Primary Side Regulated Flyback Reference Design with 120VAC Input and 24V/4A Rated Output

(ACTIVE) PMP10804

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Key Document

- PMP10804 Test Results (PDF 1344 KB)
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PMP10804 Primary Side Regulated Flyback Reference Design with 120VAC Input and 24V/4A Rated Output Top of Board Image

Fully assembled board (shown above) developed for testing and performance validation only, not available for sale.

Description

This reference design implements the UCC28630 PSR controller in a flyback power supply. The UCC28630 is capable of operating in both Continuous and Discontinuous Conduction Modes which enables high efficiency while reducing inductor size and cost. Safety standards such as EN60950 require that any X-capacitors in EMC filters on the AC side of the bridge rectifier quickly discharge to a safe level when AC is disconnected. Typically, this requirement is achieved by including a resistive discharge element in parallel with the X-capacitor. However, this resistance causes a continuous power dissipation that impacts the standby power performance. in order to reduce standby power and eliminate the standing loss associated with the conventional discharge resistors, the UCC28630 device incorporates active X-capacitor discharge circuitry. In this design, less than 100mW no load power comsumption and over 88% converter efficiency is achieved.

Features

- Utilize UCC28630 CCM/DCM PSR controller
- Over 86% average efficiency
- Optimized US line AC-DC power supply design
- 24V/4A rated output
- This circuit is tested and includes a test report

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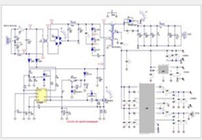
Schematic/Block Diagram

Quickly understand overall system functionality.



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Design Guide

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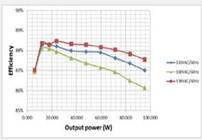

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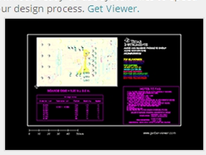
Design Files

Download ready-to-use system files to speed your design process. Get Viewer.



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Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP10804
Vin (Min) (V)	100
Vin (Max) (V)	138
Vout (Nom) (V)	24
Iout (Max) (A)	4
Output Power (W)	96
Isolated/Non-Isolated	Isolated
Input Type	AC
Topology	Flyback- DCM

TI Devices (1)

Order samples, get tools and find more information on the Ti products in this reference design.

Part Number	Name	Product Family	Sample & Buy	Design Kits & Evaluation Modules
UCC28630	High Power Flyback Controller with Primary-Side Regulation and Peak Power Mode	Offline and Isolated DC/DC Controllers and Converters	Sample & Buy	View Design Kits & Evaluation Modules

Technical Documents

User guides (1)

Title	Abstract	Type	Size (KB)	Date	Views	TI Recommends
PMP10804 Test Results		PDF	1344	20 Oct 2015	51	✓

Design files (3)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10804 Assembly Drawing		PDF	166	13 Nov 2015	29
PMP10804 BOM		PDF	140	13 Nov 2015	49
PMP10804 Schematic		PDF	176	13 Nov 2015	60

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