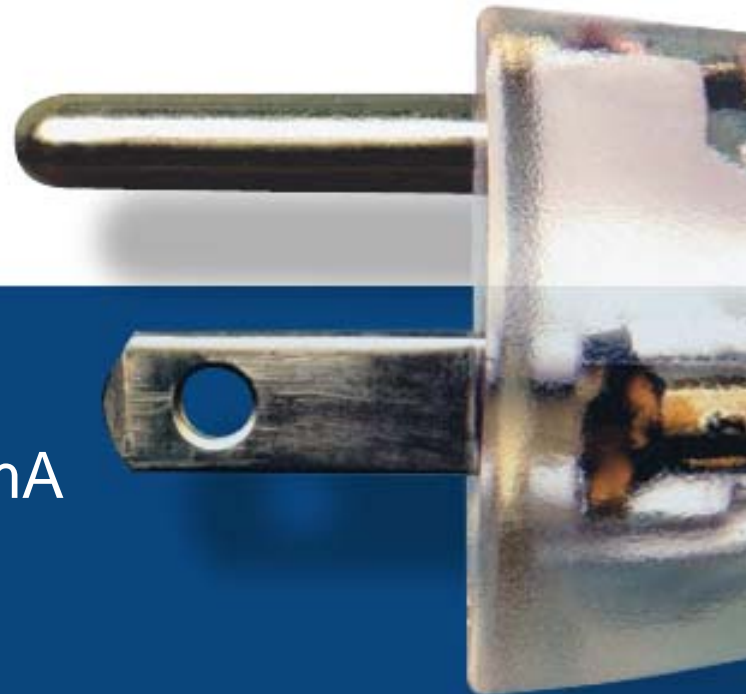




使用LNK606DG芯片设计的23V 300mA
LED驱动电源

2010年7月7日
XB(PI-Shenzhen)



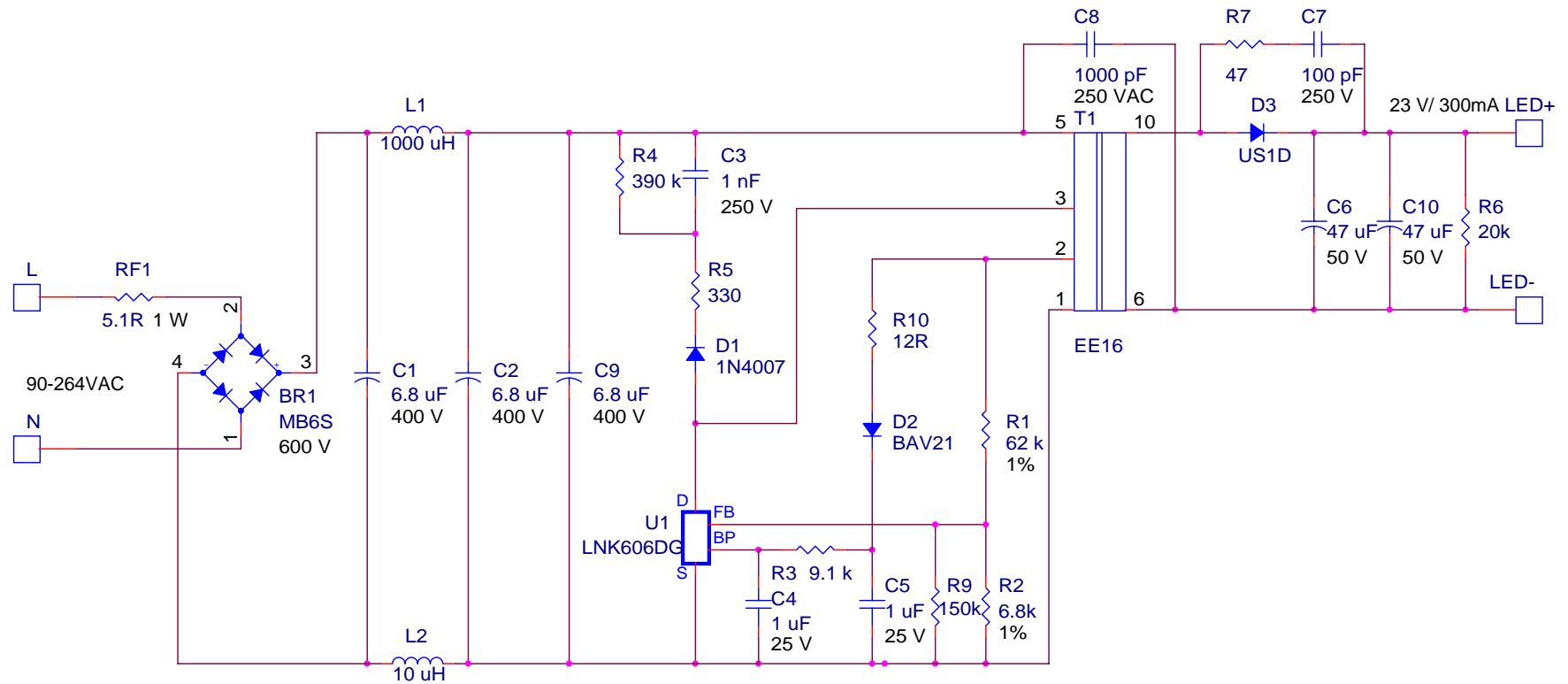
1. 主要功能及特点

- 1) 初级侧精准的恒流控制，无需光耦和次级控制线路
- 2) 集成MOS管，外围零件数目少
- 3) 高效率，115V/230V输入时效率大于75%
- 4) 宽电压范围输入
- 5) 低空载损耗
- 6) 过温保护功能

2. 产品规格

描述	符号	最小值	典型值	最大值	单位	附加信息/测试条件
输入						
输入电压	V_{IN}	90		265	Vac	零/火线, 无中线
空载损耗	W			0.1	W	265V输入
输出						
输出电压	V_{out}		23.0		V	
输出电流	I_{out}		0.3		A	
总输出功率						
持续输出功率	P_{out}		6.9		W	总功率
峰值输出功率					W	
传导电磁干扰		6			dB	
环境温度	T_{amb}	0		40	C	空气自然对流

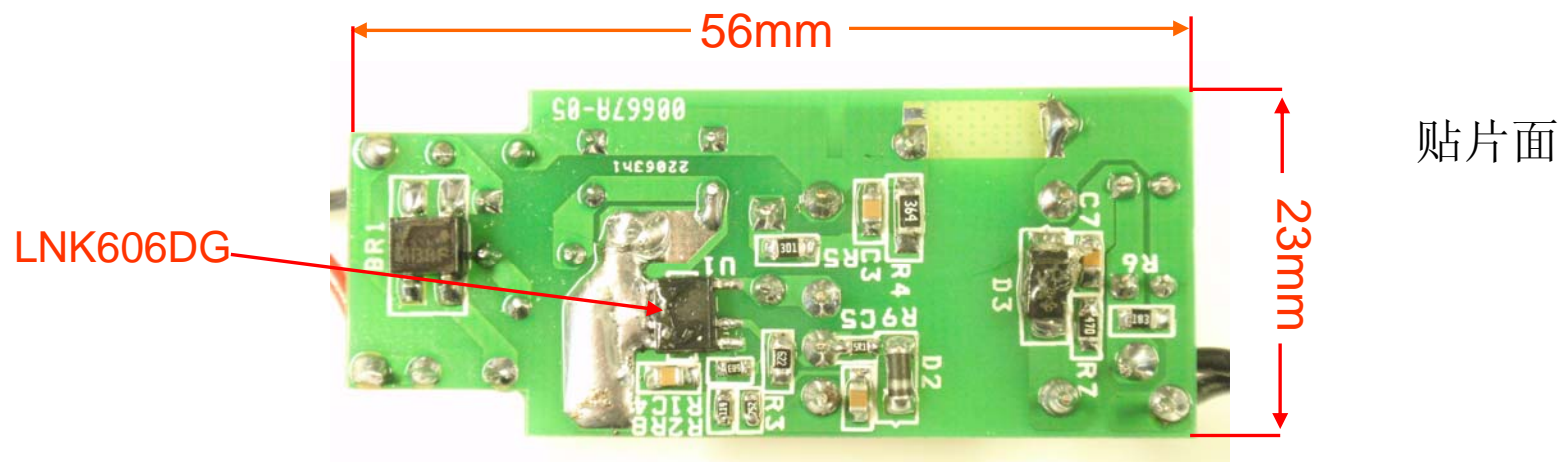
3. 线路图



4. 零件清单

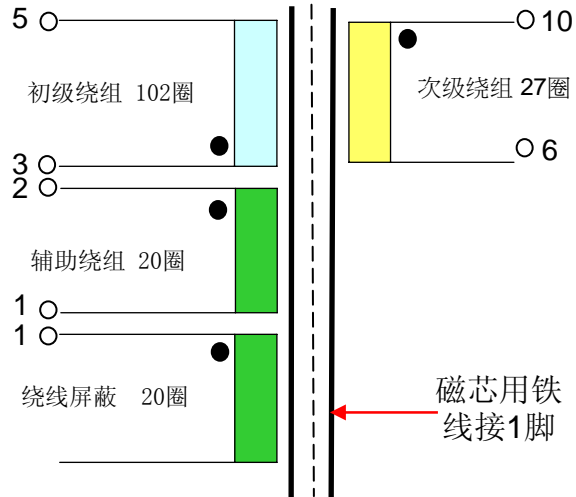
编码	数量	零件位置	零件值	具体描述
1	1	BR1	MB6S	600 V, 0.5 A, Bridge Rectifier, SMD, MBS-1, 4-SOIC
2	3	C1 C2 C9	6.8 uF	6.8 uF, 400 V, Electrolytic, (8 x 11.5)
3	2	C3 C7	1 nF	1 nF, 200 V, Ceramic, X7R, 0805
4	2	C4 C5	1 uF	1 uF, 25 V, Ceramic, X7R, 0805
5	2	C6 C10	47 uF	47 uF, 35 V, Electrolytic, Low ESR, 180 mOhm, (6.3 x 15)
6	1	C8	1000 pF	1000pF, 250 VAC, Film, X1Y1
7	1	D1	1N4007	1000 V, 1 A, Rectifier, Glass Passivated, DO-213AA (MELF)
8	1	D2	BAV21	200 V, 300m A, Fast Switching, 70ns, MELF
9	1	D3	US1D	200 V, 1 A, Ultrafast Recovery, 25 ns, DO-214AC
10	1	L1	1000 uH	1000 uH, 80 mA, 34.7 Ohm, Axial Ferrite Inductor
11	1	L2	10uH	10 uH, 80 mA, 1 Ohm, Axial Ferrite Inductor
12	1	R1	62 k	62 k, 1%, 1/16 W, Thick Film, 0603
13	1	R2	6.8k	6.8 k, 1%, 1/16 W, Thick Film, 0603
14	1	R3	9.1 k	9.1 k, 5%, 1/8 W, Thick Film, 0805
15	1	R4	390 k	390 k, 5%, 1/4 W, Thick Film, 1206
16	1	R5	330	330 R, 5%, 1/8 W, Thick Film, 0805
17	1	R6	20k	20k, 5%, 1/8 W, Thick Film, 0805
18	1	R7	47	47 R, 5%, 1/8 W, Thick Film, 0805
19	1	R9	150k	150k, 5%, 1/16 W, Thick Film, 0603
20	1	R10	12	5.1 R, 5%, 1/8 W, Thick Film, 0805
21	1	RF1	5.1	10 R, 2 W, Fusible/Flame Proof Wire Wound
22	1	T1	EE16	Bobbin, EE16 Extended Creepage, Horizontal, 10 pins
23	1	U1	LNK606DG	LinkSwitch-II, LNK606DG, CV/CC, SO-8C

5. 工程样品外观图



6. 变压器规格

示意图



电气规格:

1. 初级感量 (Lp) = 1.2mH± 7% @10KHz
2. 初级漏感 <40uH @10KHz
3. 抗电强度 = 3KV, 50/60Hz, 1Min

材料:

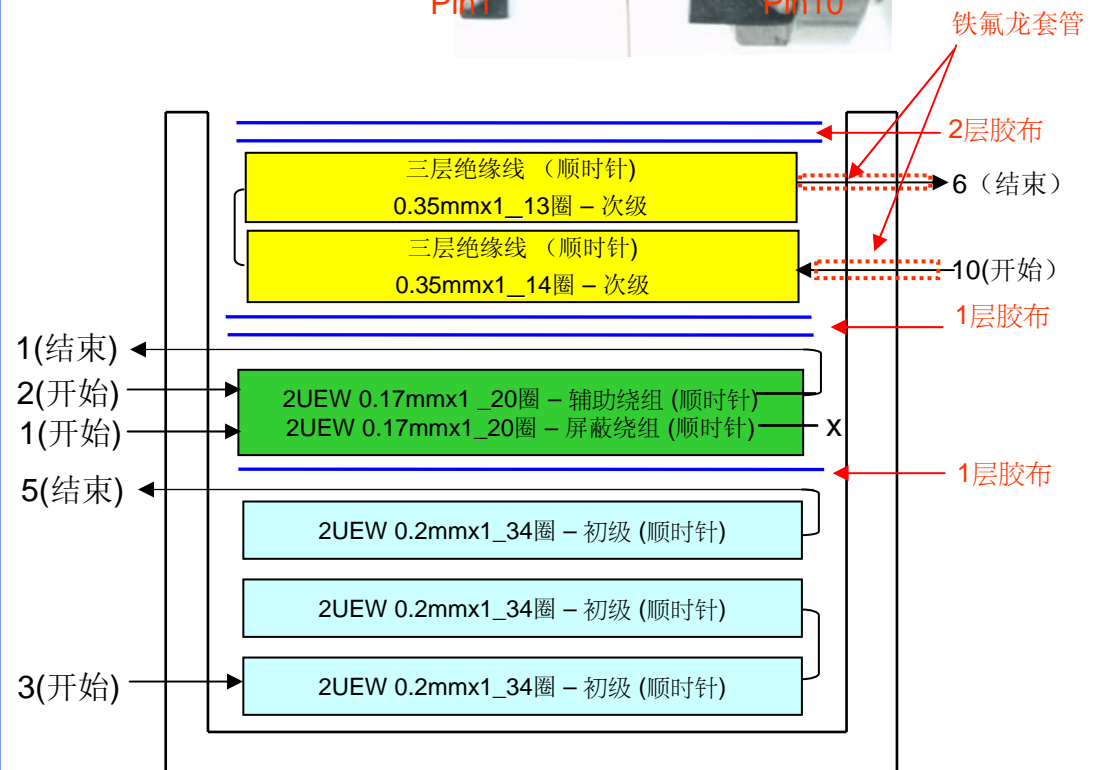
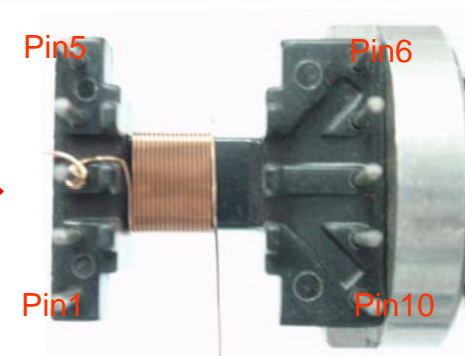
1. 磁芯: EE16 (铁氧体 TDK PC40 或其他等效)
2. 骨架: 卧式 加宽(5+5脚).
3. 绕线 (初级和辅助绕组): 类型 2-UEW
4. 绕线 (次级绕组): 三层绝缘线
5. 绕组间绝缘胶布 :3M1298 或其他等效

组装:

1. 组立后需要泡凡立水
2. 磁芯用铁线接1脚

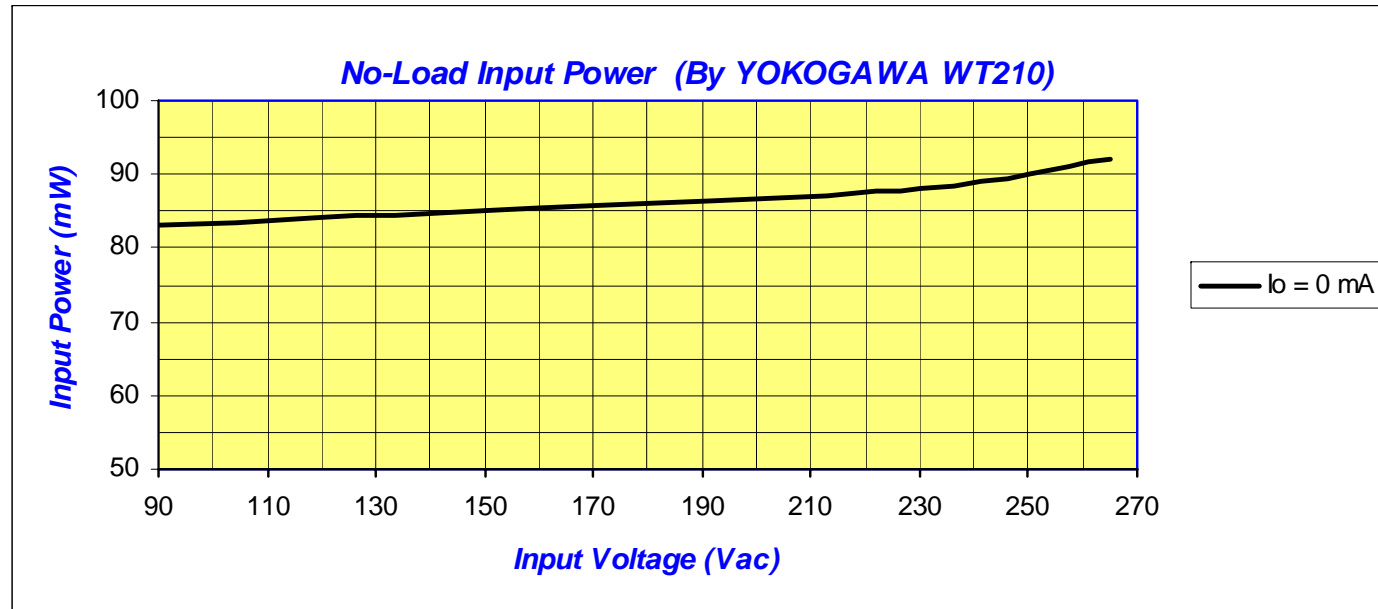
绕组结构图...

起始端为3脚, 结束端为5脚, 从箭头方向看过去定义为顺时针方向



7. 电气性能

空载损耗图



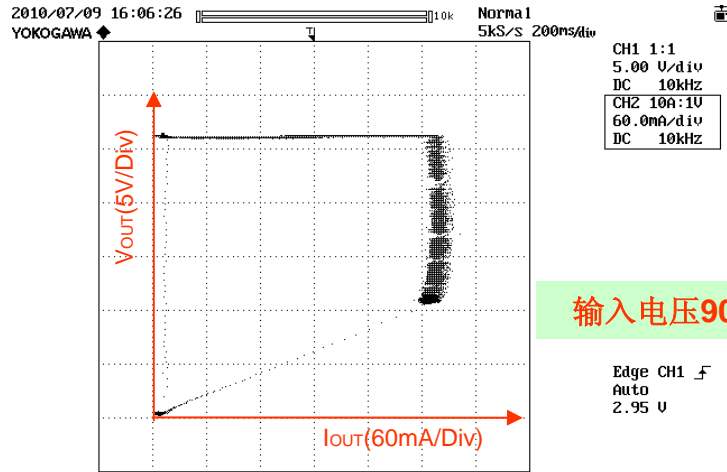
效率

测试条件:满载

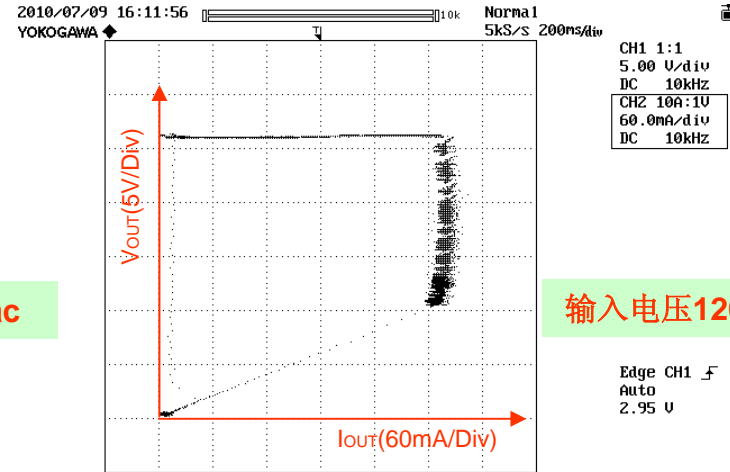
输入	90V	115V	150V	200V	230V	265V
效率	79.8%	81.86%	83.35%	83.65%	83.83%	83%

8. 输出电压电流曲线图

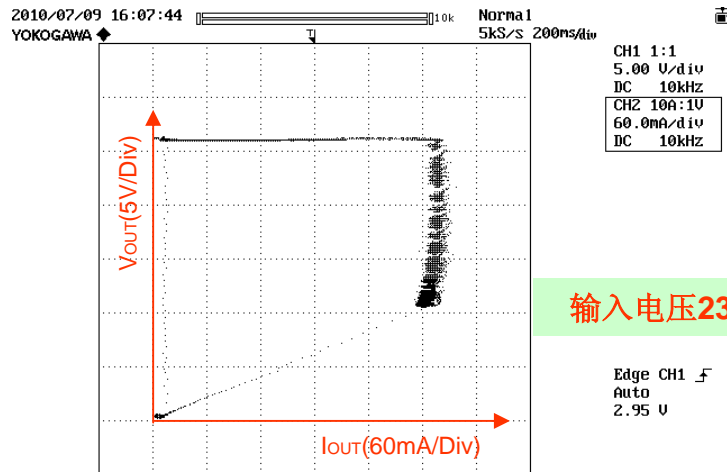
工程报告 (使用LNK606DG芯片设计的 23V 300mA LED 驱动电源)



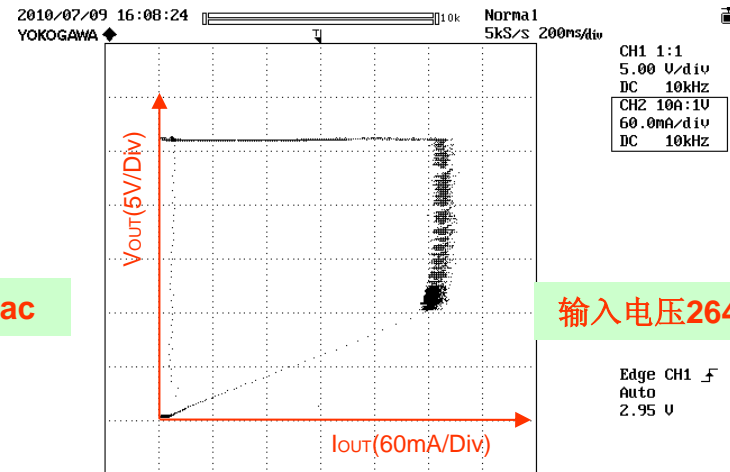
输入电压90Vac



输入电压120Vac

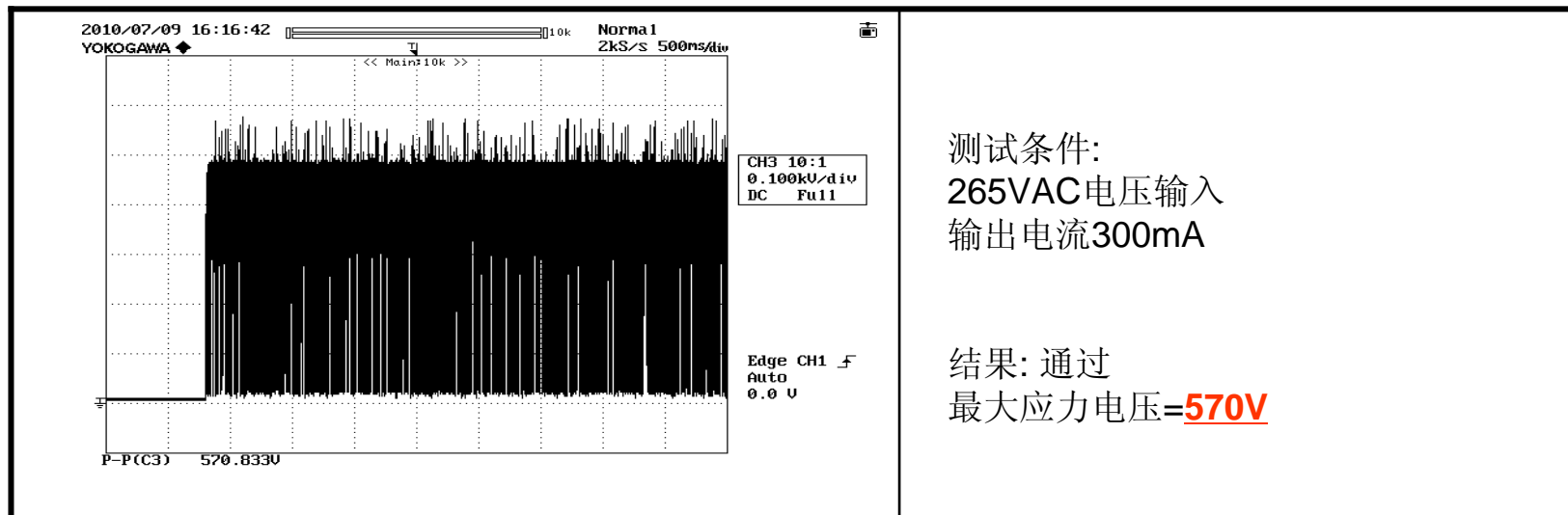


输入电压230Vac



输入电压264Vac

9. 漏极电压应力

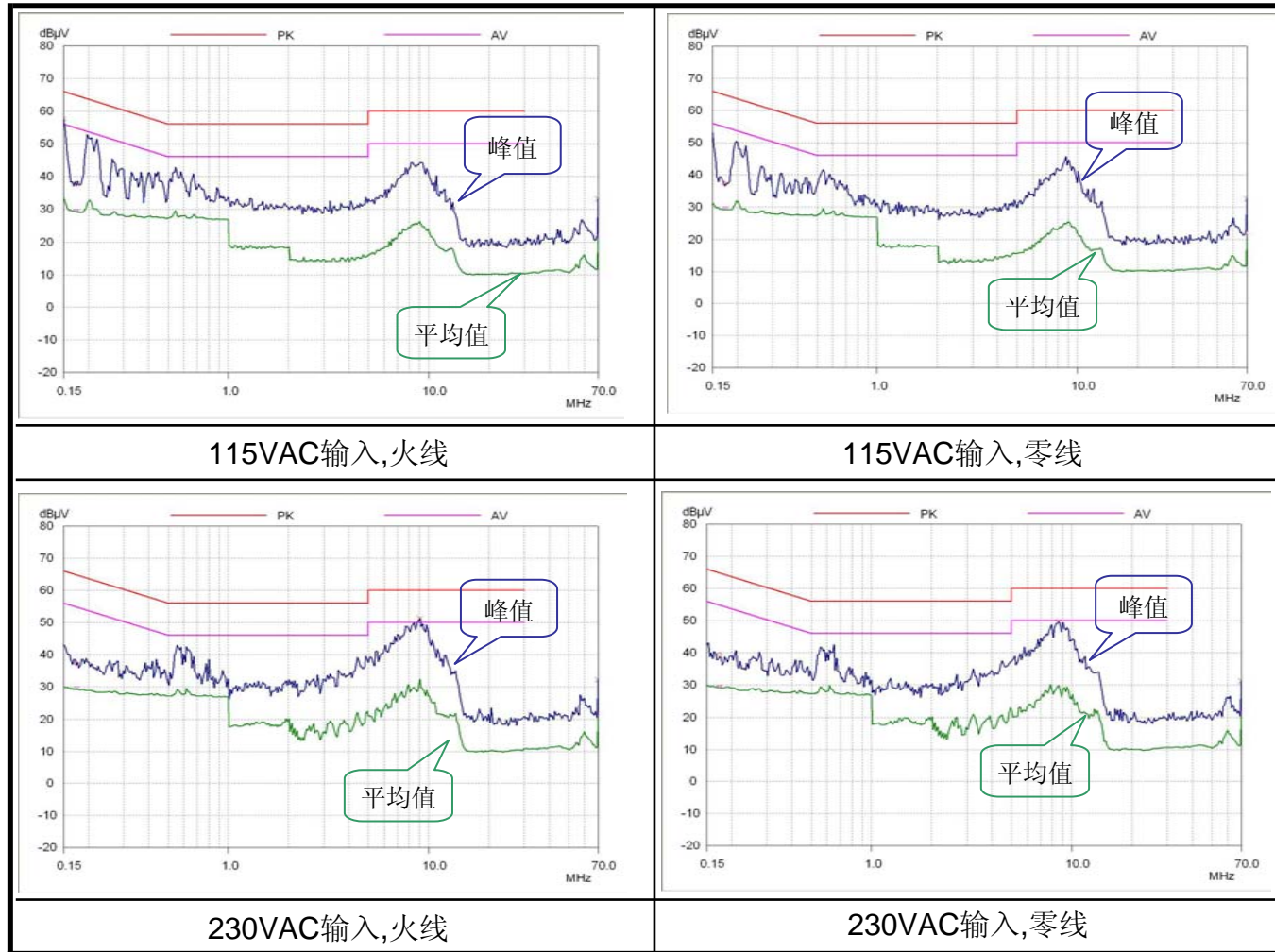


LNK-II 最大允许数据值表 — — — — — (LNK606DG)

Absolute Maximum Ratings ^{1,4)}		Lead Temperature ³⁾260 °C	
DRAIN Voltage	-0.3 V to 700 V	Notes:	
DRAIN Peak Current: LNK603/613	320 (480) mA ²⁾	1. All voltages referenced to SOURCE, T _a = 25 °C.	
LNK604/614	400 (600) mA ²⁾	2. Duration not to exceed 2 msec.	
LNK605/615	504 (750) mA ²⁾	3. 1/16 in. from case for 5 seconds.	
LNK606/616	654 (980) mA ²⁾	4. The higher peak DRAIN current is allowed while the DRAIN voltage is simultaneously less than 400 V.	
Peak Negative Pulsed Drain Current	-100 mA ²⁾	5. Maximum ratings specified may be applied, one at a time without causing permanent damage to the product. Exposure to Absolute Maximum ratings for extended periods of time may affect product reliability.	
Feedback Voltage	-0.3 V to 9 V		
Feedback Current	100 mA		
BYPASS Pin Voltage	-0.3 V to 9 V		
Storage Temperature	-65 °C to 150 °C		
Operating Junction Temperature.....	-40 °C to 150 °C		
Thermal Impedance			
Thermal Impedance: P or G Package:		Notes:	
(θ _{JA})	70 °C/W ³⁾ ; 60 °C/W ³⁾	1. Measured on pin 8 (SOURCE) close to plastic interface.	
(θ _{JC}) ³⁾	11 °C/W	2. Soldered to 0.36 sq. in. (232 mm ²), 2 oz. (610 g/m ²) copper clad.	
D Package:		3. Soldered to 1 sq. in. (645 mm ²), 2 oz. (610 g/m ²) copper clad.	
(θ _{JA})	100 °C/W ³⁾ ; 80 °C/W ³⁾		
(θ _{JC}) ³⁾	30 °C/W		

10. 传导电磁干扰测试 (峰值和平均值)

工程报告 (使用LNK606DG芯片设计的 23V 300mA LED 驱动电源)



China Sale Contacts and Important Note

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工程报告 (使用LNK606DG芯片设计的 23V 300mA LED 驱动电源)

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Important note

Although this board is designed to satisfy safety isolation requirements, the engineering prototype has not been agency approved. Therefore, all testing should be performed using an isolation transformer to provide the AC input to the prototype board.

The products and applications illustrated herein (including circuits external to the products and transformer construction) may be covered by one or more U.S. and foreign patents or potentially by pending U.S. and foreign patent applications assigned to Power Integrations. A complete list of Power Integrations' patents may be found at www.powerint.com.