Universal AC Input, 5V/10A/50W PSR Flyback Power Supply W/over 88% Avg Efficiency Reference Design

(ACTIVE) PMP11281

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Key Document

- PMP11281 Test Results (from PMP10974) (PDF 1441 KB)
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PMP11281 Universal AC Input, 5V/10A/50W PSR Flyback Power Supply W/over 88% Avg Efficiency Reference Design Top of Board Image

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

Description

PMP11281 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 88% average efficiency. The design also features UCC2463x synchronous rectification controller.

Features

- 85VAC to 265VAC, 50/60Hz input, 5V/10A/50W output
- Over 88% average 4-point efficiency
- Over 77% efficiency at 10% load (5W)
- Less than 40mW standby power losses
- Protected against output short-circuits

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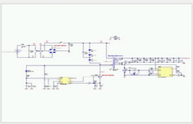
Schematic/Block Diagram

Quickly understand overall system functionality.



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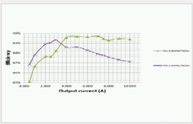
Design Guide

Get results faster with test and simulation data that's been verified.



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Design Files

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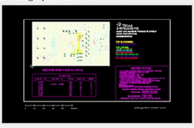

Download Design Files

Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP11281
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	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
PMP11281 Test Results (from PMP10974)		PDF	1441	25 Aug 2015	40	✓

Design files (6)

Title	Abstract	Type	Size (KB)	Date	Views
PMP11281 BOM (Rev. A)		PDF	137	20 Oct 2015	65
PMP11281 Schematic (Rev. A)		PDF	204	20 Oct 2015	46
PMP11281 Gerber (from PMP10974)		ZIP	566	25 Aug 2015	10
PMP11281 Altium		ZIP	840	25 Aug 2015	13
PMP11281 PCB (from PMP10974)		PDF	551	25 Aug 2015	11
PMP11281 Assembly Drawing (from PMP10974)		PDF	93	25 Aug 2015	22

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