135W Single-Phase Synchronous Boost Converter Reference Design

(ACTIVE) PMP9431

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Key Document

- PMP9431 Test Results (PDF 1584 KB)
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PMP9431 135W Single-Phase Synchronous Boost Converter Reference Design Top of Board

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

Description

The PMP9431 reference design is a high-efficiency single-phase synchronous boost converter using the LM5122 controller IC. The design accepts an input voltage of 12Vin to 50Vin and provides an output of 54Vout capable of supplying 2.5A of current to the load.

Features

- High efficiency design
- High power density
- Synchronizable to external clock
- Hiccup-mode overload protection
- Precision voltage reference accuracy of +/-1%

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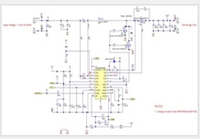
Schematic/Block Diagram

Quickly understand overall system functionality.



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Design Guide

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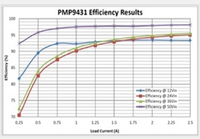

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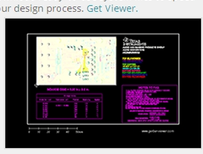
Design Files

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



Download Design Files

Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP9431
Vin (Min) (V)	12
Vin (Max) (V)	50
Vout (Nom) (V)	54
Iout (Max) (A)	2.5
Output Power (W)	135
Isolated/Non-isolated	Non-Isolated
Input Type	DC
Topology	Boost- Synchronous

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
LM5122	3-65V Wide Vin. Current Mode Synchronous Boost Controller with Multiphase Capability	Controller (External Switch)	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
LM5122	HTSSOP (PWP) | 20	Download	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
PMP9431 Test Results		PDF	1584	26 Aug 2015	19	✓

Design files (7)

Title	Abstract	Type	Size (KB)	Date	Views
PMP9431 Gerber (from PMP7896)		ZIP	209	26 Aug 2015	8
PMP9431 CAD Files		ZIP	496	26 Aug 2015	18
PMP9431 PCB (from PMP7896)		PDF	342	26 Aug 2015	6
PMP9431 Component Views (from PMP7896)		PDF	146	26 Aug 2015	4
PMP9431 Assembly Drawing (from PMP7896)		PDF	111	26 Aug 2015	4
PMP9431 BOM		PDF	84	26 Aug 2015	18
PMP9431 Schematic (from PMP7896)		PDF	178	26 Aug 2015	28

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