



芯瑞科技股份有限公司
Shamrock Micro Devices Corp.

Cost Effective Solution for E27 CE module

FAE leader: Rex Peng

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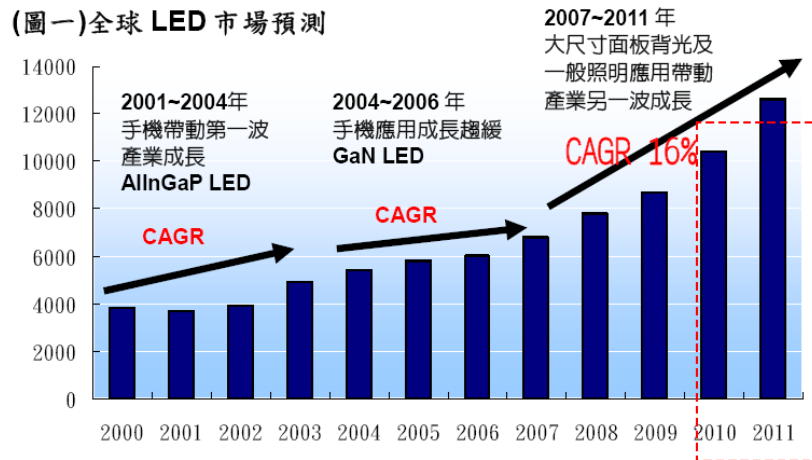


Agenda

- Market survey
- Topology comparison
- Cost effective design
- CE consider
- Best performance
- Q & A

Market survey

- Commercial & Manufacturers indicate building
- CE & Safety require for more confidence
- Market & WLED price drop
- Energy star AUG,2010 PFC>0.7

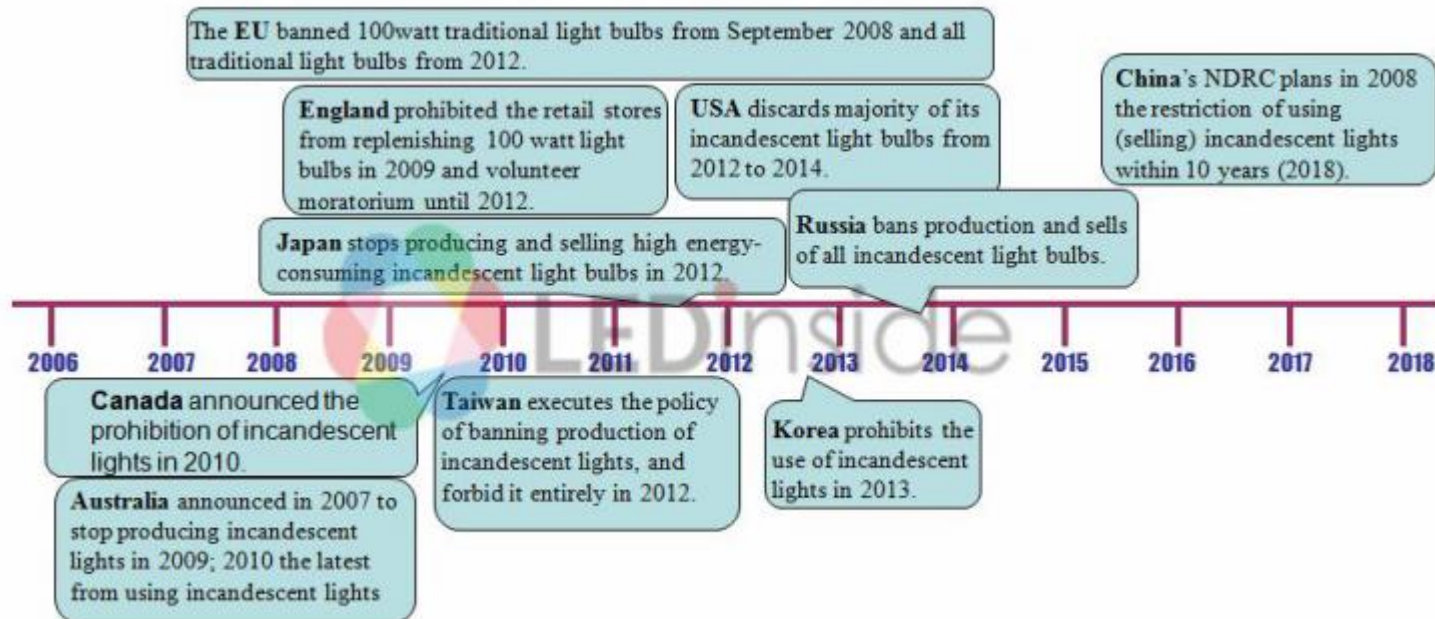


來源：IEK；一銀投顧彙整(2008/10)



Market survey (2)

- 2014 stop incandescent lamp product



Market survey (3)

- USA lighting Facts Label



至 2010 年 4 月 1 日 為 止 ， 共 有 300 家 製 造 廠 商 、 85 家 通 路 商 及 100 家 相 關 業 者 包 括 506 個 產 品 已 參 與 。

Lighting Facts Partners & Product count

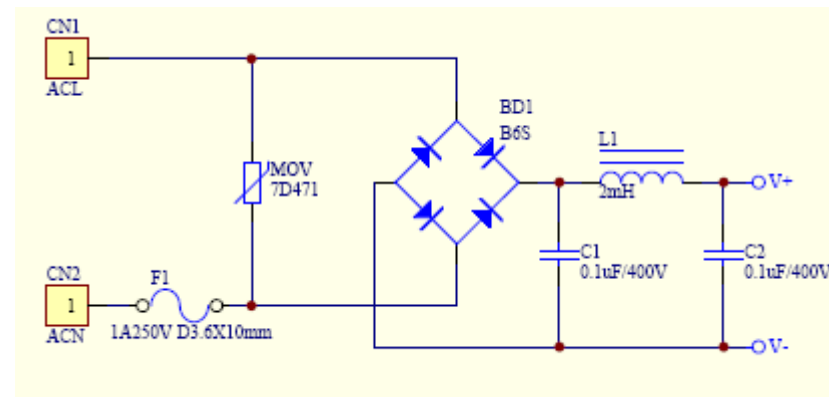
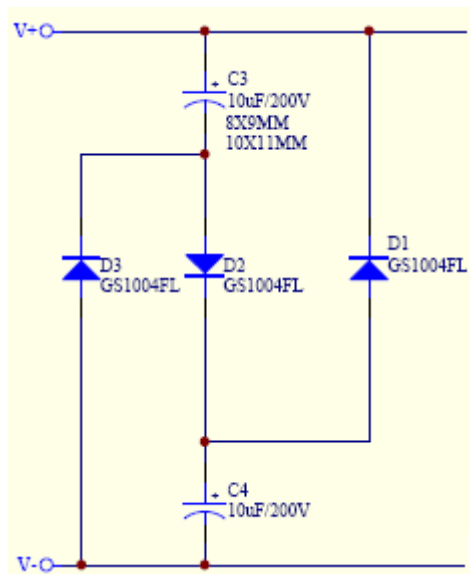
Manufacturers	Retailers & Distributors	Lighting Pros	Products
300	85	100	506

Market survey (4)

- JAPAN .. Government grants 40%

Conventional Lighting						LED Lighting				
	Type	W	Lux	Lm/W	Price (USD)	Type	W	Lux	Lm/W	Price (USD)
Incandescent lamp		40	400~500	10~20	<1		<10W	150~600	60~80	15~30
Fluorescent lamp		11~18	650~870	50~60	2~3		10~20W	650~1000	60~80	20~40
Fluorescent tube		10~16	1100	70~80	4~5		>20W	>1000	60~80	80~120

- Valley Filling PFC 0.87
- High Efficiency 87% with CE solution





Cost effective design

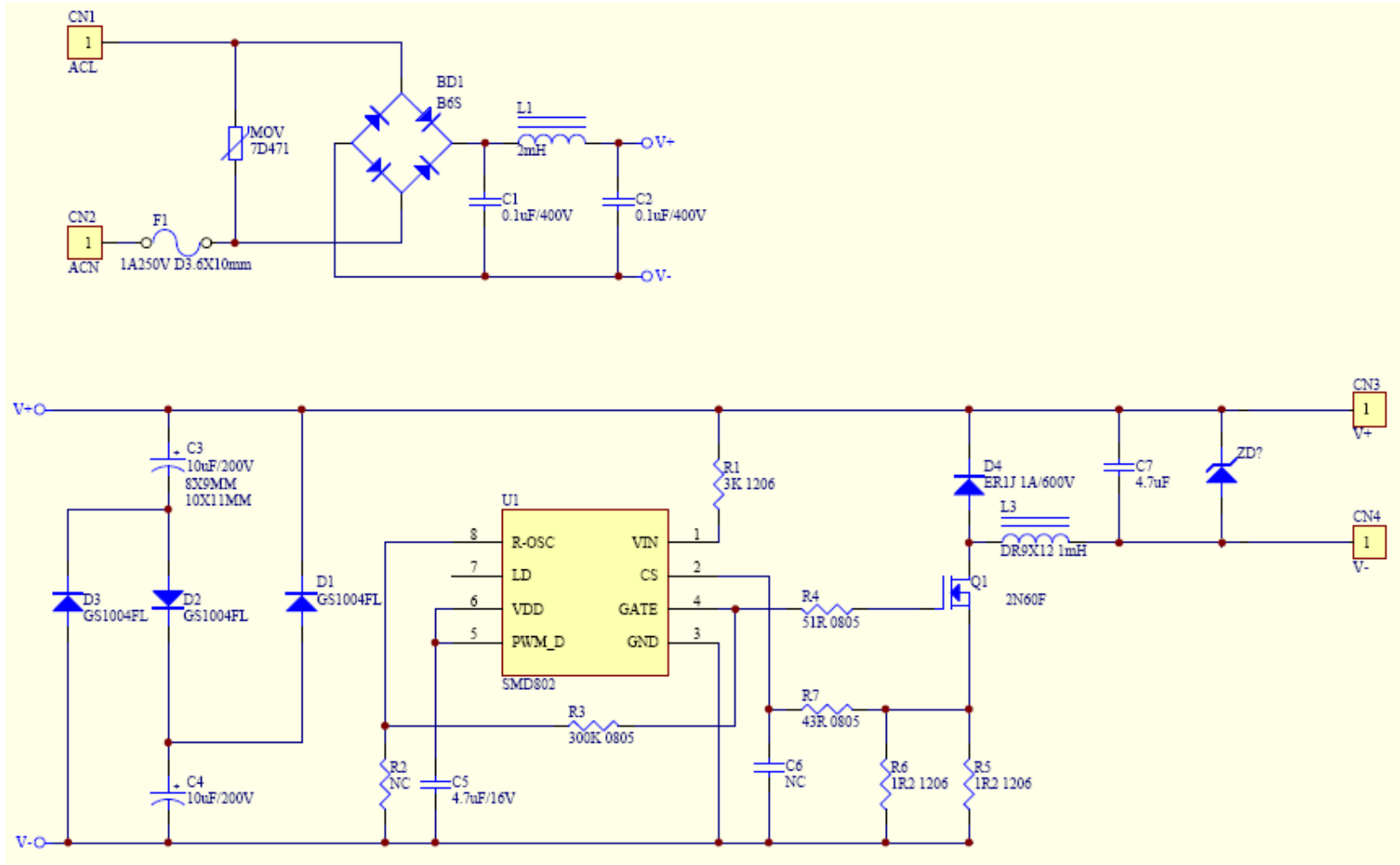
- No photo coupler
- DR core
- No Heat Sink
- Resistor type inductance
- No Y-CAP & Common choke
- 35X19X16mm (L x W x H) dimension

CE consider

- Surge
- ESD
- EFT
- EMI

Test specifications	:	
Emissions	:	EN 55015:2006/A1:2007 IEC 61000-3-3:2008
Immunity	:	IEC 61000-4-2:2008 IEC 61000-4-3:2006/A1:2007 IEC 61000-4-4:2004 IEC 61000-4-5:2005 IEC 61000-4-6:2008 IEC 61000-4-8:1933/A1:2000 IEC 61000-4-11:2004
Regulations applied	:	EN 55015:2006/A1:2007 EN 61547:1995/A1:2000

Schematic





SMD

Best performance

- 15mA current tolerance
- Thermal < 75 deg C
- PFC > 0.85
- Efficiency > 85%
- CE solution meet

