



宁波市明微电子有限公司

Ningbo Micromile Electronics Co., Ltd

客户名称/Customer name : _____

客户料号/Customer material no: _____

产品名称/Product name: _____

产品型号/Product model: MM-2015A-V1.1

产品编码/The product code: _____

规格书版本/Specification version: _____

明微确认Micromile Approval			客户确认CustomerApproval		
拟定 WORKED BY	审核 CHECKED BY	批准 APPROVED BY	检查 TESTED BY	审核 CHECKED BY	批准 APPROVED BY

(注: 双方确认承认书合格后请签字盖章并回寄一份)/(note: please sign and seal the letter after confirmation of the acceptance of the book)

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一、产品外观及概述/Mach. Outline Drawing



1.1 产品特性/Product characteristics

- ※ 符合CE/3C/UL/SAA认证要求/Compliance with CE/3C/UL certification requirements/SAA
- ※ 隔离式设计/Isolation design
- ※ 低纹波无频闪/Low ripple no frequency flash

1.2 产品描述/Product description

产品适用于LED灯的外置驱动，具有高功率因数、高效率、高稳定性等优点，且采用隔离电路恒流输出，恒流精度高。该产品额定输入电压为，AC200-240V，输出电压范围为DC 30-40V，其恒流输出电流为1000mA±5%，最大输出功率为40W。The product is applicable to the external drive of LED lights, with high power factor, high efficiency, high stability, etc., and the constant current output of the isolating circuit is high. The rated input voltage of this product is ac200-240v, the output voltage range is DC 30-40v, and its constant current output current is 1000mA plus or minus 5%, and the maximum output power is 40W.

1.3 产品应用/ Product application

- ※ 面板灯等./Panel lights etc.

二、输入电气特性/Input Characteristics.

测试项目 Test Project	最小值 Minimum	典型值 Typical	最大值 Maximum	单位 Unit	备注 Remark
输入电压范围 Input voltage range	180	240	264	Vac	---
输入频率范围 Input Frequency range	47	50/60	63	Hz	---
输入电流 Input Current	---	---	250	mA	输入: 200Vac 输出: 40Vdc-1000mA Input: 200Vac Output: 40Vdc-1000mA
功率因素 Power Factor	---	0.95	---	---	输入: 200-240Vac 输出: 40Vdc-1000mA Input: 200-240Vac Output: 40Vdc-1000mA
总谐波失真 THD	---	15	---	%	输入: 200-240Vac 输出: 40Vdc-1000mA Input: 200-240Vac Output: 40Vdc-1000mA
效率 Efficiency	---	88	---	%	输入: 200-240Vac 输出: 40Vdc-1000mA Input: 200-240Vac Output: 40Vdc-1000mA
开机延迟时间 Start-up Delay Time	---	1	---	s	输入: 200Vac 输出: 40Vdc-1000mA Input: 200Vac Output: 40Vdc-1000mA
	---	0.9	---	s	输入: 240Vac 输出: 40Vdc-1000mA Input: 240Vac Output: 40Vdc-1000mA
冷启动浪涌电流 Cold start surge current	---	25	---	A	输入: 240Vac 输出: 40Vdc-1000mA Input: 240Vac Output: 40Vdc-1000mA

三、输出电气特性/Output Characteristics.

测试项目 Test Project	最小值 Minimum	典型值 Typical	最大值 Maximum	单位 Unit	备注 Remark
输出电压 Output Voltage	30	36	40	Vdc	输入: 200-240Vac 输出: 40Vdc-1000mA Input: 200-240Vac Output: 40Vdc-1000mA
输出电流 output current	950	1000	1050	mA	输入: 200-240Vac Input: 200-240Vac
空载最高电压 No load maximum voltage	---	---	47	V	输入: 200-240Vac Input: 200-240Vac
输出纹波电压 Output ripple voltage	---	150	---	mV	输入: 200-240Vac 输出: 40Vdc-1000mA Input: 200-240Vac Output: 40Vdc-1000mA
输出纹波电流 Output ripple current	---	30	---	mA	输入: 200-240Vac 输出: 40Vdc-1000mA Input: 200-240Vac Output: 40Vdc-1000mA

注: 1. 以上数据均在电子负载上测得。2. 测试环境温度 Ta=25°C/ Note: 1. The above data are measured on the electronic load. 2. Ta = test environment temperature 25 °C

四、保护特性 /Protective properties

4.1 开路保护/Open protection: 120-135%额定输出电压/120-135% rated output voltage

4.2 短路保护/Short protection: 当输出短路时,产品输入功率降低且不会损伤,当短路情况解除后,产品将会自动恢复正常./The input power shall decrease when the output rail short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed.

五、环境条件/Environmental conditions

5.1 工作温度/Operating Temperature: -10-40°C

5.2 工作湿度/Operating Humidity: 10%-75%RH

5.3 存储温度/Storage Temperature: -20°C—70°C

5.4 存储湿度/Storage Humidity : 10% to 90% RH

5.5 散热方式/The cooling way: 自然冷却/Natural cooling

六、可靠性要求/Reliability Requirements:

6.1 平均间隔故障时间估算/MTBF Qualification: $\geq 30,000$ 小时. Ta25°C, 输入240Vac, 满载/ $\geq 30,000$ Hour. Ta25°C, Input240Vac, Full Load.

6.2 老化/Burn-in: 产品要在40°C \pm 5°C的环境及满载条件下老化4小时/Products in 40 °C to + / - 5 °C environment and load conditions of aging 4 hours

七、安规标准/Safety Standards:

7.1 介电耐压强度/Dielectric Strength: 输入对输出间打耐压 3750Vac, 漏电流小于5mA, 测试时间为3S./Dielectric Strength/Dielectric Strength: input to the output room to withstand pressure 3750Vac, leakage current is less than 5mA, and the test time is 3S.

7.2 绝缘阻抗/Insulation Resistance: 在初级与次级间加500Vdc进行测试, 最小绝缘阻抗50M Ω /50M Ω min. at primary to secondary add 500Vdc test voltage

7.3 安规证书/Safety Certificate:

安规Type	国家Country	标准Standard	状况State	认证号Attestation
CE	Europe	EN61347-2-13	可以通过/Can be Certified	
UL	America	UL8750	可以通过/ Can be Certified	
TUV	Germany	IEC61347-2-13	可以通过/ Can be Certified	
CQC	CHINA	GB 7000.1	可以通过/ Can be Certified	
SAA	Australia	AS/NZS IEC61347-2-13	可以通过/ Can be Certified	

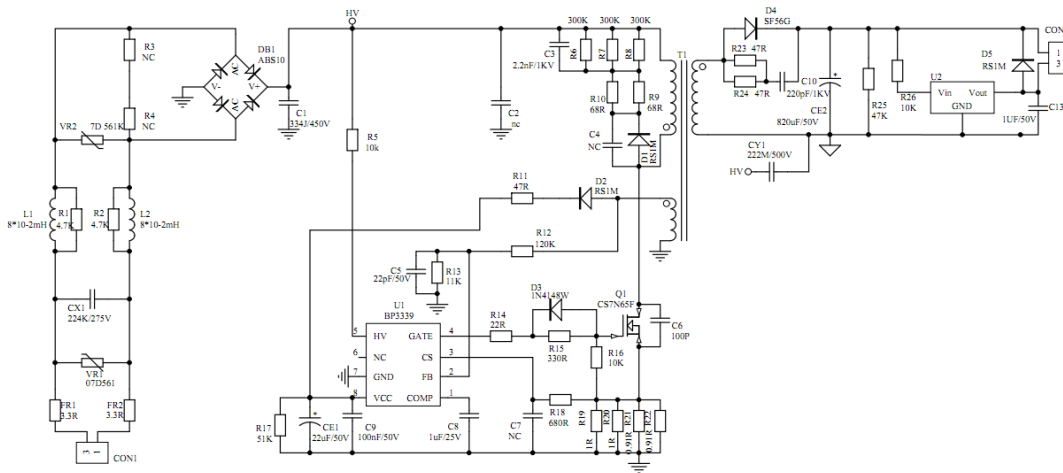
八、EMC:

8.1 EMI: 符合EN55015和EN55022的需求/meets the requirements of EN55015 and

EN55022

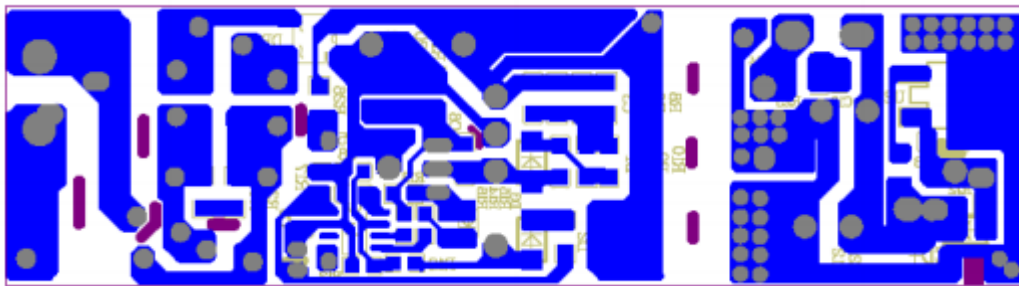
8.2 雷击浪涌抗扰度/ Lightning Surge Immunity:L-N 之间打1KV电压.+90° .-270° . 间隔60秒.每角度5次.

九、原理图/Schematic Diagram:

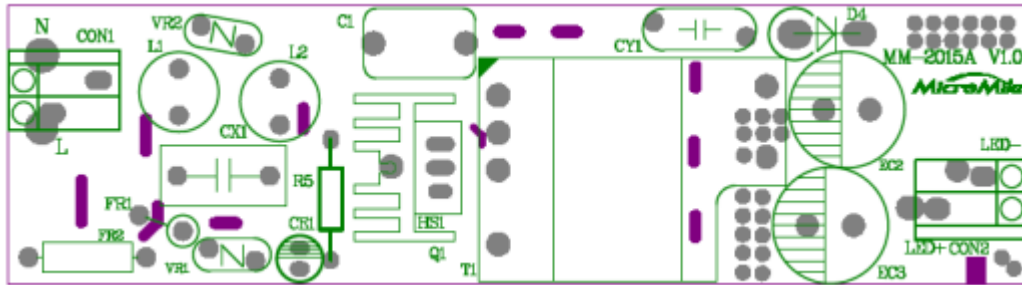


十、PCB资料/PCB file:

10.1 铜箔层/Copper foil layer



10.10.2 丝印层/Silk screen layer

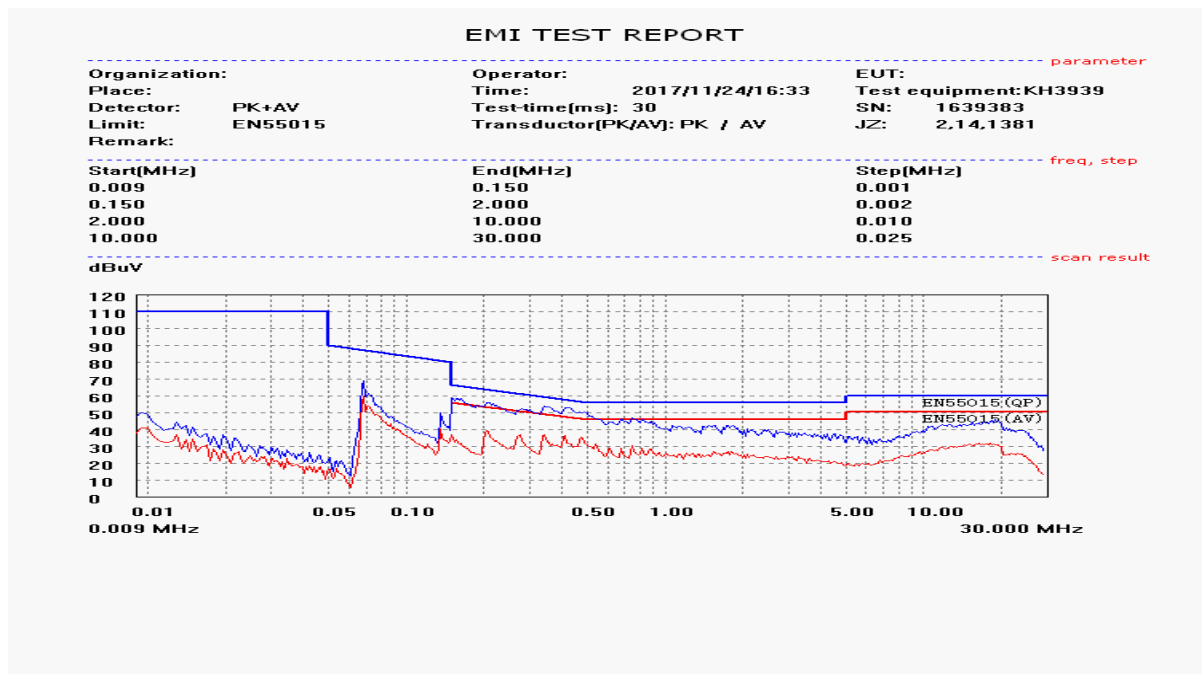


十一、EMI 测试/EMI Test :

说明: 1. 测试负载: LED 模组/Test load: LED module

2. 无屏蔽罩/No shield cover

11.3 传导骚扰/Conducted emission: 230V L

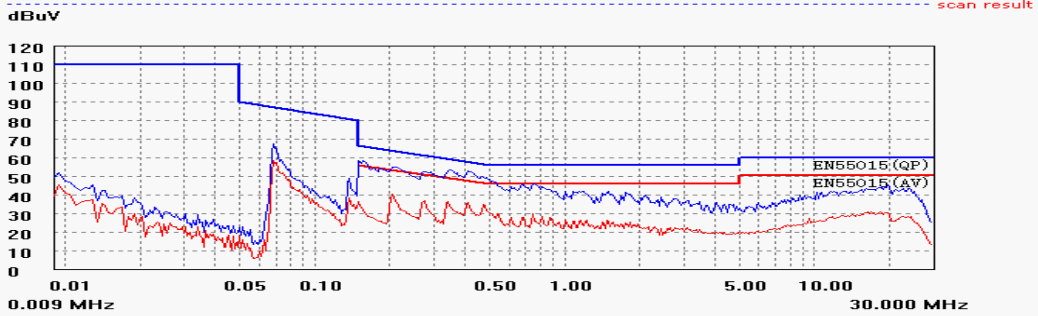


11.4 传导骚扰/Conducted emission: 230V N

EMI TEST REPORT

Organization:	Operator:	EUT:	parameter
Place:	Time: 2017/11/24/16:30	Test equipment: KH3939	
Detector: PK+AV	Test-time(ms): 30	SN: 1639383	
Limit: EN55015	Transducer(PK/AV): PK / AV	JZ: 2.14.1387	
Remark:			

Start(MHz)	End(MHz)	Step(MHz)	freq, step
0.009	0.150	0.001	
0.150	2.000	0.002	
2.000	10.000	0.010	
10.000	30.000	0.025	

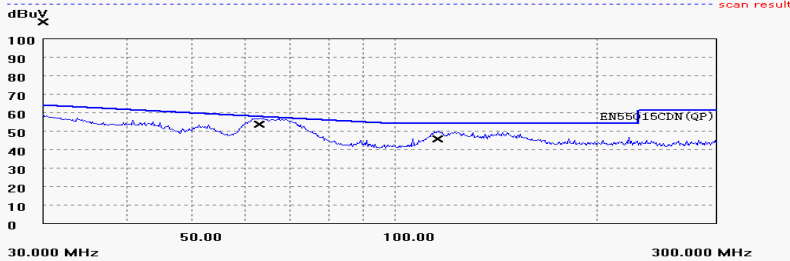


11.5辐射/Radiated emssion:230V CDN

EMI TEST REPORT

Organization:	Operator:	EUT:	parameter
Place:	Time: 2017/11/24/16:26	Test equipment: KH3939	
Detector: PK	Test-time(ms): 30	SN: 1639383	
Limit: EN55015CDN	Transducer(PK/AV): CDN / CDN	JZ: 2.14.1378	
Remark:			

Start(MHz)	End(MHz)	Step(MHz)	freq, step
30.000	100.000	0.100	
100.000	230.000	0.200	
230.000	300.000	0.200	

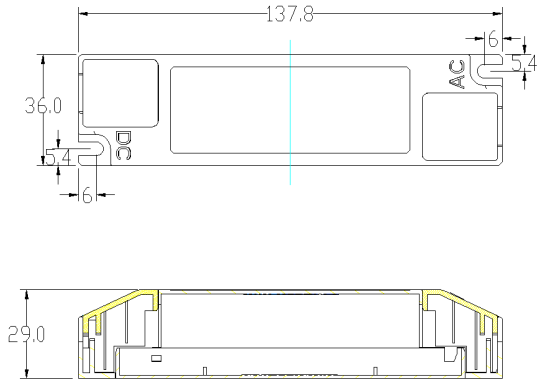


freq(MHz)	lev(dBuV)	Lim(dBuV)	Δ(lev-Lim)	final test
30.000	109.5	64.0	45.5	
62.900	53.4	59.3	-5.9	
115.830	45.7	54.0	-8.3	

十二、产品输入、输出端使用线材定义/Product input and output end use wire definition

输出 250V/3.5A 按压式端子/Output 250V/3.5A pressure terminal

十三、外壳尺寸图：单位 (mm) /Shell dimension: unit (mm)



十四、产品包装说明