in the Calibration.):

名称 Description	编号 Serial No.	证书号/有效期 Certificate No./ Due Date	溯源机构 Traceability Institute	技术特征 Technique Character
示波器	C070546	J202310091266- 0015 2024-10-24	广电计量检测集 团股份有限公司	直流增益:±1.5%;时基:± 5ppm; 频带宽度: 2GHz
衰减器 Attenuator	23040412	J202403055441- 0036 2025-03-18	广电计量检测集 团股份有限公司	0.009MHz-3000MHz

9. 计量溯源性声明(Measurement traceability declaration.):

衰减器/Attenuator(23040412)→网络分析仪/Network Analyzer(MY49609241)→频率计/Frequency Counter(66C04014)→铷原子频率标准/Rubidium Atomic Frequency Standards(051101)→铯原子频率标准 Cesium atomic frequency standard(US49353151))(广东省计量科学研究院);

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1、外观以及一般性检查: 正常

In view of External and Generality check : Pass

2、标准波形参数校准

2.1、峰值电流校准

Calibration of Peak Current

	测试电压 Test Voltage (kV)	实测值 Measured (A)	不确定度 $U_{rel}(k=2)$ (%)	允许值 Limit (A)	结论 Conclusion (Pass/Fail)
Small	0.125	1.10	4.0	1.0 ~ 1.6	P
	0.250	2.57	4.0	2.1 ~ 3.1	P
	0.500	5.89	4.0	4.4 ~ 5.9	P
	0.750	7.80	4.0	6.6 ~ 8.9	P
	1.000	9.16	4.0	8.8 ~ 11.9	P
	-0.125	-1.40	4.0	-1.6 ~ -1.0	P
	-0.250	-3.10	4.0	-3.1 ~ -2.1	P
	-0.500	-5.60	4.0	-5.9 ~ -4.4	P
Large	-0.750	-7.24	4.0	-8.9 ~ -6.6	P
	-1.000	-9.28	4.0	-11.9 ~ -8.8	P
	0.125	3.00	4.0	1.9 ~ 3.2	P
	0.250	5.52	4.0	4.2 ~ 6.3	P
	0.500	9.76	4.0	9.1 ~ 12.3	P
	0.750	14.40	4.0	13.7 ~ 18.5	P
	1.000	19.28	4.0	18.3 ~ 24.7	P
	-0.125	-2.81	4.0	-3.2 ~ -1.9	P
	-0.250	-5.46	4.0	-6.3 ~ -4.2	P
	-0.500	-10.40	4.0	-12.3 ~ -9.1	P
	-0.750	-14.82	4.0	-18.5 ~ -13.7	P
	-1.000	-20.80	4.0	-24.7 ~ -18.3	P

2.2、脉冲宽度

Calibration of Ringing Current

	测试电压 Test Voltage (kV)	实测值 Measured (ps)	不确定度 $U_{rel}(k=2)$ (%)	允许值 Limit (ps)	结论 Conclusion (Pass/Fail)
Small	0.125	422	4.0	325 ~ 700	P
	0.250	403	4.0	325 ~ 700	P
	0.500	381	4.0	325 ~ 700	P
	0.750	387	4.0	325 ~ 700	P
	1.000	417	4.0	325 ~ 700	P
	-0.125	405	4.0	325 ~ 700	P
	-0.250	387	4.0	325 ~ 700	P
	-0.500	388	4.0	325 ~ 700	P
	-0.750	426	4.0	325 ~ 700	P
	-1.000	413	4.0	325 ~ 700	P

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	测试电压 Test Voltage (kV)	实测值 Measured (ps)	不确定度 $U_{rel}(k=2)$ (%)	允许值 Limit (ps)	结论 Conclusion (Pass/Fail)
Large	0.125	590	4.0	500 ~ 1000	P
	0.250	545	4.0	500 ~ 1000	P
	0.500	588	4.0	500 ~ 1000	P
	0.750	635	4.0	500 ~ 1000	P
	1.000	607	4.0	500 ~ 1000	P
	-0.125	664	4.0	500 ~ 1000	P
	-0.250	590	4.0	500 ~ 1000	P
	-0.500	615	4.0	500 ~ 1000	P
	-0.750	653	4.0	500 ~ 1000	P
	-1.000	611	4.0	500 ~ 1000	P

2.3、放电电流上升时间的校准

Calibration of Discharge Current Rise Time

	测试电压 Test Voltage (kV)	实测值 Measured (ps)	不确定度 $U_{rel}(k=2)$ (%)	允许值 Limit (ps)	结论 Conclusion (Pass/Fail)
Small	0.125	212	5.2	< 350	P
	0.250	209	5.2	< 350	P
	0.500	214	5.2	< 350	P
	0.750	200	5.2	< 350	P
	1.000	222	5.2	< 350	P
	-0.125	238	5.2	< 350	P
	-0.250	245	5.2	< 350	P
	-0.500	208	5.2	< 350	P
	-0.750	224	5.2	< 350	P
	-1.000	205	5.2	< 350	P
Large	0.125	250	5.2	< 450	P
	0.250	242	5.2	< 450	P
	0.500	271	5.2	< 450	P
	0.750	290	5.2	< 450	P
	1.000	307	5.2	< 450	P
	-0.125	176	5.2	< 450	P
	-0.250	199	5.2	< 450	P
	-0.500	305	5.2	< 450	P
	-0.750	204	5.2	< 450	P
	-1.000	277	5.2	< 450	P

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2.4.第二峰值与第一峰值电流之比

Ratio of Second Peak to First Peak Current

	测试电压 Test Voltage (kV)	实测值 Measured (%)	不确定度 $U_{rel}(k=2)$ (%)	允许值 Limit (%)	结论 Conclusion (Pass/Fail)
Small	0.125	42	5.2	< 70	P
	0.250	50	5.2	< 70	P
	0.500	34	5.2	< 70	P
	0.750	31	5.2	< 70	P
	1.000	28	5.2	< 70	P
	-0.125	32	5.2	< 70	P
	-0.250	36	5.2	< 70	P
	-0.500	29	5.2	< 70	P
	-0.750	35	5.2	< 70	P
	-1.000	28	5.2	< 70	P
Large	0.125	22	5.2	< 50	P
	0.250	21	5.2	< 50	P
	0.500	19	5.2	< 50	P
	1.000	19	5.2	< 50	P
	-0.125	12	5.2	< 50	P
	-0.250	19	5.2	< 50	P
	-0.500	18	5.2	< 50	P
	-0.750	10	5.2	< 50	P
	-1.000	9	5.2	< 50	P

备注:

Notes:

结论(Conclusion): 所校项目符合技术要求

1.本报告中的扩展不确定度是由标准不确定度乘以包含概率约为95%时的包含因子 k 。

The expanded uncertainty is given in the report by the standard uncertainty multiplied by the probability of about 95% when the factor k .

2.依据(Reference document)

JJF 1059.1-2012 测量不确定度评定与表示

(JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

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