



吉遠電子科技
JiYuan Electronics & Technology

苏州吉远电子科技有限公司

SMPS Solutions with On-Bright Power IC



吉远科技 科技节源



Energy Star and CEC for EPS

- **EPS: Single Voltage External AC-DC and AC-AC Power Supplies**
- **Energy Star 比CEC和The Federal Standard要严格**
- **能效标准:**
 - AC input 115/230V, 25%、50%、75%、100%负载的效率平均值大于规定值**
- **Energy Consumption for No Load**
 - 空载功耗小于规定值**
- **PF:**
 - $P_{in} \geq 100W$ 的产品,100%负载时, $PF \geq 0.9$**



Energy Star and CEC for EPS

EPA ENERGY STAR Version 2.0 EPS Voluntary Specification
(Effective November 1, 2008)

*Energy-Efficiency Criteria for Ac-Ac and Ac-Dc External Power Supplies
in Active Mode: Standard Models*

Nameplate Output Power (P_{no})	Minimum Average Efficiency in Active Mode (expressed as a decimal)
0 to \leq 1 watt	$\geq 0.480 * P_{no} + 0.140$
> 1 to \leq 49 watts	$\geq [0.0626 * \ln(P_{no})] + 0.622$
> 49 watts	≥ 0.870

*Energy-Efficiency Criteria for Ac-Ac and Ac-Dc External Power Supplies
in Active Mode: Low Voltage Models*

Nameplate Output Power (P_{no})	Minimum Average Efficiency in Active Mode (expressed as a decimal)
0 to \leq 1 watt	$\geq 0.497 * P_{no} + 0.067$
> 1 to \leq 49 watts	$\geq [0.0750 * \ln(P_{no})] + 0.561$
> 49 watts	≥ 0.860

$V_o < 6V$ & $I_o > 550mA$
 低压大电流，能量
 损耗大，标准宽松

Energy Consumption Criteria for No-Load

Nameplate Output Power (P_{no})	Maximum Power in No-Load	
	AC-AC EPS	AC-DC EPS
0 to $<$ 50 watts	≤ 0.5 watts	≤ 0.3 watts
≥ 50 to ≤ 250 watts	≤ 0.5 watts	≤ 0.5 watts



Energy Star and CEC for EPS

CEC Tier II EPS Standard and Federal Standard for EPS
(Both Effective July 1, 2008)

Energy-Efficiency Criteria for Active Mode

Nameplate Output Power (P_{no})	Minimum Average Efficiency in Active Mode (expressed as a decimal)
< 1 watt	$\geq 0.50 * P_{no}$
≥ 1 to ≤ 51 watts	$\geq [0.09 * \ln(P_{no})] + 0.50$
> 51 watts	≥ 0.85

Energy Consumption Criteria for No Load

Nameplate Output Power (P_{no})	Maximum Power in No-Load
Any output	≤ 0.5 watts



AC/DC 系列应用方案

功率范围	电源适配器	充电器	机顶盒/DVD/DVB	待机电源
1-5W	OB2211/H OB2520/D/M OB2531/2/5	OB2520/D/M OB2531/2/6	OB2353/L	OB2211/H OB2520/D/M OB2531/2/5
1-10W	OB2212 OB2520M OB2531/2/6	OB2520M OB2531/2	OB2354/L OB5222	OB2212 OB2520M OB2531/2/6
10-20W	OB2216 OB2520M OB2531/2/8/9 OB522X	OB2520M OB2531/2	OB2358/L OB5225	OB2216 OB2520M OB2531/2/8/9
<75W	OB2273 Series OB5269 Series OB6663	--	--	--
功率范围	液晶电视电源			
<40W	OB2263、OB2273 Series、OB5269B			
<100W	OB2269、OB5269 Series、OB2203			
<200W	OB2202、OB6563+OB2203、OB6563+OB2269			

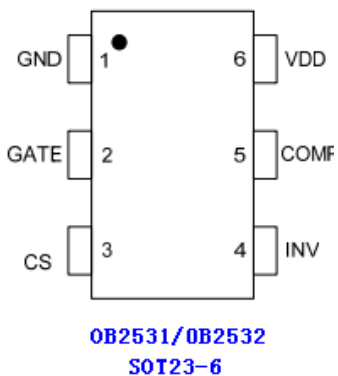


1-10W AC/DC PWM IC

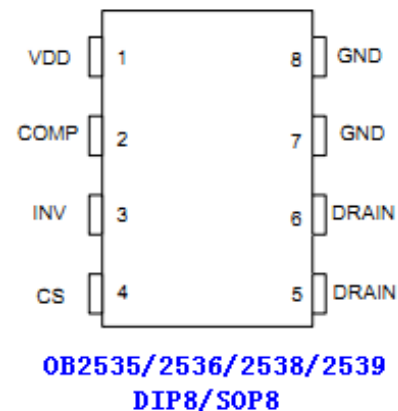
		高压启动	PWM功率开关	最大输出功率 (全电压)	最大输出功率 (定电压)	CV	CC	工作频率	待机功耗	原边电感补偿	Cable补偿	封装	
原边方案	OB2211	N	Y	4.5W	7W	20%	25%	50KHZ	<0.3W	N	N	DIP8/SOP8	
	OB2211H			5W	10W	20%	20%	50KHZ					
	OB2212			9W	16W	20%	20%	50KHZ					
	OB2531	N	外驱	适用20W以下	--	5%	5%	90KHZ	<0.2W	Y	Y	SOT23-6	
	OB2532		外驱		--	5%	5%	50KHZ				SOT23-6	
	OB2535		Y	5W	10W	5%	10%	50KHZ				DIP8/SOP8	
	OB2536		外驱	9W	16W	5%	5%	90KHZ				SOT23-6	
	OB2520	N	外驱BJT	5W	--	5%	6%	100KHZ	<0.03W	Y	Y	SOT23-6	
	OB2520D		外驱BJT	5W	--	5%	6%	100KHZ					<0.15W
	OB2520M		外驱MOSFET	18W	--	5%	6%	100KHZ					<0.2W
	OB5222	Y	Y	适用10W以下	--	--	--	65KHZ	<0.03W	--	--	DIP8	
	OB5225			适用20W以下	--	--	--	65KHZ	<0.05W	--	--	DIP8	
次边方案	OB2353	N	Y	5W	10W	--	--	50KHZ	<0.3W	N	N	DIP8/SOP8	
	OB2354			9W	16W	--	--	50KHZ					

CC/CV Charger Module Using OB253X

- 原边方案，无光耦和TL431
- 全电压范围CV精度为+/-5%
- 可编程的CC CV
- 可调的CC点和输出功率
- 内建原边电感补偿
- 可编程输出线压降补偿
- 内建软启动
- 内建前沿消隐
- 内置频率抖动, 改善EMI
- 逐周过电流保护
- VDD欠压滞锁定UVLO
- VDD OVP
- VDD Clamp

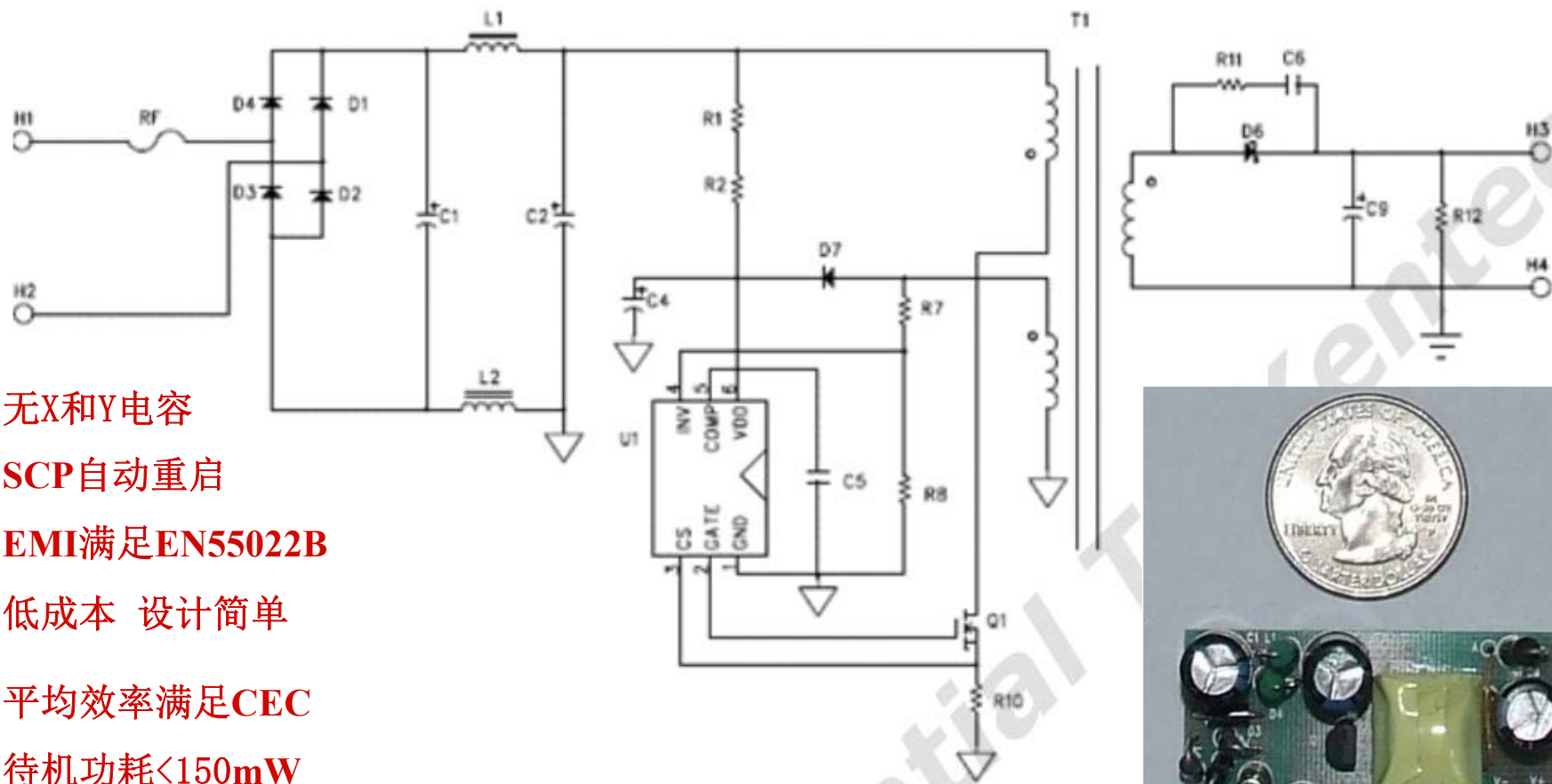


Device	MOSFET R _{dson} (ohm)	Package	Max Pout(W) ^{note}	Max Pout(W) (85~264V)	Frequency
OB2531	External	SOT23-6	--	--	90KHz
OB2532	External	SOT23-6	--	--	50KHz
OB2535/E	12	SOP8	10	5	50KHz
OB2536/E	12	DIP8	16	9	50KHz
OB2538/E	5	DIP8	20	15	50KHz
OB2539	5	DIP8	18	13	90KHz





5V/0.5A 2.5W CC/CV Charger Module Using OB2532



无X和Y电容

SCP自动重启

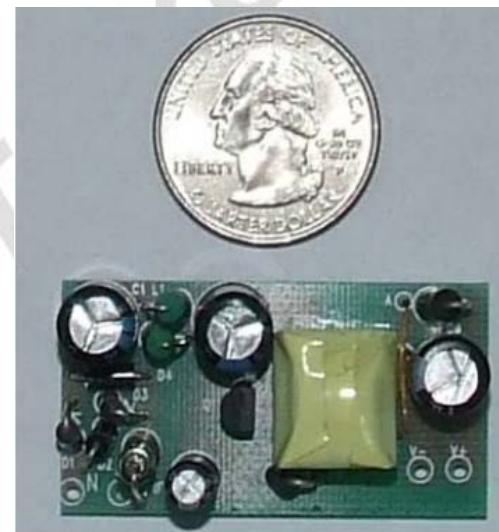
EMI满足EN55022B

低成本 设计简单

平均效率满足CEC

待机功耗<150mW

Only 21 Components





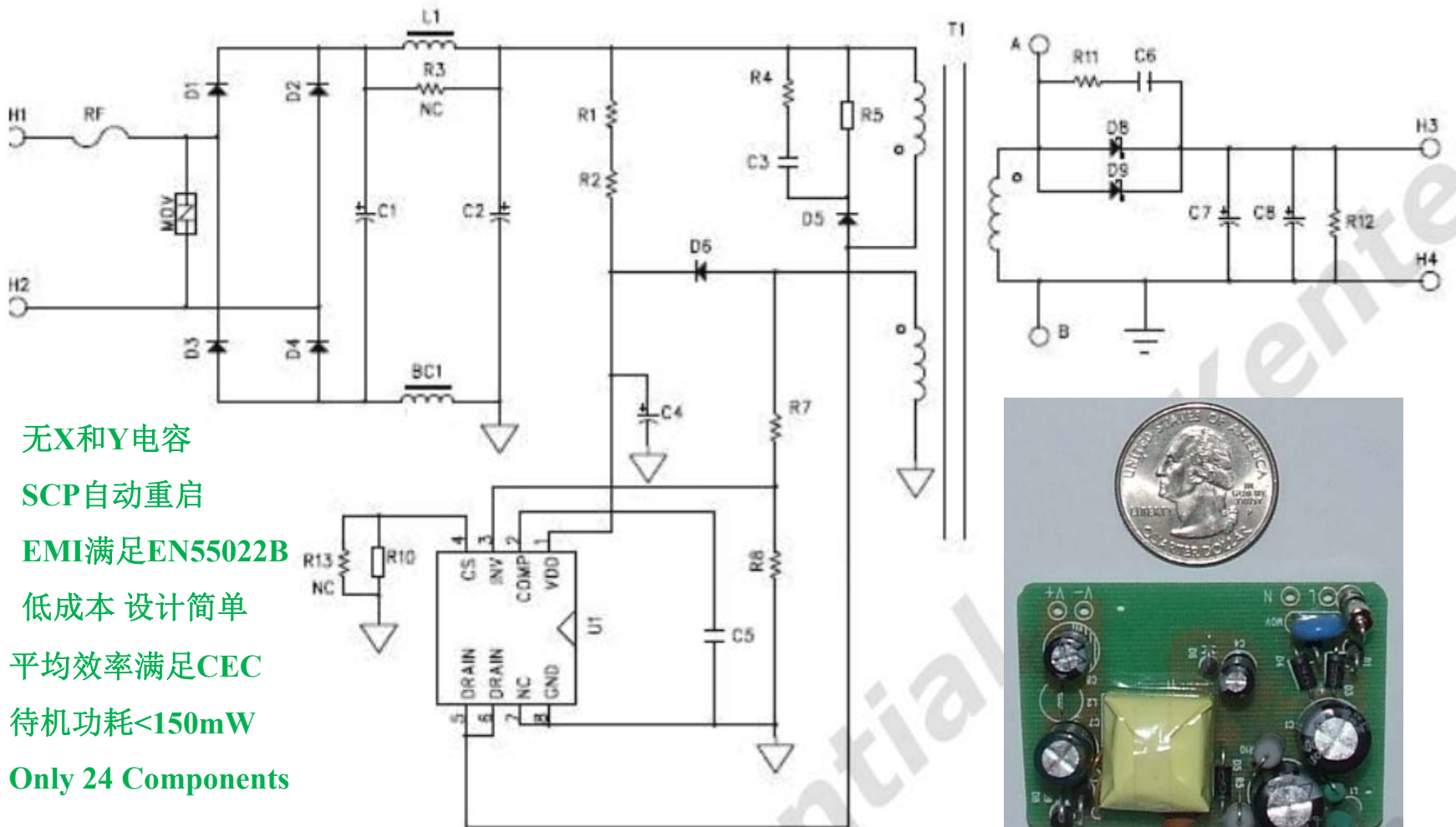
5V/0.5A 2.5W CC/CV Charger Module Using OB2532

Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	65mA Max
Standby power at no load (264Vac,50Hz)	0.120W
Average Efficiency (230Vac, 25%/50%/75%/100%)	69.19%
2 .Output characteristics	
Line regulation	0.95%
Load regulation	±1.7%
CC regulation	±10%
Ripple & noise	100mV Max
Over shoot	<5%
Dynamic test	±315mV
3. Time sequence (100Vac with Full load)	
Turn on delay time	1.65S
Hold up time	13.2mS
Rise time	25.7mS
Fall time	8.8mS



5V/1A 5W CC/CV Charger Module Using OB2535



- 无X和Y电容
- SCP自动重启
- EMI满足EN55022B
- 低成本 设计简单
- 平均效率满足CEC
- 待机功耗<150mW
- Only 24 Components





5V/1A 5W CC/CV Charger Module Using OB2535

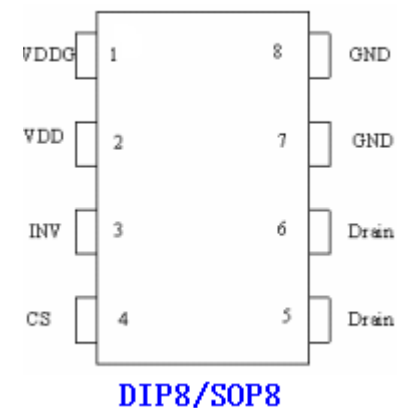
Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	140mA Max
Standby power at no load (264Vac, With dummy resistor 390R)	0.140W
Average Efficiency (230Vac, 25%/50%/75%/100%)	72.82%
2 .Output characteristics	
Line regulation	0.72%
Load regulation	2.9%
CC regulation	6%
Ripple & noise	100mV Max
Over shoot	<1%
Dynamic test	±310mV
3. Time sequence (100Vac with Full load)	
Turn on delay time	1.91S
Hold up time	11.92mS
Rise time	12.15mS
Fall time	21.2mS

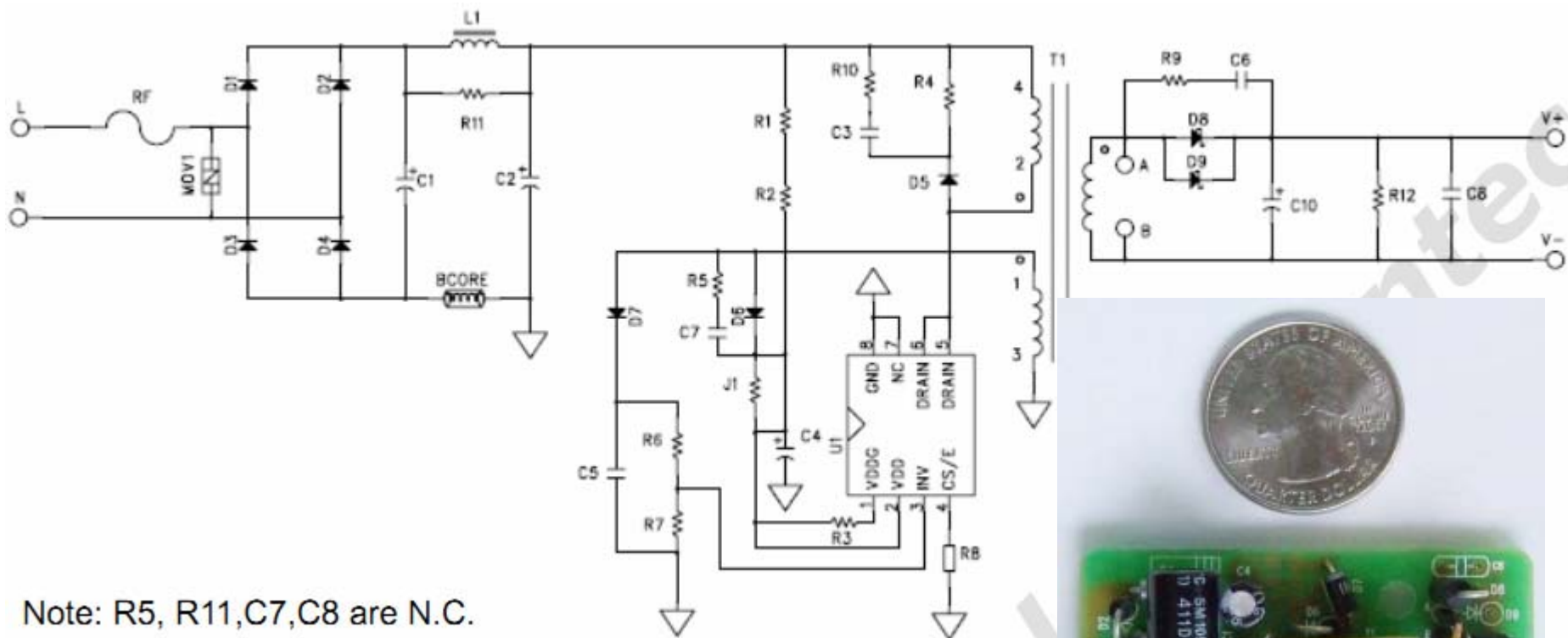
CC/CV Charger Module Using OB221X

- 原边方案，无光耦和TL431
- CV模式下工作于多模式状态，提高效率
- 可编程的CC CV
- 可调的CC点和输出功率
- 频率抖动和可调的栅极驱动，大大改善EMI
- 内建软启动(4ms)
- 扩展Burst mode提高效率，降低待机功耗
- NO-X和NO-Y设计
- 内建前沿消隐
- 内置频率抖动, 改善EMI
- 逐周过电流保护
- VDD欠压滞锁定UVLO
- VDD OVP
- VDD Clamp

Device	MOSFET R _{dson} (ohm)	Package	Max Pout(W) ^{note}	Max Pout(W) (85~264V)
OB2211	12	SOP8	7	4.5
OB2211H	12	SOP8	10	5
OB2212	12	DIP8	16	9
OB2216	5	DIP8	20	12



5V/1A 5W CC/CV Charger Module Using OB2211H



无X和Y电容

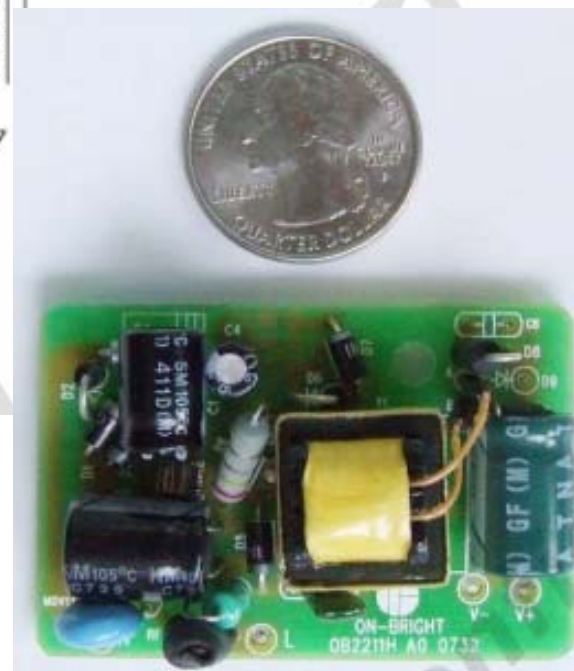
满载效率>65%

SCP自动重启

待机功耗<300mW

EMI满足EN55022B

Only 25 Components





5V/1A 5W CC/CV Charger Module Using OB2211H

Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	140mA Max
Standby power at no load (264Vac, With dummy resistor 390R)	0.260W
Average Efficiency (264Vac, 25%/50%/75%/100%)	67.75%
2. Output characteristics	
Line regulation	2%
Load regulation	20%
Ripple & noise	100mV Max
Over shoot	5% Max
Under shoot	
Dynamic test	±297mV
3. Time sequence (100Vac with Full load)	
Turn on delay time	1.27S
Hold up time	11.41mS
Rise time	9.59mS
Fall time	3.04mS



10W-45W AC/DC PWM IC

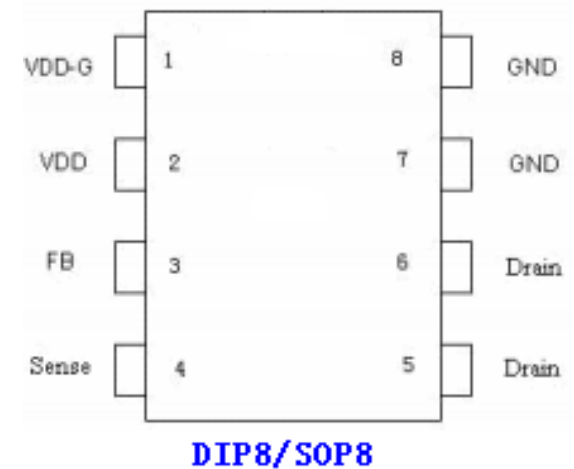
		高压启动	PWM功率开关	最大输出功率(全电压)	最大输出功率(定电压)	CV	CC	工作频率	待机功耗	原边电感补偿	Cable补偿	封装
原边方案	OB2216	N	Y	12W	20W	20%	20%	50KHZ	<0.3W	N	N	DIP8/SOP8
	OB2531	N	外驱	适用20W以下	--	5%	5%	90KHZ	<0.2W	Y	Y	SOT23-6
	OB2532		外驱		--	5%	5%	50KHZ				
	OB2538		Y	12W	20W	5%	10%	50KHZ				DIP8/SOP8
	OB2539		Y	13W	18W	5%	10%	90KHZ				
	OB2520M	N	外驱 MOSFET	18W	--	5%	6%	100KHZ	<0.2W	Y	Y	SOT23-6
	OB5225	Y	Y	适用20W以下	--	--	--	65KHZ	<0.05W	--	--	DIP8
次边方案	OB2358	N	Y	12W	27W	--	--	50KHZ	<0.3W	N	N	DIP8/SOP8

		最大输出功率(全电压)	高压启动	工作频率	待机功耗	频率抖动	OTP	Brownout	封装	
PWM Flyback	OB5269	70W	Y	65KHZ	<0.1W	Y	Y	N	SOP8	
	OB5269B				<0.05W		N	Y		
	OB2262	30W	N	可调	<0.3W	N	N	N	DIP8	
	OB2263				<0.3W		Y		N	SOT23-6
	OB2273	65W	N	65KHZ	<0.1W	Y	Y	N	SOT23-6	
	OB2273A						N	Y		Y
	OB2273B							N		N
	OB2273F							可调		N
	OB2361(多模式)	20W-40W	N	可变	<0.3W	Y	N	N	SOT23-6	
	OB2361P(多模式)				<0.1W					

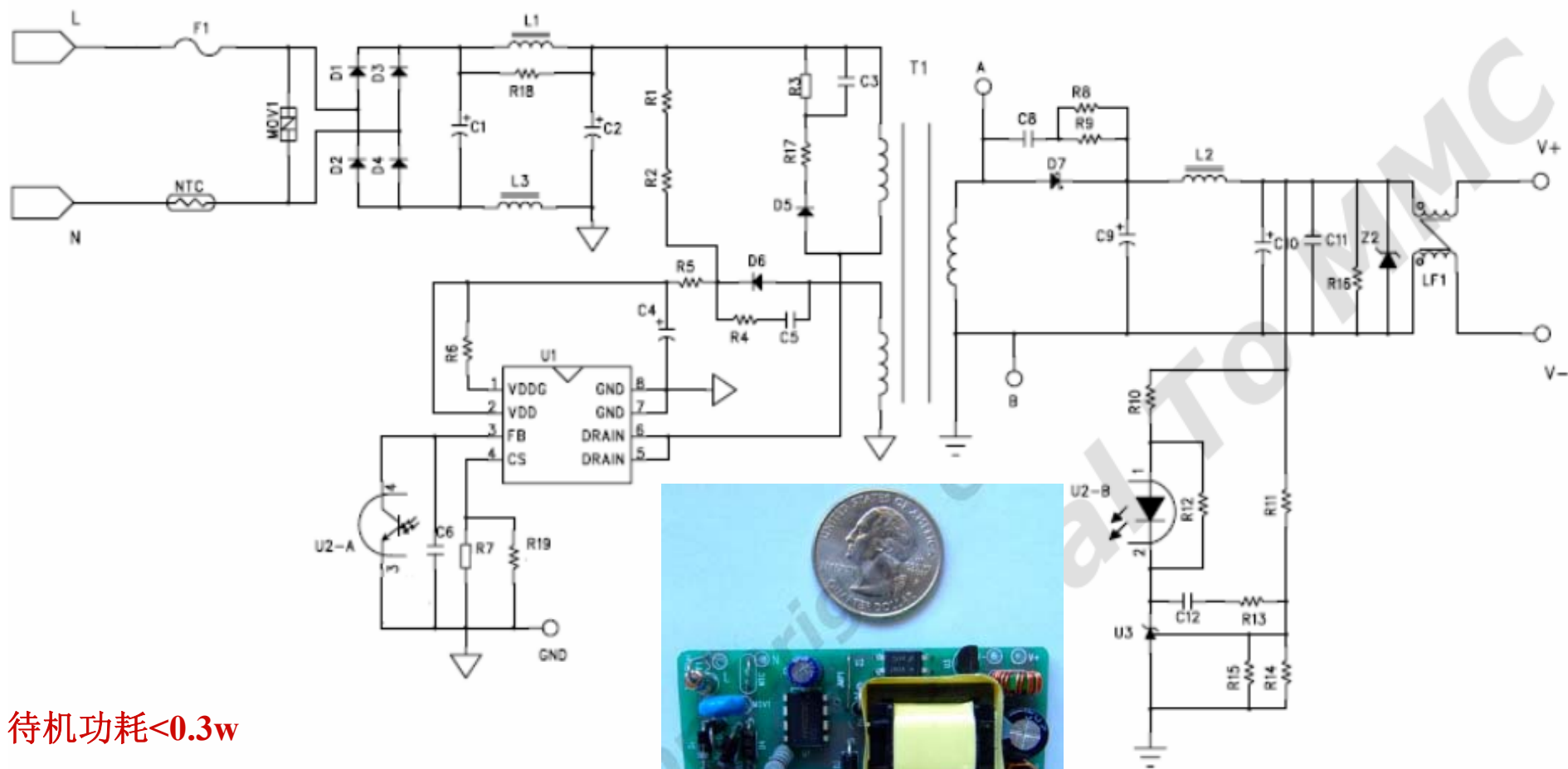
Adapter Module Using OB235X series

- 固定50KHZ开关频率
- 内部同步斜率补偿
- 低VDD启动电流与工作电流
- 频率抖动和外部可调的栅极驱动，大大改善EMI
- 内建软启动(4ms)
- 扩展Burst mode提高效率，降低待机功耗
- 实现20W以下无Y电容
- 内建前沿消隐
- 逐周过电流保护 OLP
- VDD欠压滞锁定UVLO
- VDD OVP & VDD Clamp
- OTP

Device	MOSFET R _{dson} (ohm)	Package	Max Pout(W) ^{note}	Max Pout(W) (85~264V)
OB2353/L	12	SOP8	8	5
OB2354/L	12	DIP8	16	9
OB2356L	12	SOP8	8	6
OB2357L	12	DIP8	14	9
OB2358/L	5	DIP8	27	12
OB2359L	5	DIP8	25	14



12V/1A Adapter Module Using OB2358



待机功耗<0.3w

EMI满足EN55022B和FCC Part Class B



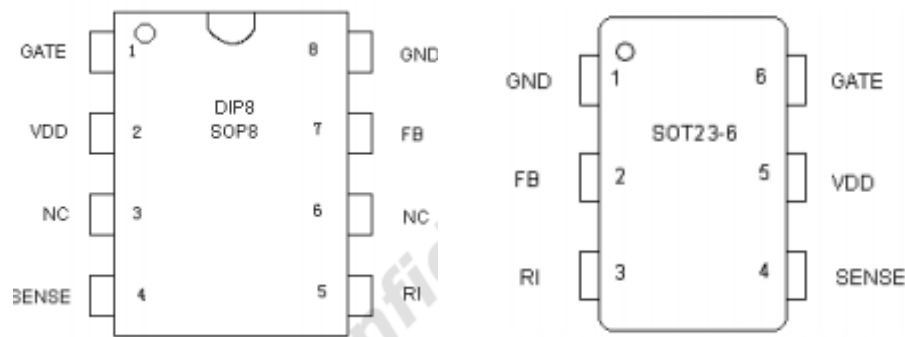
12V/1A 12W Adapter Module Using OB2358

Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	0.32A Max
Standby power at no load (264Vac,)	0.23W
Average Efficiency (264Vac, 25%/50%/75%/100%)	80%
2. Output characteristics	
Line regulation	1%
Load regulation	5%
Ripple & noise	100mV Max
Over shoot	5% Max
Under shoot	
Dynamic test	415mV
3. Time sequence (100Vac with Full load)	
Turn on delay time	907.7mS
Hold up time	23.33mS
Rise time	7.90mS
Fall time	11.20mS

12V/1A 12W Adapter Module Using OB2262/3

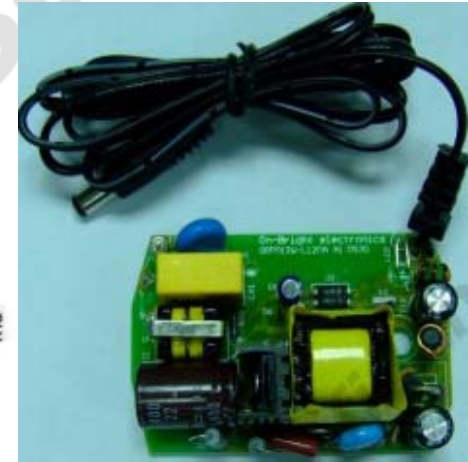
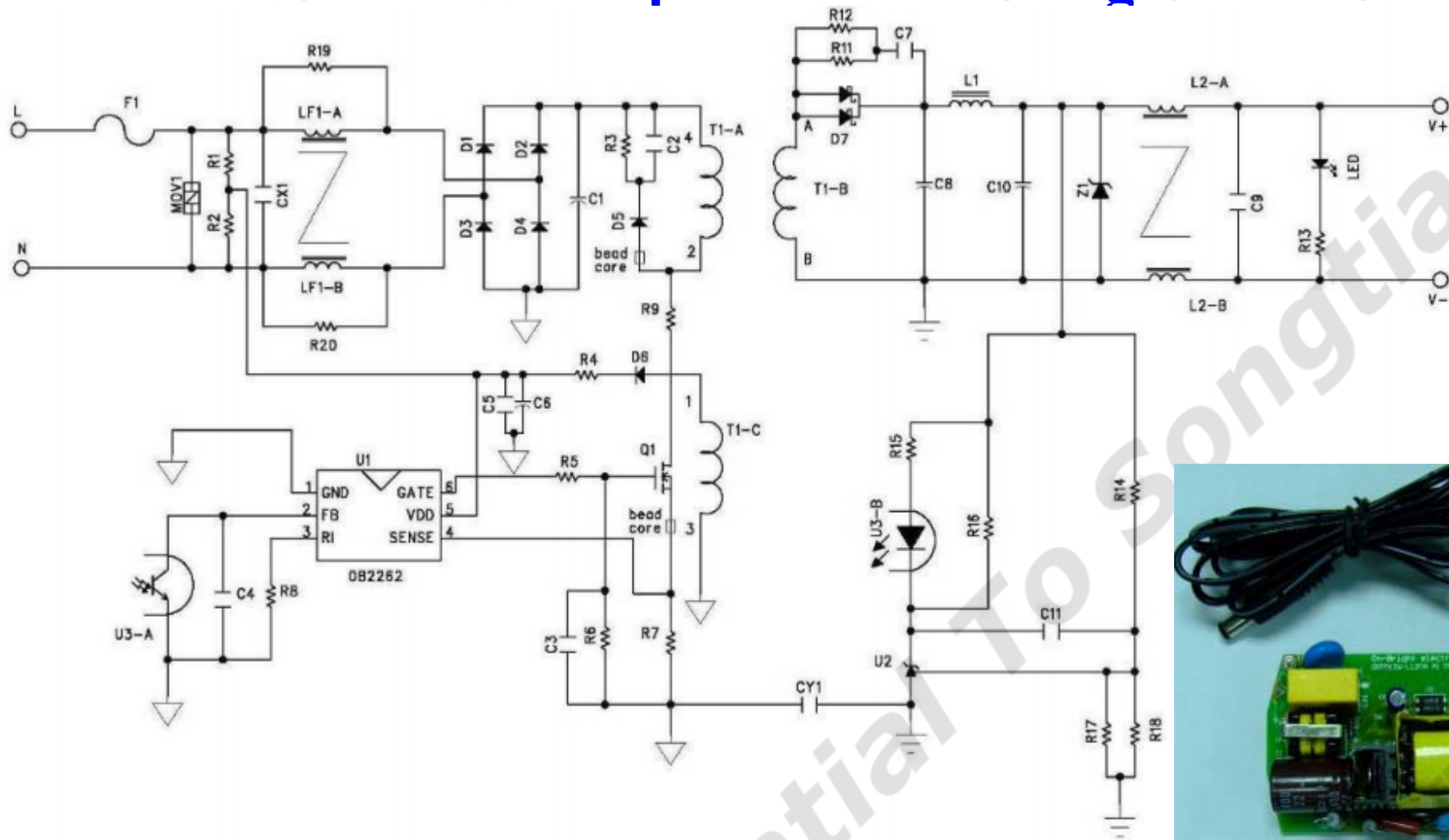
- 外部可编程的PWM开关频率
- 内部同步斜率补偿和OC输入电压补偿
- 低VDD启动电流与工作电流
- 频率抖动改善EMI
- 内建软启动
- 扩展Burst mode提高效率，降低待机功耗
- 内建前沿消隐
- 逐周过电流保护 OLP
- VDD欠压滞锁定UVLO
- VDD OVP & VDD Clamp



Product Number	Topology	Operation Frequency	Max Vdd	Frequency Shuffling	Standby Power	VDD OVP	Power on Soft-start	OLP/SCP	OTP	Brown-out	PFC Control	Package
OB2262	Flyback	External	30V	--	<0.3W	A	Y	A	--	--	--	SOT23-6
OB2263	Flyback	External	30V	Y	<0.3W	A	Y	A	--	--	--	SOT23-6



12V/1A 12W Adapter Module Using OB2262/3



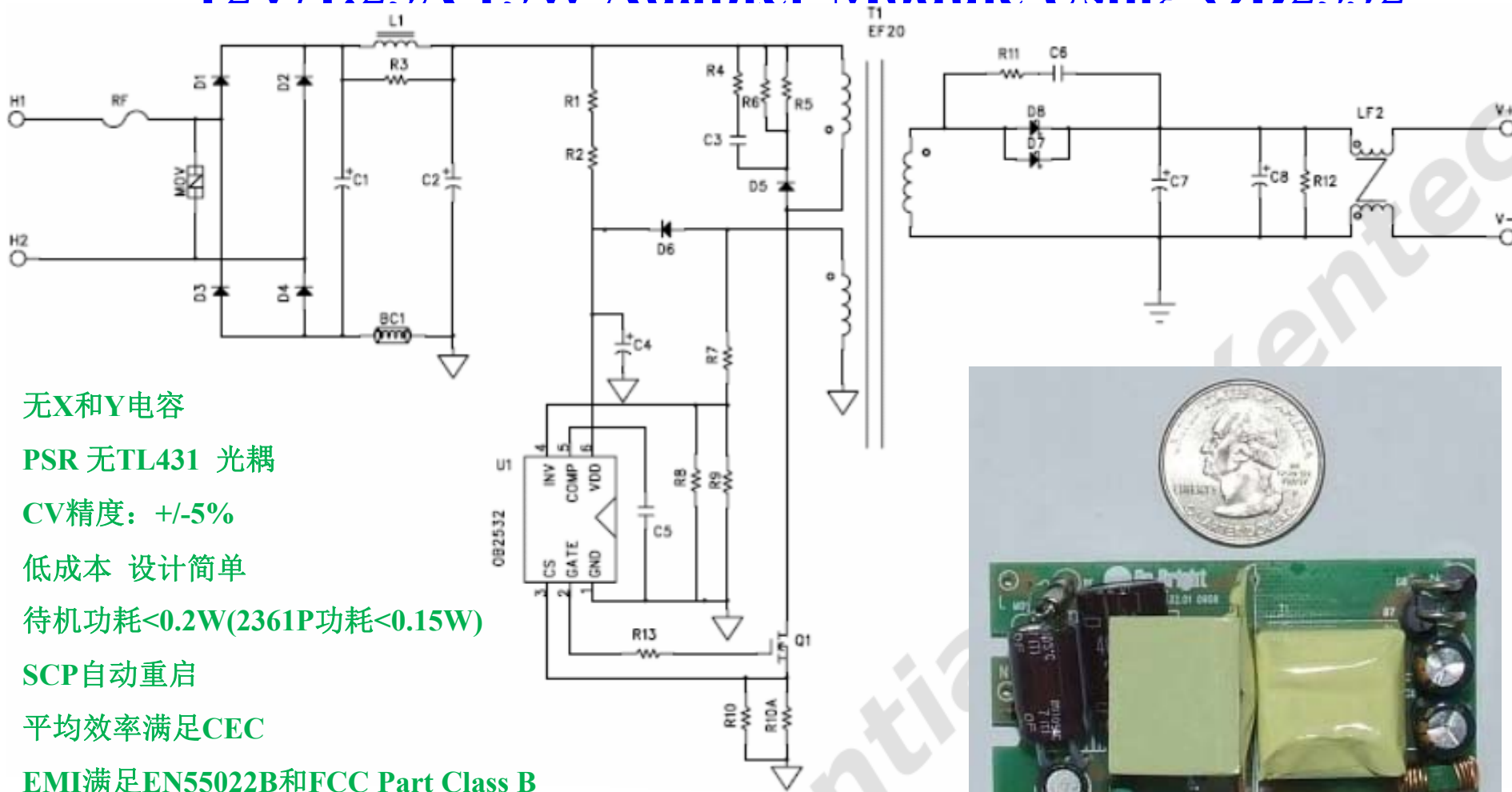


12V/1A 12W Adapter Module Using OB2262/3

Characterization Results Summary

Test Item	Specification	Test result
1. Input characteristic		
Input current	0.45A Max.	0.282A
Standby power (264Vac;no LED)	<0.3W	0.197W
Standby power (264Vac,with LED)	<0.3W	0.242W (LED current 4mA)
Efficiency	>75%	80%
2. Output characteristic		
Line regulation& Load regulation	±1% ±5%	0.008% 0.041%
Ripple & noise	100mV Max	38mV
Over shoot & Under shoot	600mV Max	445mV
Dynamic load voltage	±600mV Max	317mV
3. Time sequence		
Turn on delay time	<1S	655mS
Hold up time	>10mS	10.15mS
Rise time		12mS
Fall time		8mS
4. Protection		
Over voltage protection		Pass
Over current protection		1.18-1.25A
Short Circuit protection		Pass

12V/1.25A 15W Adanter Module Using OB2532



无X和Y电容

PSR 无TL431 光耦

CV精度: +/-5%

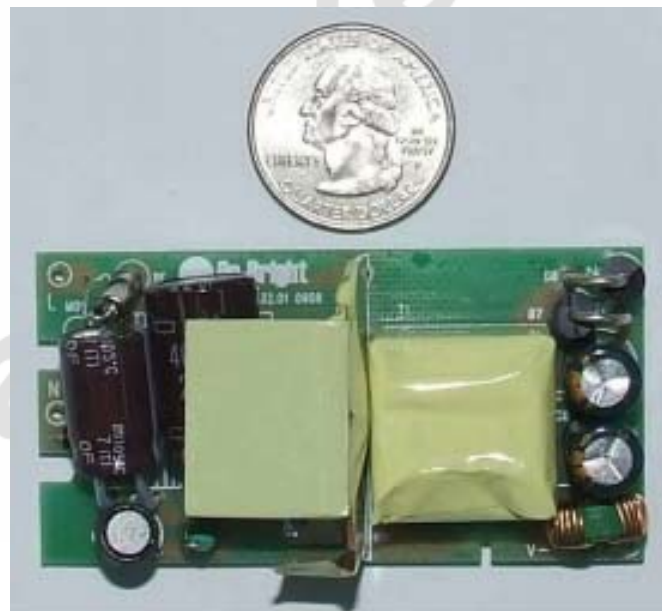
低成本 设计简单

待机功耗<0.2W(2361P功耗<0.15W)

SCP自动重启

平均效率满足CEC

EMI满足EN55022B和FCC Part Class B





12V/1.25A 15W Adapter Module Using OB2532

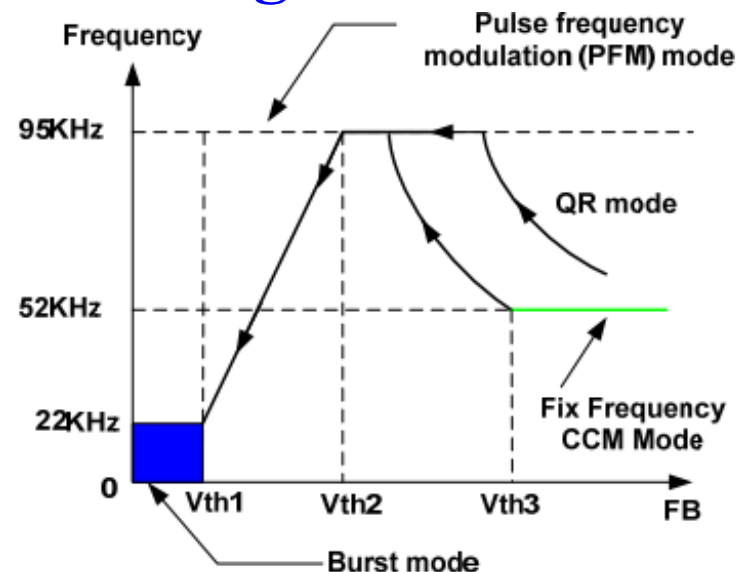
Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	0.36A
Standby power at no load (264Vac,50Hz)	0.19W
Average Efficiency (230Vac, 25%/50%/75%/100%)	80.89%
2. Output characteristics	
Line regulation	0.58%
Load regulation	±1.2%
Ripple & noise	120mV Max
Over shoot	<5%
Dynamic test	±1.19V
3. Time sequence (100Vac with Full load)	
Turn on delay time	1.71S
Hold up time	17mS
Rise time	16mS
Fall time	13mS

12V/2A 24W Adapter Module Using OB2361

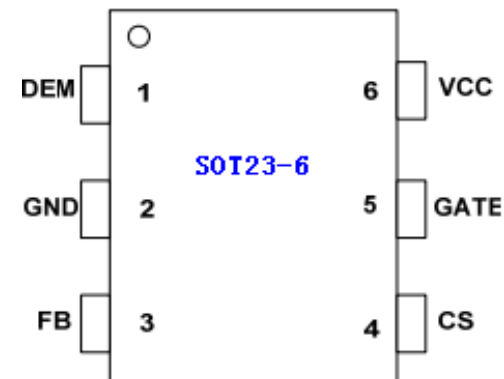
• 多模式工作:

	No Load	Light Load	Normal Load	Full Load
Low Line	Burst Mode	PFM Mode	QR Mode	CCM (52KHZ)
High Line	Burst Mode	PFM Mode	QR Mode	QR Mode



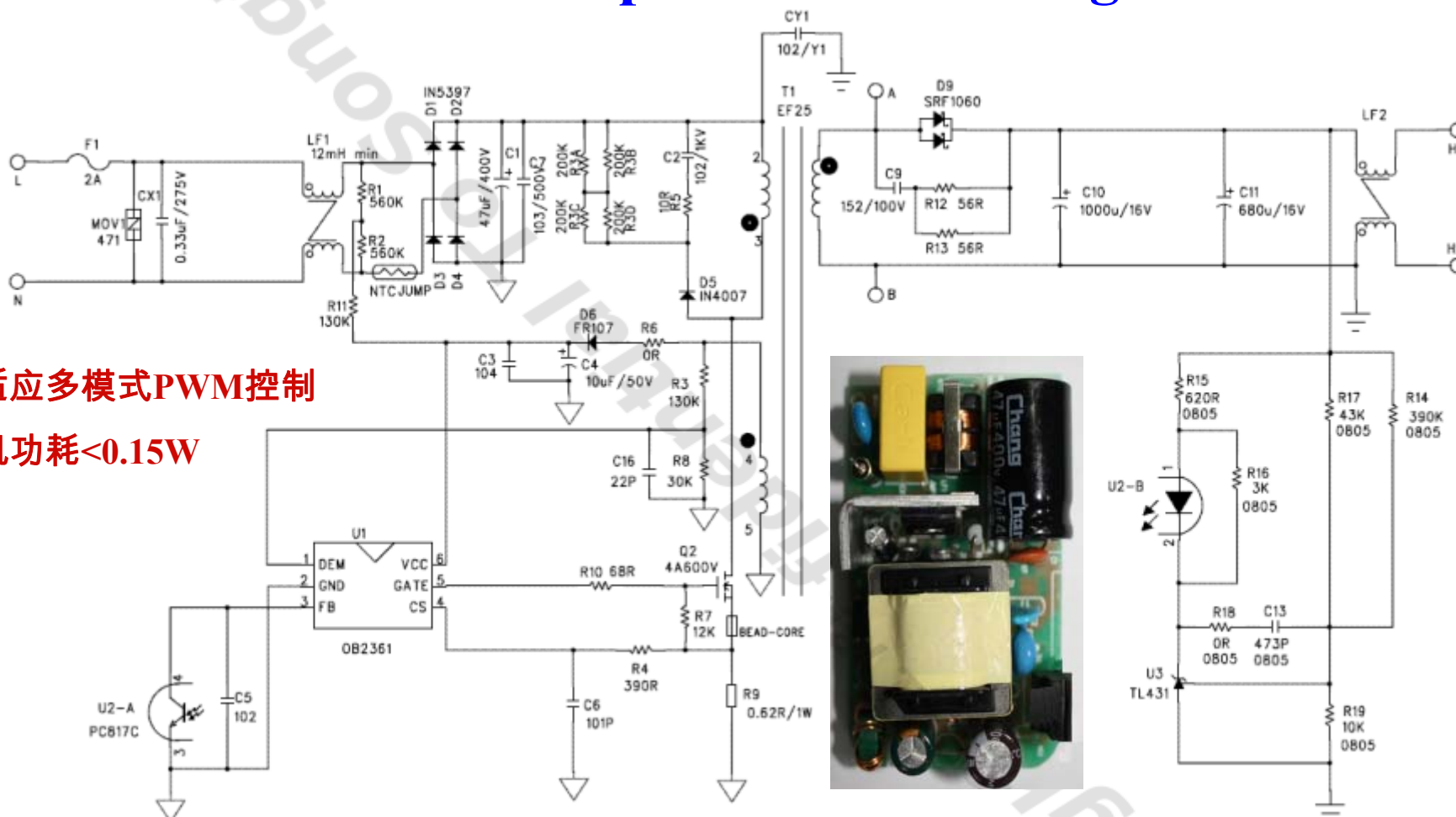
- 内建软启动(4ms)
- 频率抖动改善EMI
- 内建前沿消隐
- OCP补偿
- CS电压斜率补偿

- 逐周过电流保护 OLP
- VDD Clamp/UVLO
- DEM OVP
- Pin open & short 保护
-





12V/2A 24W Adapter Module Using OB2361



自适应多模式PWM控制

待机功耗<0.15W

平均效率满足CEC (3%margin)

EMI pass: EN55022B & FCC Class B



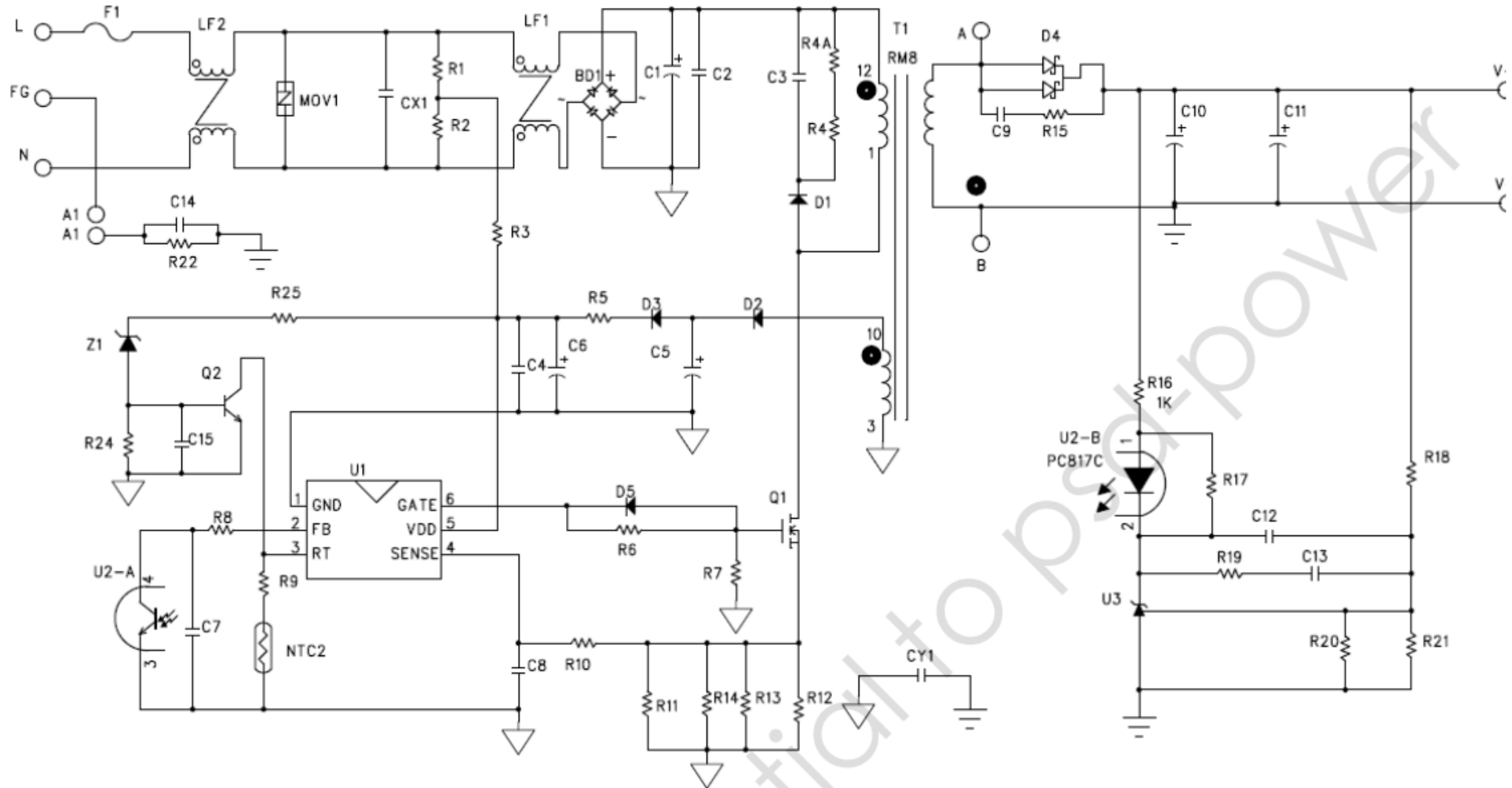
12V/2A 24W Adapter Module Using OB2361

Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	0.54A
Standby power at no load (230Vac)	0.140W
Averaged Efficiency (115Vac / 230Vac)	85.58% / 85.40%
2. Output characteristics	
Line regulation	0.01%
Load regulation	2.27%
Ripple & noise	<120mV
Over shoot	0%
Under shoot	0%
Dynamic test	510mVp-p
3. Time sequence (90Vac, Full load)	
Turn on delay time	1.95S
Hold up time	9.57ms
Rise time	20.09mS
4. Protections	
Over voltage protection	13.78V
Over current protection (90Vac ~264Vac)	3.15A
Short Circuit protection	OK



19V/2.1A 40W Adapter Using OB2273





19V/2.1A 40W Adapter Using OB2273

Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	0.90A Max
Standby power at no load (264Vac)	87mW
Averaged Efficiency (115/230 Vac, 25%~100% load for Cable end)	87.26%/87.40%
2. Output characteristics	
Line regulation	0.1%
Load regulation	1.32%
Ripple & noise	<200mV
Over shoot	5% Max
Dynamic test	±354mV
3. Time sequence (90Vac, Full load)	
Turn on delay time	2.37S
Hold up time	12.20mS(100Vac, full)
4. Protections	
Over Voltage protection	26.8V
Over Current protection (90Vac ~264Vac)	OK
Short Circuit protection	OK
Over Temperature protection	OK



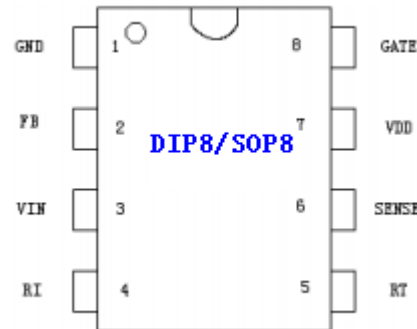
45W-95WAC/DC PWM IC

		最大输出功率 (全电压)	高压 启动	工作频率	待机功耗	频率抖动	OTP	Brownout	PFC control	封装
PWM Flyback	OB5269	70W	Y	65KHZ	<0.1W	Y	Y	N	N	SOP8
	OB5269B				<0.05W		N	Y		
	OB2268	100W	N	可调	<0.3W	N	Y	N	N	DIP8/SOP8
	OB2269	100W		可调		Y				
	OB2273	65W	N	65KHZ	<0.3W	Y	Y	N	N	SOT23-6
	OB2273A						N	Y		
	OB2273B			可调						
	OB2273F									
	OB2278	120W	N	可调	<0.3W	N	Y	N	N	DIP8/SOP8
	OB2279	120W				Y				
OB2298	--	N	65KHZ	<0.3W	Y	Y	Y	Y	DIP8/SOP8	
QR PWM	OB2202	45W-75W	N	130KHZ	--	N	内建	Y	N	DIP8/SOP8
	OB2203	75W-100W			--	N	内建	N	Y	



Adapter Module Using OB2268/2269

- 空载轻载进入Burst mode提高效率，降低待机功耗
- 频率抖动改善EMI（2268无频率抖动）
- 外部可编程的PWM开关频率
- 低VDD启动电流(6.5uA)与工作电流(2.3mA)
- 内部同步斜率补偿
- 内建 OCP补偿
- 内建前沿消隐
- 逐周过电流保护 OLP
- VDD欠压滞锁定UVLO
- VDD OVP & VDD Clamp
- OTP

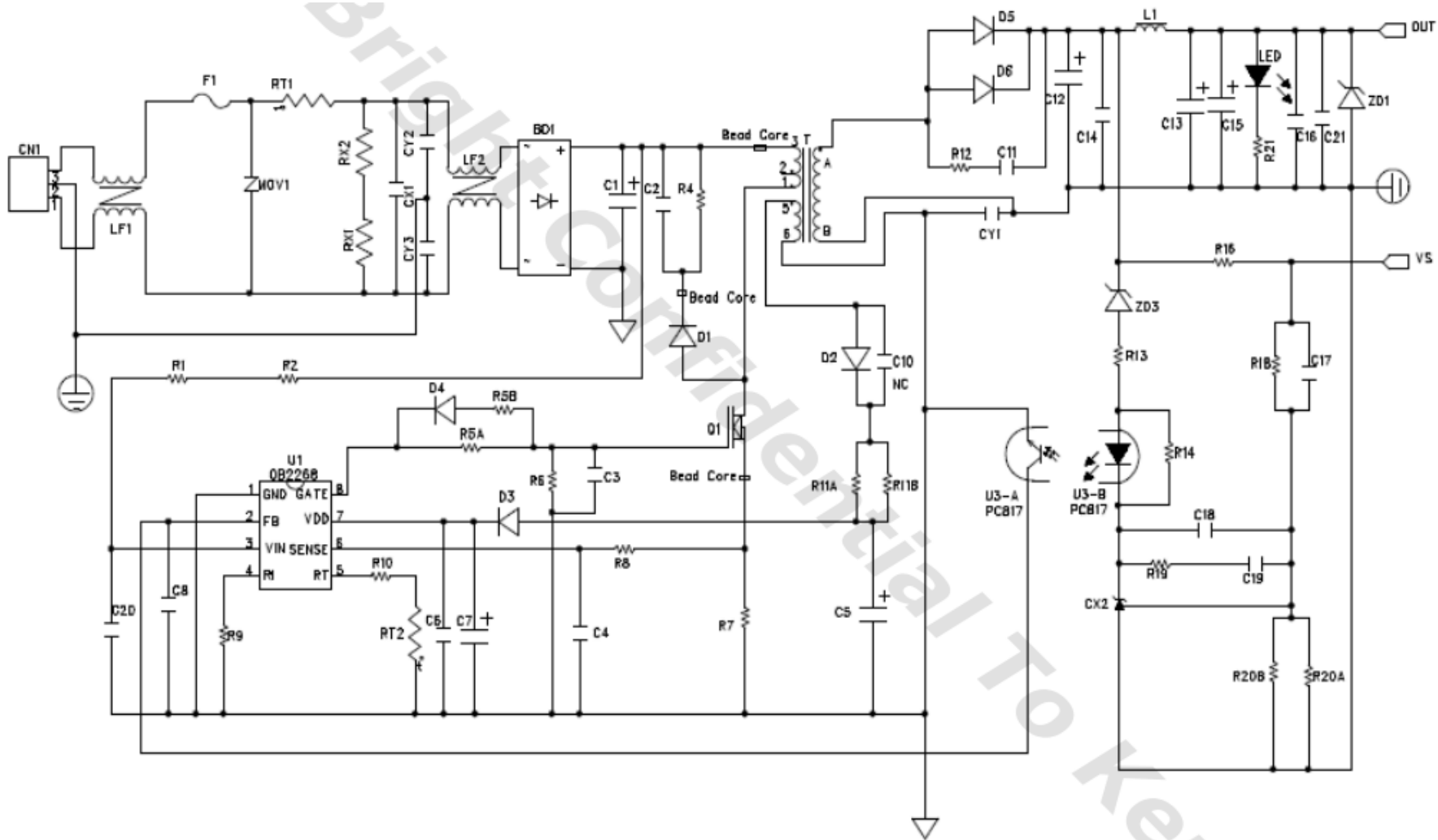


适合输出功率100W

Product Number	Topology	Operation Frequency	Max Vdd	Frequency Shuffling	Standby Power	VDD OVP	Power on Soft-start	OLP/ SCP	OTP	Brown-out	PFC Control	Package
OB2268	Flyback	External	25V	--	<0.3W	A	--	A	A	--	--	SOP8/DIP8
OB2269	Flyback	External	25V	Y	<0.3W	A	--	A	A	--	--	SOP8/DIP8



16V/3.5A 56W Adapter Using OB2268/2269





16V/3.5A 56W Adapter Using OB2268/2269

Characterization Results Summary

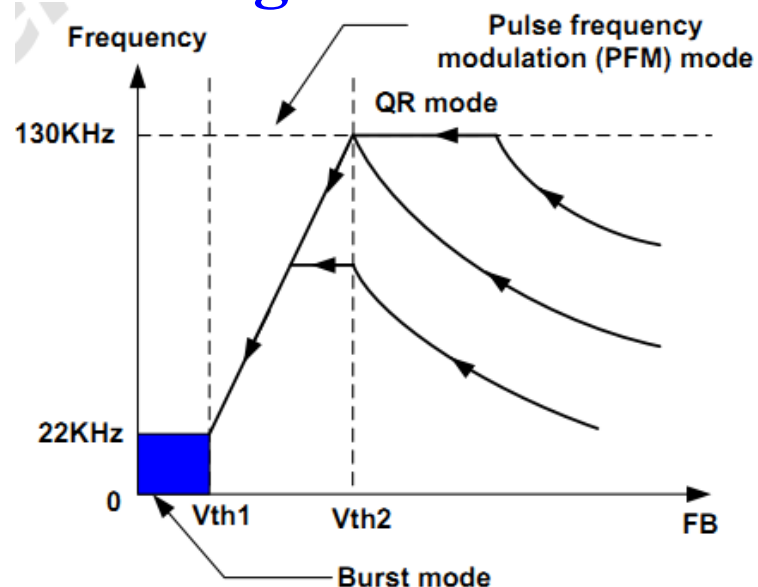
Test Item	Specification	Test result
1. Input characteristic		
Input current (90Vac~132Vac/60Hz)	1.5A Max.	1.326A
Input current (180Vac~264Vac/50Hz)	1.0 Max.	0.87A
Standby power	<0.5W	0.26W
Efficiency	>80%	85.0%
2. Output characteristic		
Line regulation& Load regulation	1%	0.018%
	5%	0.359%
Ripple & noise	50mV	16.9mV
Over shoot & Under shoot	800mV	333mV
Dynamic test	800mV	258mV
3. Time sequence		
Turn on delay time	<2.0S	1.543S
Hold up time	>10mS	12.6mS
Rise time		16.68mS
Fall time		9.98mS
4. Protection		
Over current protection		4.2A~5.0A
Short Circuit protection	Hiccup	Pass
5. Brownout/Brownout recovery		
		Pass

19V/3.42A 65W Adapter Using OB2202

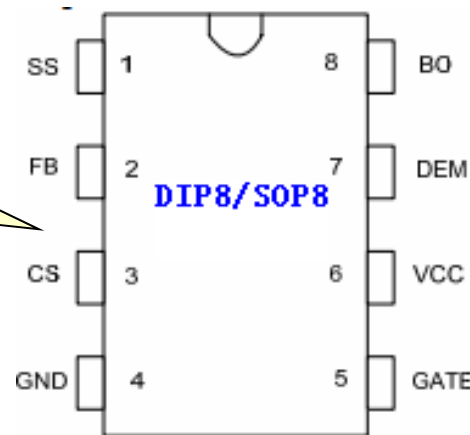
- 多模式准谐振PWM控制IC

	No Load	Light Load	Normal Load
AC Input	Burst Mode	PFM Mode	QR Mode

- 可编程的Brownout和输入过压保护
- 可编程的软启动
- OPP补偿、优化
- 内建前沿消隐
- 外部Latch触发
- 最大导通时间30us，最大关断时间50us
- 逐周过电流保护 OLP OPP
- VDD UVLO & Clamp 输出OVP

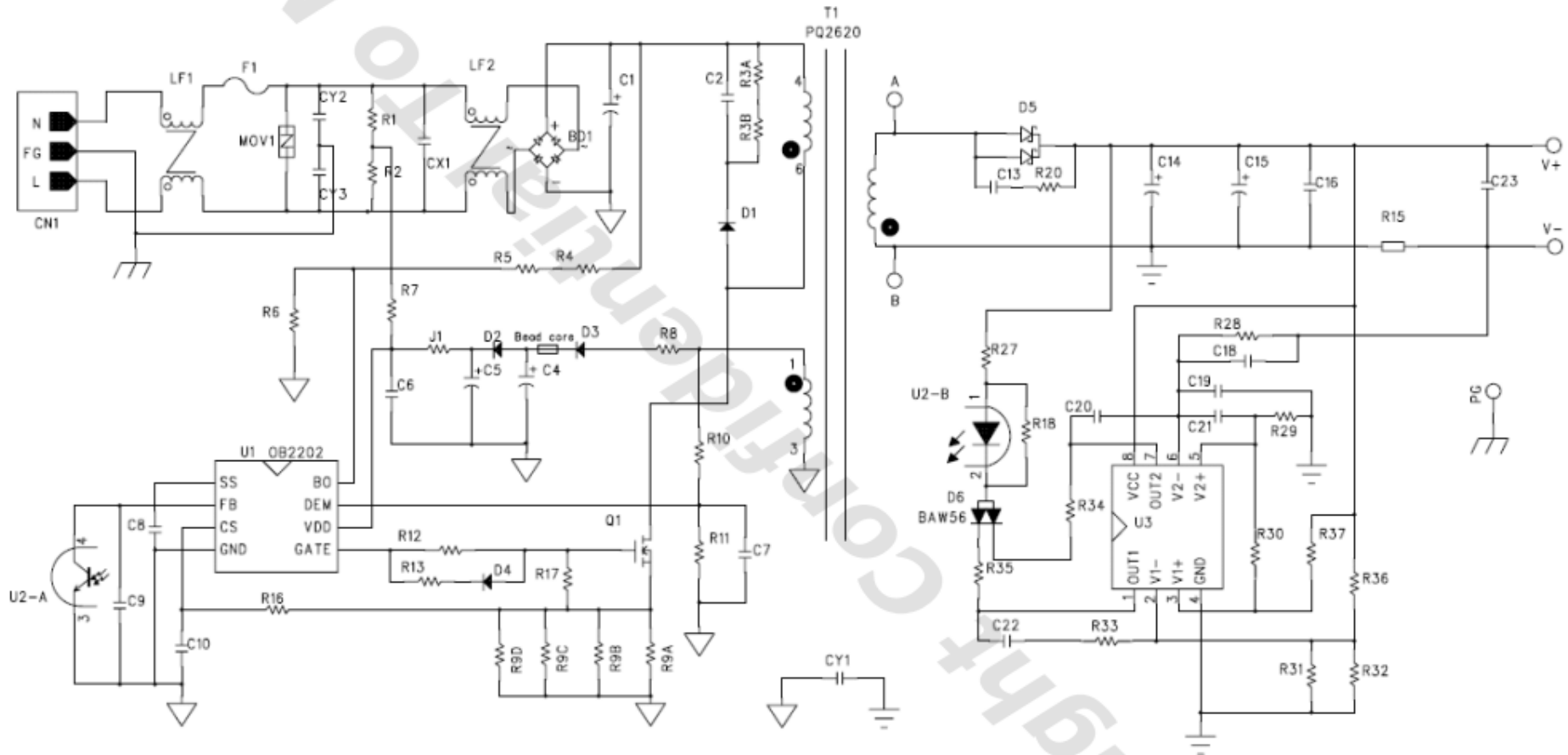


适合输出功率
45W-75W





19V/3.42A 65W Adapter Using OB2202





19V/3.42A 65W Adapter Using OB2202

Characterization Results Summary

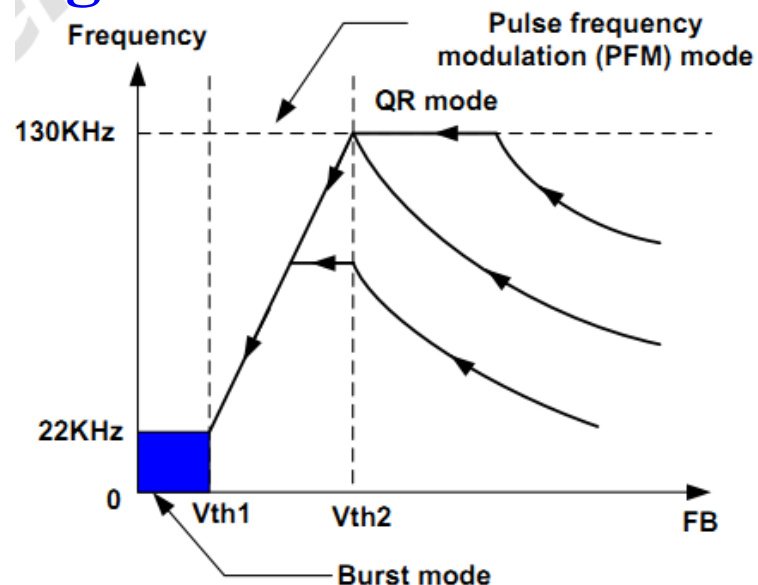
Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	1.35A Max
Standby power at no load (230Vac)	0.30W
Averaged Efficiency (115Vac, 25%~100% load for CABLE end)	88.29%
2 .Output characteristics	
Line regulation	0.26%
Load regulation	1.67%
Ripple & noise	250mV
Over shoot	2.6 % Max
Under shoot	0.82% Max
Dynamic test	230mV
3. Time sequence (90Vac, Full load)	
Turn on delay time	1540mS
Hold up time	11mS (100Vac, full)
Rise time	15mS
4. Protections	
Over voltage protection	25.8V
Over current protection (90Vac ~264Vac)	4.58A
Short Circuit protection	OK

19V/4.73A 90W Adapter Using OB2203+OB6563

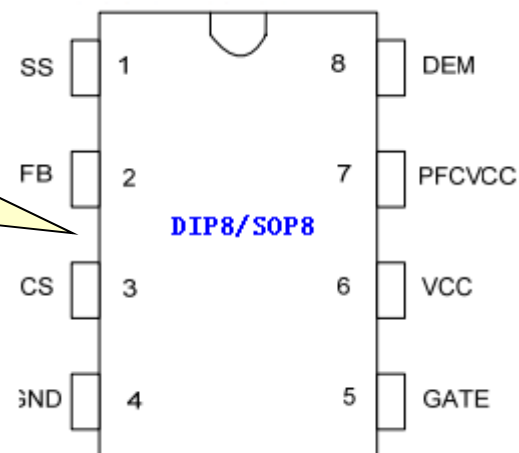
多模式准谐振PWM控制IC

	No Load	Light Load	Normal Load
AC Input	Burst Mode	PFM Mode	QR Mode

- 集成PFC控制电路和PFC IC电源开关空载和轻载时关断PFC
- 可编程的软启动
- 内建前沿消隐
- 外部Latch触发
- 最大导通时间21us
- 逐周过电流保护 OLP
- VDD UVLO & Clamp 输出OVP

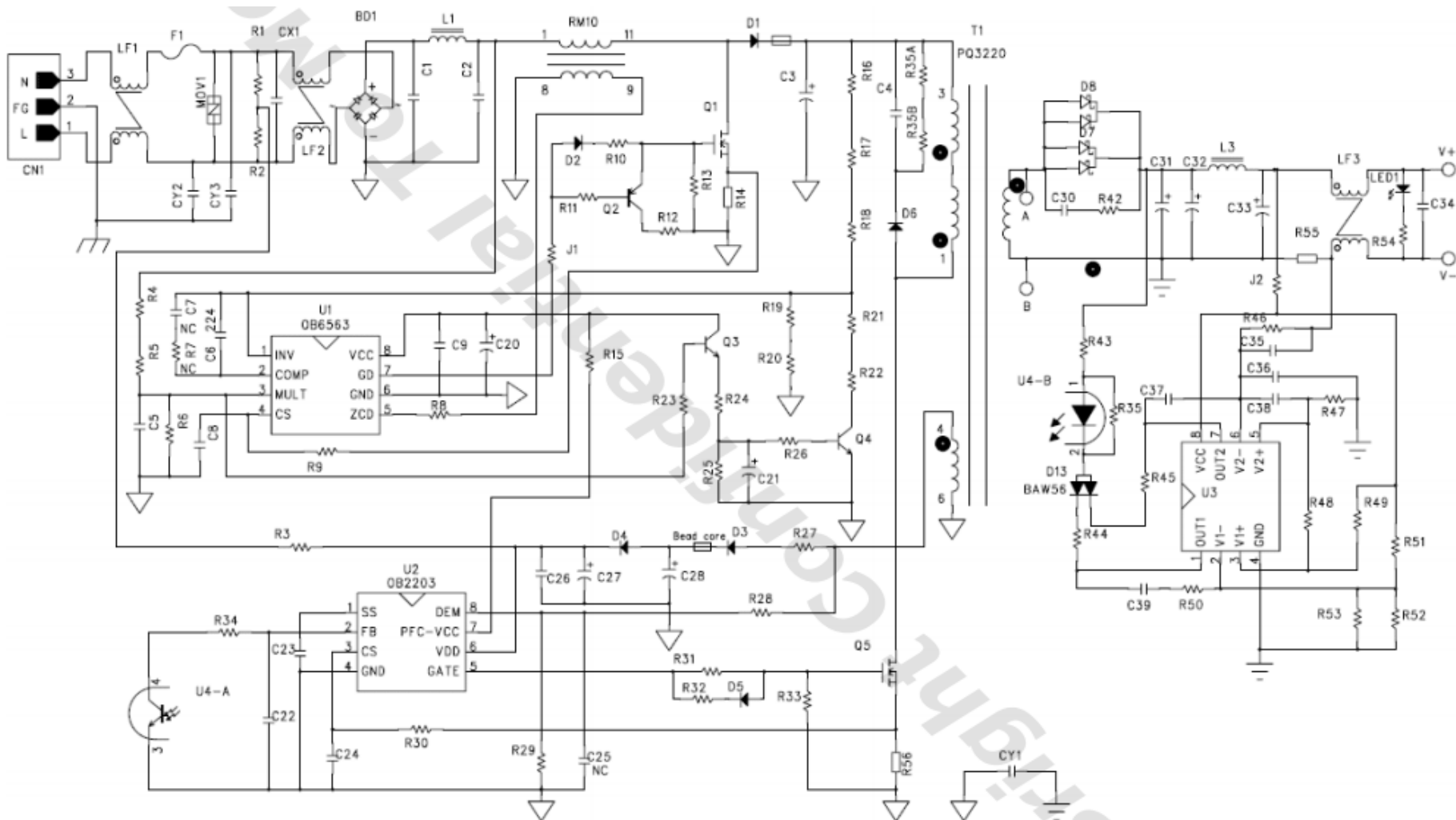


适合输出功率
75W-100W





19V/4.73A 90W Adapter Using OB2203+OB6563





19V/4.73A 90W Adapter Using OB2203+OB6563

Characterization Results Summary

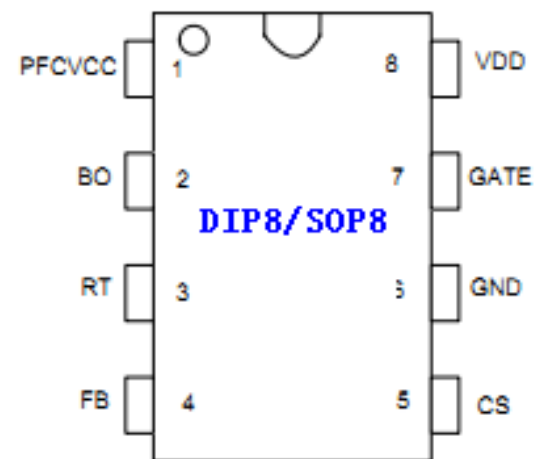
Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	1.17A Max
Standby power at no load With LED (230Vac, With PFC)	0.34W
Average Efficiency (115Vac, 25%/50%/75%/100% load,)	88.75%
2. Output characteristics	
Line regulation	0.47%
Load regulation	1.82%
Ripple & noise	70mV
Over shoot	3.5% Max
Under shoot	2.1% Max
Dynamic test	328mV
3. Time sequence (90Vac with Full load)	
Turn on delay time	1230mS
Hold up time	23mS
Rise time	15mS
Fall time	12mS
4. Protections	
Over voltage protection	22.7 V
Over current protection (90Vac ~264Vac)	5.93 A
Short Circuit protection	OK



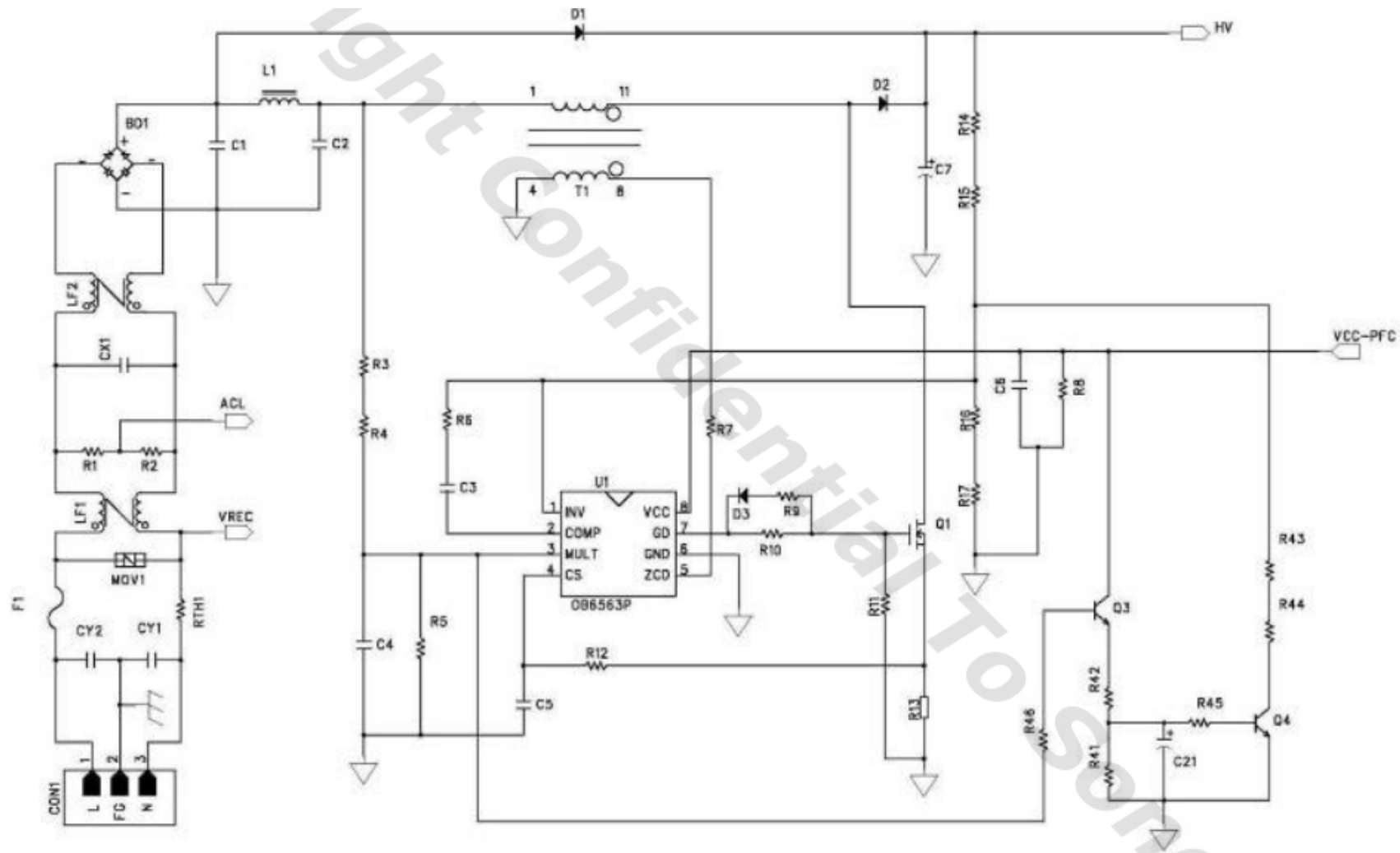
19V/4.74A 90W Adapter Using OB2298+OB6563

- 集成PFC控制电路和PFC IC电源开关
空载和轻载时关断PFC
- 低启动电流(5uA)和工作电流(2.3mA)
- 可编程的Brownout保护
- 内置4ms软启动
- IC PIN悬空保护
- 空载轻载进入扩展Burst Mode
- 能与其他PFC IC兼容，与OB6563搭配时能够在150W系统中实现超低(<0.4W)的待机功耗

- OCP补偿
- 内置频率抖动
- 内建前沿消隐和斜率补偿
- 逐周过电流保护 OLP
- VDD欠压滞锁定UVLO
- VDD OVP & VDD Clamp
- OTP

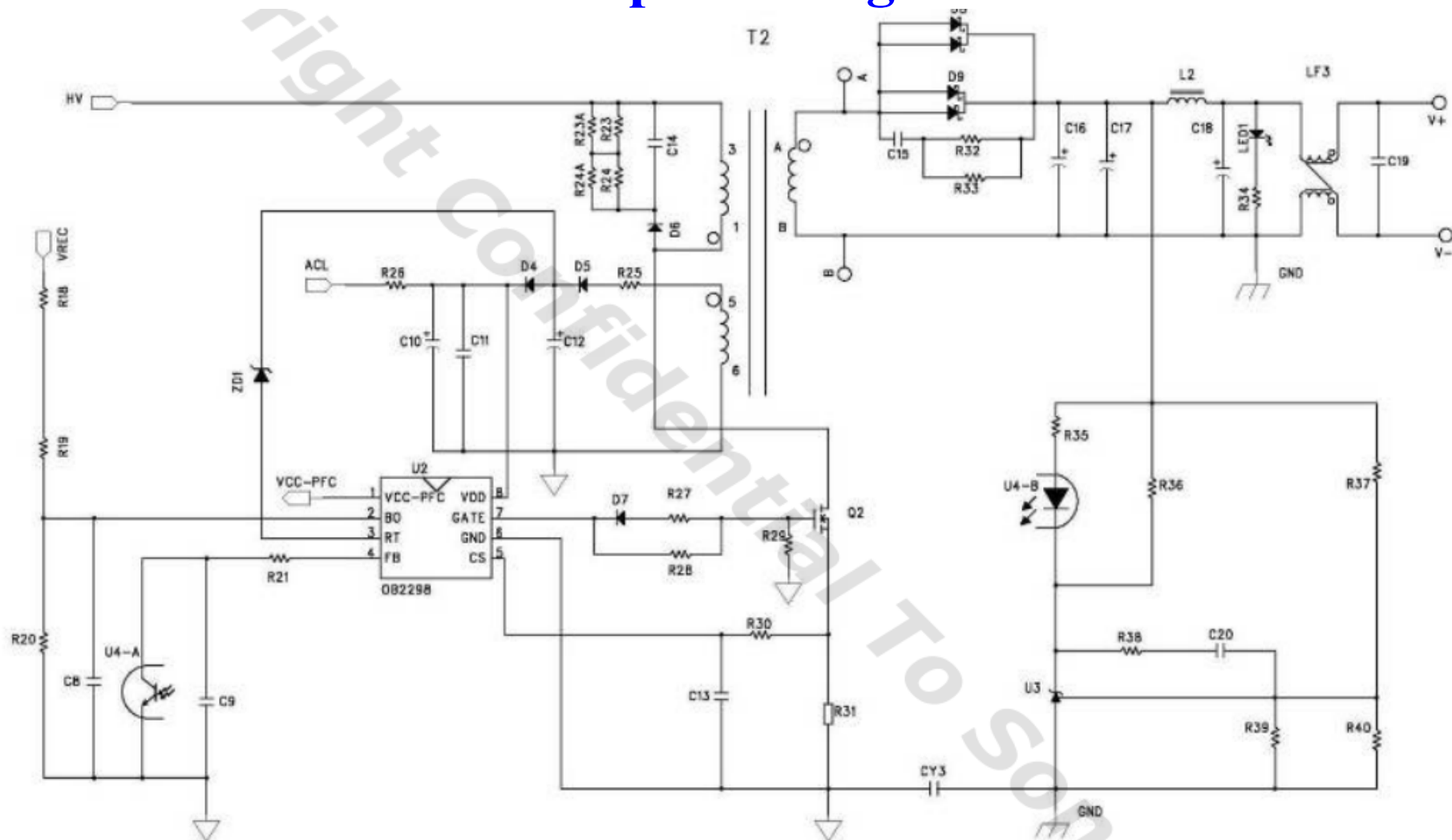


19V/4.74A 90W Adapter Using OB2298+OB6563





19V/4.74A 90W Adapter Using OB2298+OB6563





19V/4.74A 90W Adapter Using OB2298+OB6563

Characterization Results Summary

Test Item	Test result
1. Input characteristics	
PF (230V/50Hz full load)	0.985
Standby power at no load (240Vac, With LED resistor 6.2K)	0.35W
Average Efficiency (230Vac, 25%/50%/75%/100%)	87.67%
2. Output characteristics	
Line regulation	0.1% Max
Load regulation	0.93% Max
Ripple & noise	42mV
Over shoot	2.1%
Under shoot	2.5%
Dynamic test	18.88V ~19.27
3. Time sequence (100Vac with Full load)	
Turn on delay time	1047mS
Hold up time	32mS
Rise time	6mS
Fall time	5mS



19V/4.74A 90W Adapter Using OB2298+OB6563

4.1. Over voltage protection

Table 9: Measured OVP result

Input voltage	Test result			
	No load		Full load	
	OVP trigger point (V)	Latch function	OVP trigger point (V)	Latch function
90V/60Hz	29.8	OK	28.0	OK
264V/50Hz	30.5	OK	28.4	OK

4.2. Short circuit protection

Input voltage	90V/60Hz	264V/50Hz
Test result	Shut down and automatic recover	Shut down and automatic recover
Input power (W)	21	30

4.3. Over current Protection

Table 10: Measured OCP result

Input	OCP Point (A)	Automatic Recovery Point (A)
90V/60Hz ~ 132V/60Hz	6.36	6.15
180V/50Hz ~ 264V/50Hz	6.81	6.72

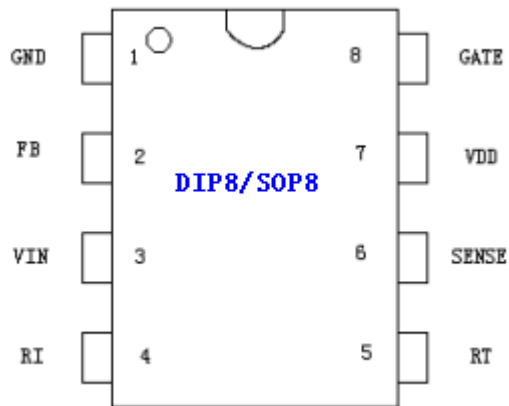
4.4. Brownout and Recovery

Table 11: Brownout and Recovery voltage

Test item	Input voltage
Brownout	80V/60Hz
Recovery	83V/60Hz

Adapter Module Using OB2278/2279

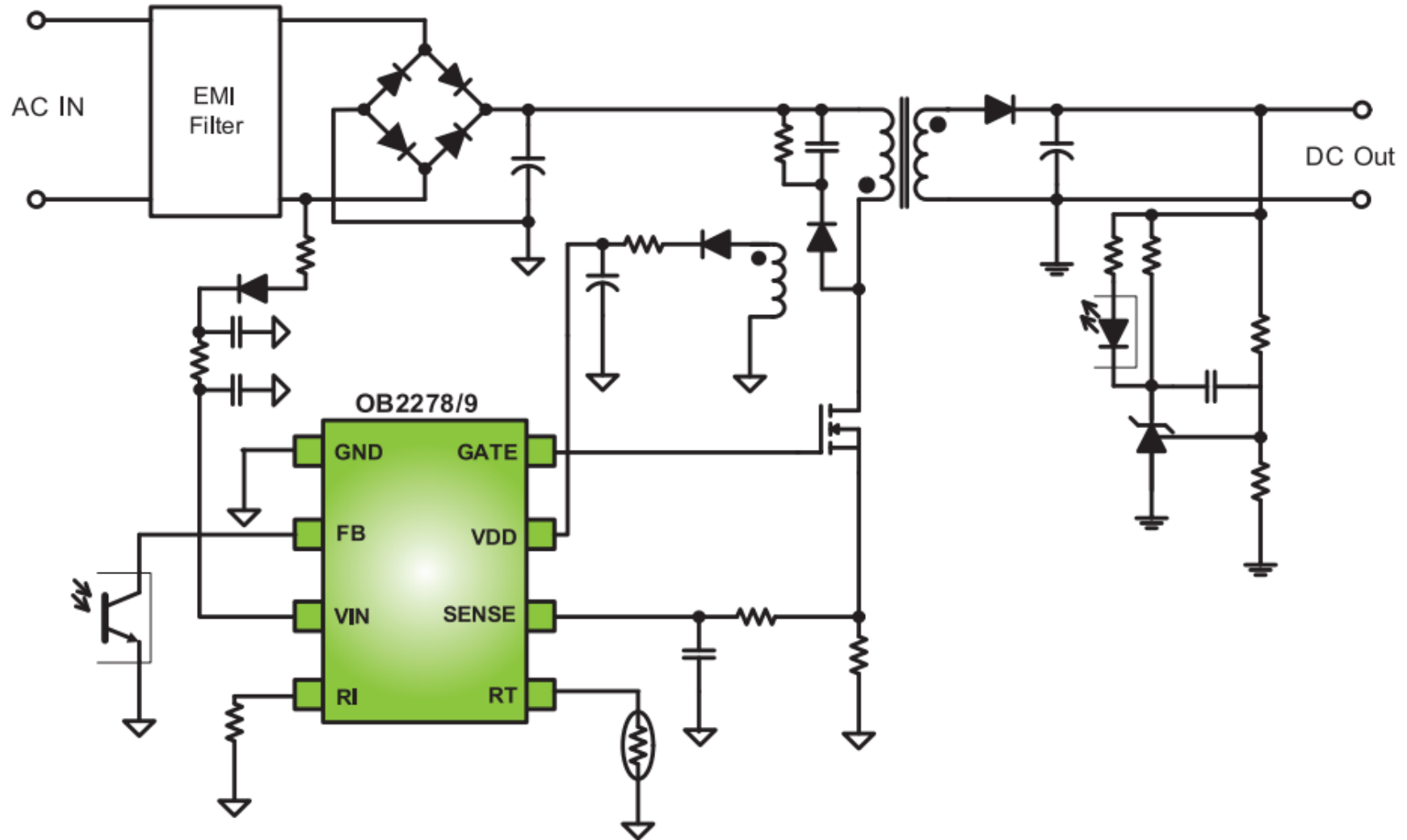
- 空载轻载进入Burst mode提高效率，降低待机功耗
- 低VDD启动电流(3uA)与工作电流(2.3mA)
- 频率抖动改善EMI（2278无频率抖动）
- 外部可编程的PWM开关频率
- 内部同步斜率补偿
- 内建 OCP补偿
- 内建软启动
- 适合输出功率120W
- 内建前沿消隐
- 逐周过电流保护 OLP
- VDD欠压滞锁定UVLO
- VDD OVP & VDD Clamp
- OTP
- 提供灵活的Latch锁定功能:
OVP; OVP+OTP;
OVP+OTP+OLP



Product Number	Topology	Operation Frequency	Max Vdd	Frequency Shuffling	Standby Power	VDD OVP	Power on Soft-start	OLP/SCP	OTP	Brown-out	PFC Control	Package
OB2278	Flyback	External	28V	--	<0.3W	L	Y	A/L	A/L	--	--	SOP8/DIP8
OB2279	Flyback	External	28V	--	<0.3W	L	Y	A/L	A/L	--	--	SOP8/DIP8



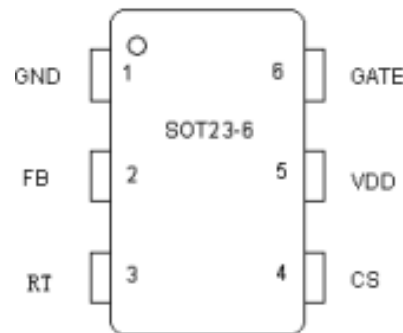
Adapter Module Using OB2278/2279





Adapter Module Using OB2273 series

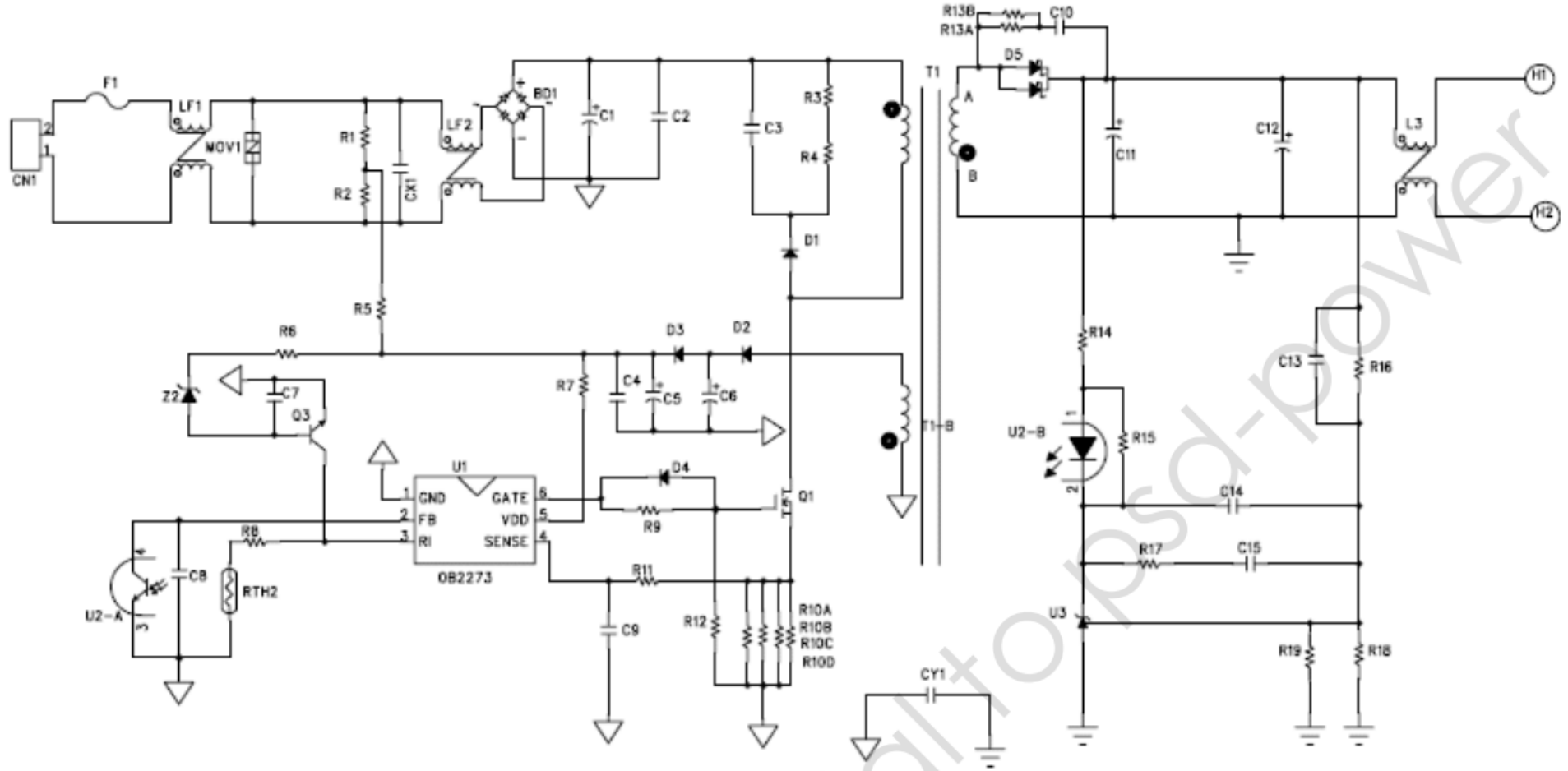
- 空载轻载进入Burst mode提高效率，降低待机功耗
- 频率抖动改善EMI
- 固定开关频率65KHZ (2273F频率可调)
- 内部同步斜率补偿
- 内置软启动
- 超低待机功耗<0.1W
- 适合输出功率70W
- 内建前沿消隐
- 逐周过电流保护 OLP
- VDD欠压滞锁定UVLO
- VDD OVP & VDD Clamp
- OTP



Product Number	Standby Power	HV Startup	Max Vdd	OTP	Load OVP	OLP	Brown-out	VDD OVP	Operation Frequency	Frequency Shuffling	Light Load Optimizer	Power on Soft-start
OB2273	<100mW	--	28V	L	L	A	--	Y	65kHz	Y	Y	Y
OB2273A	<100mW	--	28V	A	A	A	--	Y	65kHz	Y	Y	Y
OB2273B	<100mW	--	28V	--	--	A	A	Y	65kHz	Y	Y	Y
OB2273F	<100mW	--	28V	--	A	A	--	Y	External	Y	Y	Y



19V/3.42A 65W Adapter Using OB2273





19V/3.42A 65W Adapter Using OB2273

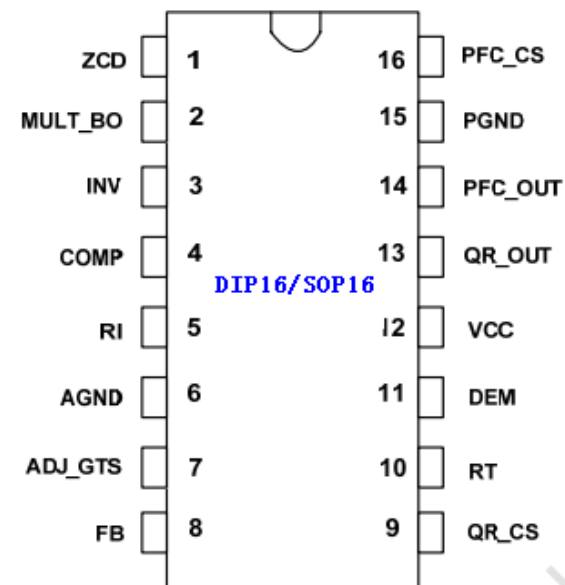
Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	1.41A
Standby power at no load (264Vac)	89mW
Averaged Efficiency (115/230 Vac, 25%~100% load for Cable end)	88.37%/88.77%
2. Output characteristics	
Line regulation	0.1%
Load regulation	1.90%
Ripple & noise	<200mV
Over shoot	5% Max
Dynamic test	±403mV
3. Time sequence (90Vac, Full load)	
Turn on delay time	1.95S
Hold up time	10.85mS(100Vac, full)
4. Protections	
Over Voltage protection	28.6V
Over Current protection (90Vac ~264Vac)	OK
Short Circuit protection	OK
Over Temperature protection	OK



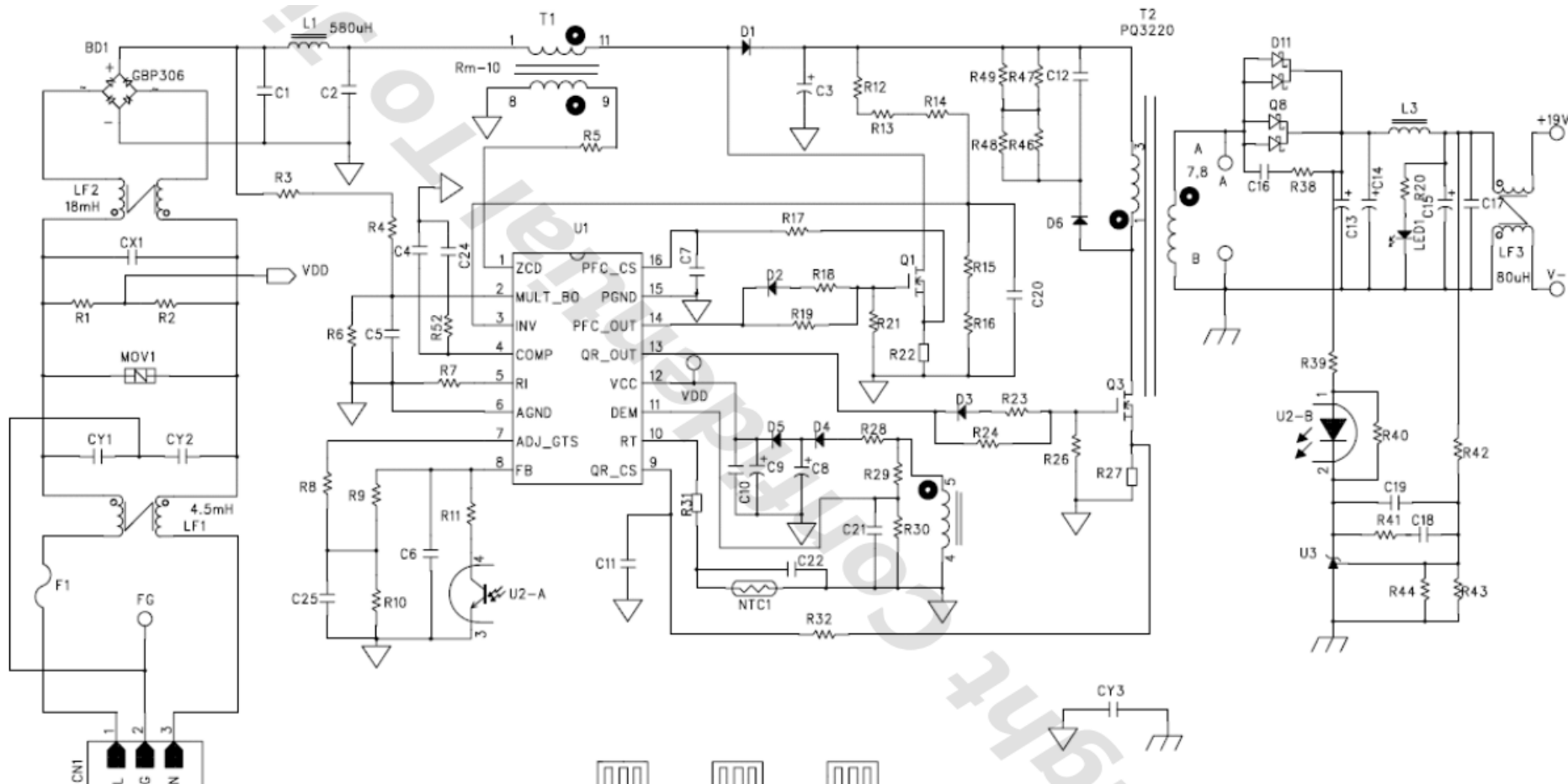
19V/4.73A 90W Adapter Using OB6663

- 高性能TM模式PFC+多模式QR控制器
- 内置PFC两段式升压控制
- 可外部调整PFC轻载关断工作点
- 内置模拟乘法器和THD优化器
- PFC环路带宽高低压补偿
- 强大的PFC动态响应
- 待机功耗<0.3W
- PFC低压轻载时处于间歇工作模式
- 可编程的Brownout和输入电压OVP保护
- 内置QR软启动
- 外部Latch触发
- OCP/OVP for QR & PFC
- VDD欠压滞锁定UVLO
- VDD Clamp
- PIN悬空保护
- OTP





19V/4.73A 90W Adapter Using OB6663





19V/4.73A 90W Adapter Using OB6663

Characterization Results Summary

Test Item	Test result
1. Input characteristics	
Input current (90V/60Hz, full load)	1.17A Max
Standby power at no load With LED (230Vac, With PFC)	0.28W
Average Efficiency (115Vac, 25%/50%/75%/100% load)	88.30%
2. Output characteristics	
Line regulation	0.16%
Load regulation	1.72%
Ripple & noise	30mV
Over shoot	1.5% Max
Under shoot	2.1% Max
Dynamic test	294mV
3. Time sequence (90Vac with Full load)	
Turn on delay time	1550mS
Hold up time	25.5mS
Rise time	18.8mS
Fall time	6.95mS



19V/4.73A 90W Adapter Using OB6663

4.1. Over Current Protection

Table. 9 OCP @ Full load

Input Voltage	OCP Trigger Current (A)
90V/60Hz	6.04
115V/60Hz	6.04
132V/60Hz	6.11
180V/50Hz	6.54
230V/50Hz	6.56
264V/50Hz	6.52

4.2. Over Voltage Protection

Table. 10 OVP @ No load/Full load

Input Voltage	OVP Trigger Voltage (V)	
	No load	Full load
90V/60Hz	23.2	22.6
132V/60Hz	22.7	22.4
180V/50Hz	23.2	23.0
264V/50Hz	23.4	23.7



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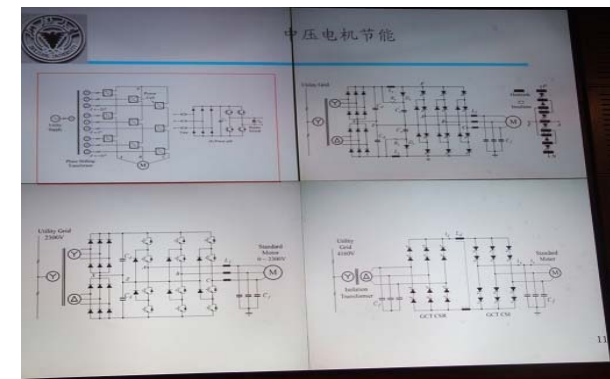
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Thanks!



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