

适用于高达 100W 的 LED 照明的单级高 PF、低 THD 恒压/恒流 AC/DC 控制器

1 说明

iW3671 是一款具有功率因数校正 (PFC) 功能的单级高性能 AC/DC 原边反馈 PWM 控制器。该 IC 支持高达 100W 输出功率，针对反激和升降压拓扑。iW3671 支持不同类型的负载，包括恒定功率 (CP) 负载，例如次级 DC/DC 转换器；恒定电阻 (CR) 负载，例如 LED 灯带。

iW3671 采用 Dialog 的 **PrimAccurate™** 技术，在各种 AC 电压和负载条件下提供精确的恒压 (CV) 和恒流 (CC) 控制。该器件采用数字控制，因此无需外部环路补偿，同时可在所有工作条件下保持环路稳定。凭借 Dialog 专利的 **PF-Boost™** 技术，在整个 AC 电压范围内，当负载为 50% 或更大时，iW3671 的功率因数 (PF) 大于 0.9，总谐波失真 (THD) 低于 20%。

在 CV 模式下，iW3671 可以实现低于 150mW 的待机功耗，同时保持出色的负载瞬态响应。此外，在负载瞬态或启动期间没有可听噪声，而大多数 PFC CV 控制器通常不具备这一优势。iW3671 具有快速启动电路和快速起机控制功能，启动时间不足 0.25s。

iW3671 还具有各种保护功能，如输出过压、输出短路、AC 过压、AC 欠压、电流检测电阻短路、过流及过温保护。这样可确保出色的系统可靠性。

2 功能特性

- AC 输入电压范围：90V_{AC} ~ 305V_{AC}
- 采用微型 SOT-23 封装，支持高达 100W 的输出功率
- CV 模式 AC 输入电压和负载调节 < ±3%
- CC 模式 AC 输入电压和负载调节 < ±5%
- 在整个 AC 电压范围内，当负载大于 50% 时，PF > 0.9，THD < 20%
- 快速启动时间 < 0.25s
- 当输入电压为 230V_{AC}、功率最高为 100W，且采用外部快速启动 DFET 电路时，待机功耗 < 150mW
- 在各种 AC 电压和负载条件下，以及负载瞬态或启动期间，可听噪声均为零
- 宽工作电源电压 (V_{VCC}) 范围：8.0V 至 20V
- 全面的保护功能
 - » 输出过压保护
 - » 输出短路保护
 - » AC 过压保护
 - » AC 欠压保护
 - » 逐开关周期峰值电流限制
 - » 电流检测电阻短路保护
 - » 过温保护

3 应用

- 两级或单级 LED 照明驱动器
- 需要功率因数的 AC-DC 适配器、电视、显示器电源

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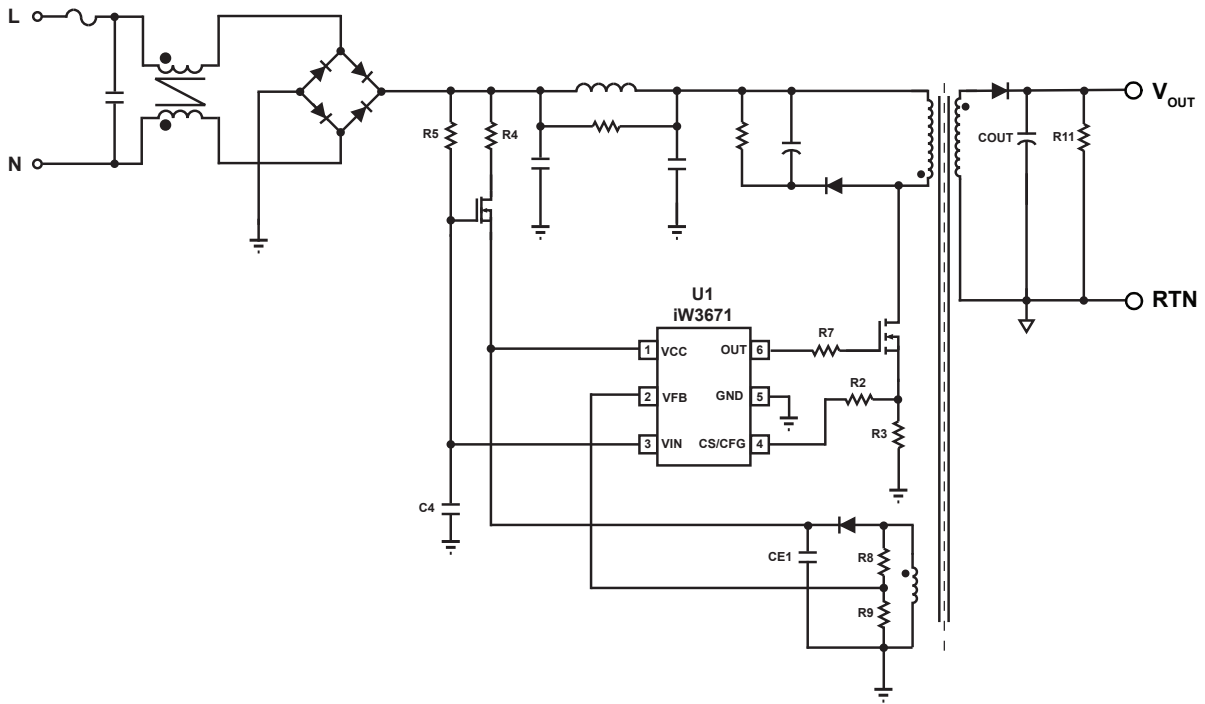


图 3.1 : iW3671 LED电源的典型应用

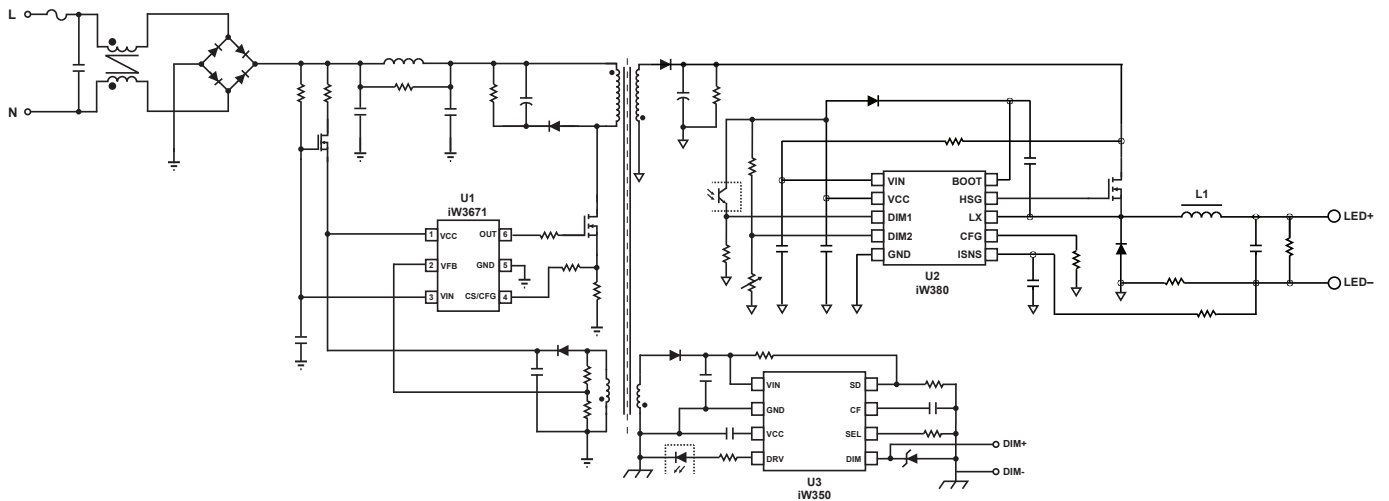


图 3.2 : 适用于可调光 LED 驱动器 (配合 iW350) 的

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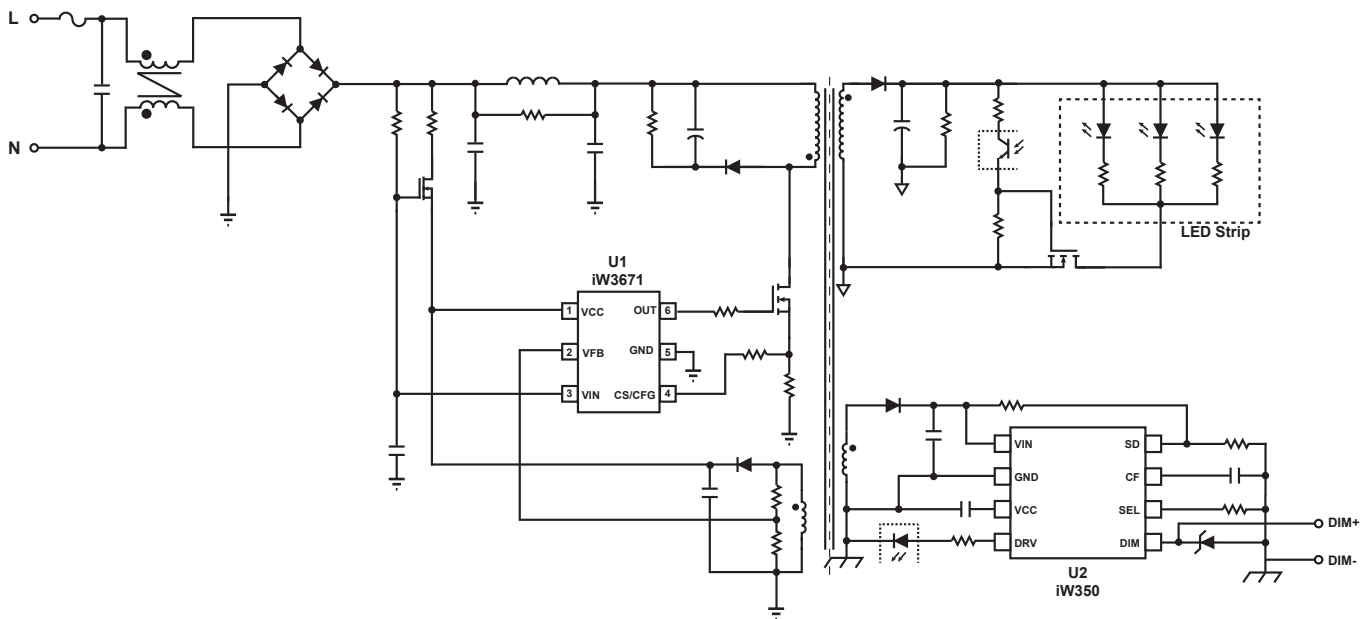


图 3.3 : 适用于可调光 LED 灯带驱动器 (配合 iW350) 的 iW3671 应用

4 引脚分配说明

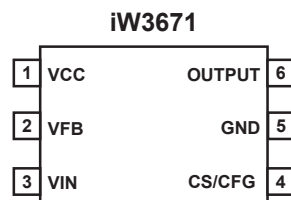


图 4.1 : 6 引脚 SOT23 封装

引脚编号	引脚名称	类型	引脚说明
1	VCC	电源输入	IC 电源。
2	VFB	模拟输入	输出电压和变压器退磁检测。
3	VIN	模拟输入	输入 AC 电压检测。
4	CS/CFG	模拟输入	功率 MOSFET 电流检测和配置。
5	GND	接地	接地。
6	OUTPUT	模拟输出	功率 MOSFET 栅极驱动。

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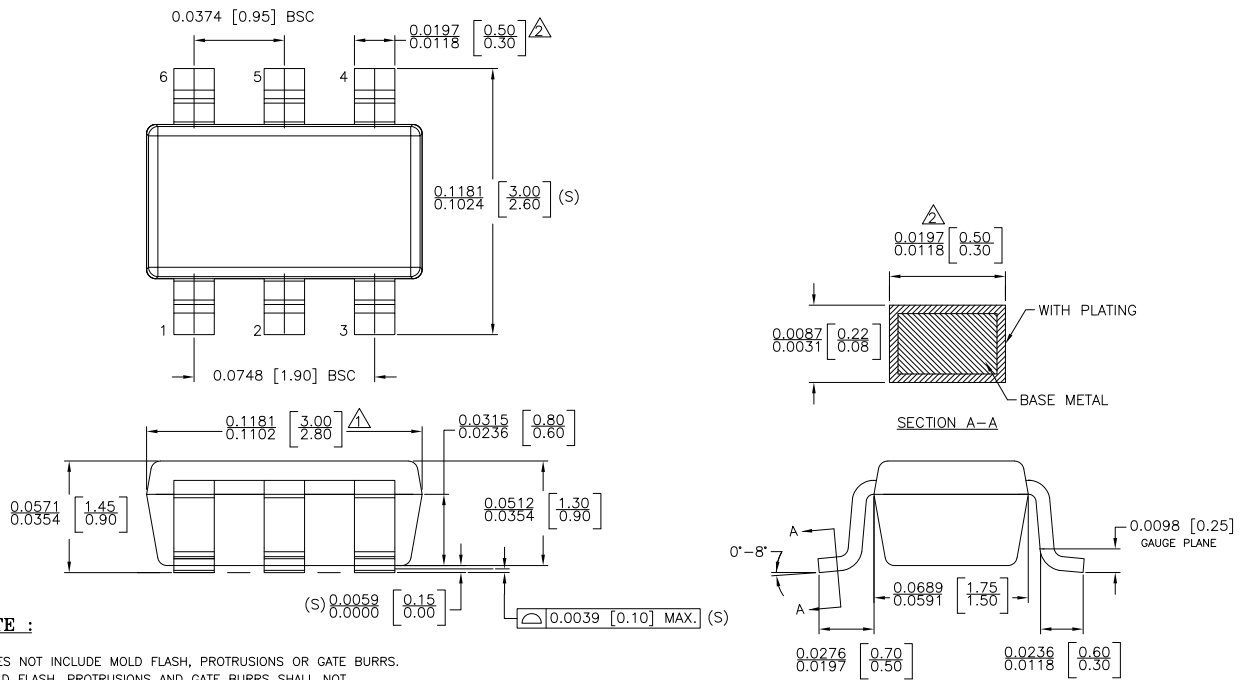
5 绝对最大额定值

绝对最大额定值是参数值或范围，如果超过绝对最大额定值，可能导致永久性损坏。

参数	符号	值	单位
DC supply voltage range (pin 1, $I_{VCC} = 20\text{mA max}$)	V_{VCC}	-0.3 to 22.0	V
Continuous DC supply current at VCC pin ($V_{VCC} = 15\text{V}$)	I_{VCC}	20	mA
V_{VIN} (pin 3)		-0.3 to 20.0	V
OUTPUT (pin 6)		-0.3 to 20.0	V
V_{VFB} (pin 2, $I_{VFB} \leq 10\text{mA}$)		-0.7 to 5.0	V
CS/CFG input (pin 4)		-0.3 to 5.0	V
Maximum junction temperature	T_{JMAX}	150	°C
Operating junction temperature	T_{JOPT}	-40 to 150	°C
Storage temperature	T_{STG}	-65 to 150	°C
Thermal resistance junction-to-ambient	θ_{JA}	100	°C/W
ESD rating per JEDEC JS-001-2017		$\pm 2,000$	V
Latch-up test per JESD78E		± 100	mA

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6 外形尺寸



NOTE :

- Δ DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED 0.127 MM PER SIDE.
- Δ DOES NOT INCLUDE INTER-LEAD FLASH OR PROTRUSIONS. INTER-LEAD FLASH AND PROTRUSIONS SHALL NOT EXCEED 0.127 MM PER SIDE.
- DIE IS FACING UP FOR MOLD. DIE IS FACING DOWN FOR TRIM/FORM.
- THIS PART IS COMPLIANT WITH EIAJ SPECIFICATION SC74A AND JEDEC SPECIFICATION MO-178AB.
- LEAD SPAN/STAND OFF HEIGHT/COPLANARITY ARE CONSIDERED AS SPECIAL CHARACTERISTIC(S)
- CONTROLLING DIMENSIONS IN INCHES. [mm]

STATUS: RELEASED	SCALE: DO NOT SCALE
TERMINAL FINISH: 100% Sn or NiPdAu (PPF)	
TITLE: 6 SOT23 PACKAGE OUTLINE	
REV: A	REVISION NOTE: NEW DRAWING
DATE: 02-MAR-2015	

7 订购信息

部件编号	说明	封装	说明
iW3671-001 iW3671-00C	针对单级或双级 CV 应用优化	SOT-23	卷带 ²

注 1: 不建议用于新设计, 请使用-xxC版本

注 2: 卷带封装数量为 3,000 件/卷。最小封装数量为 3,000 件。

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