Universal AC Input 5V/10A/50W PSR Flyback Power Supply With Over 89% Avg Efficiency Reference Design

(ACTIVE) PMP10974

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Key Document

- PMP10974 Test Results (PDF 1522 KB)
  12 Aug 2015 140 views

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PMP10974 Universal AC Input 5V/10A/50W PSR Flyback Power Supply With Over 89% Avg Efficiency Reference Design Top of Board

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

Description

PMP10974 is a quasi-resonant Flyback power suppy based on the UCC28730 primary side regulation (PSR) controller. The elimination of optocoupler using PSR topology promises higher reliability and lower system cost. The design achieves less than 40mW standby power losses and over 89% average efficiency. The design also features UCC2463x synchronous rectification controller.

Features

- 85VAC to 265VAC, 50/60Hz input 5V/10A/50W output
- Over 89% average 4-point efficiency
- Over 85% efficiency at 10% load (5W)
- Less than 40mW standby power losses
- Protected against output short-circuits

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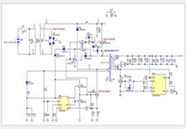
Schematic/Block Diagram

Quickly understand overall system functionality.



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Design Guide

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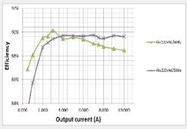

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Design Files

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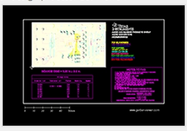

Download Design Files

Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP10974
Vin (Min) (V)	85
Vin (Max) (V)	264
Vout (Nom) (V)	5
Iout (Max) (A)	10
Output Power (W)	50
Isolated/Non-isolated	Isolated
Input Type	AC
Topology	Flyback- Quasi Resonant

TI Devices (6)

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
CSD18509Q5B	40V, N-Channel NexFET(TM) Power MOSFET, CSD18509Q5B	Power MOSFET	Sample & Buy	Not Available
TPD2E001	Low-Capacitance 2-Channel +/-15 kV ESD-Protection Array for High-Speed Data Interfaces	ESD Protection Diodes	Sample & Buy	View Design Kits & Evaluation Modules
TPS2513	USB Dedicated Charging Port Controller	USB Power and Charging Port Controllers	Sample & Buy	View Design Kits & Evaluation Modules

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CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
TPD2E001	SOP (DZD) | 4	Download	-
	SOT (DRL) | 5	Download	Download
	WSON (DRS) | 6	Download	-
	USON (DRY) | 6	Download	-
UCC24630	SOT (DBV) | 6	Download	Download
UCC28730	SOIC (D) | 7	Download	-

Texas Instruments and Accelerated Designs Inc. have collaborated together to provide TI customers with schematic symbols and PCB layout footprints for TI products.

Step 1: Download and install the Ultra Librarian software ZIP: 62MB

Step 2: Download the Symbol and Footprint .bxl file.

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Technical Documents

User guides (1)

Title	Abstract	Type	Size (KB)	Date	Views	TI Recommends
PMP10974 Test Results		PDF	1522	12 Aug 2015	140	✓

Design files (6)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10974 BOM (Rev. A)		PDF	141	20 Oct 2015	83
PMP10974 Schematic (Rev. A)		PDF	211	20 Oct 2015	246
PMP10974 Gerber		ZIP	555	12 Aug 2015	28
PMP10974 Altium		ZIP	838	12 Aug 2015	45
PMP10974 PCB		PDF	551	12 Aug 2015	36
PMP10974 Assembly Drawing		PDF	93	12 Aug 2015	44

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