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150W Boost Converter with LM5121 Reference Design

TI Designs

(ACTIVE) PMP8673

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Key Document

- PMP8673 Test Results (PDF 455 KB)
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PMP8673 150W Boost Converter with LM5121 Reference Design Board Image

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

Description

The PMP8673 reference design is a synchronous boost converter optimized for high efficiency while maintaining a small form factor. This reference design has a voltage input range of 34.5-37.5V (35V nominal) and provides an output voltage of 55.5V. The synchronous boost topology enables efficiencies greater than 97% in the 2-3A load range. The switching frequency is set for 400khz allowing the use of smaller external components and a total board area of less than 60 square centimeters.

Features

- Efficiency >97% in a load range of 2A..3A
- Ultra small with high power density
- Adjustable output voltage from 38V to 55.5V
- 150W output power
- 200W hold up for 10ms
- Output ripple < 0.5%
- 90% transient response < 1%
- Load regulation < 0.05%
- With disconnection switch

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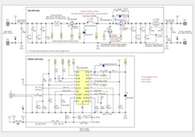
Schematic/Block Diagram

Quickly understand overall system functionality.



Download Schematic

Design Guide

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

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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

	PMP8673
Vin (Min) (V)	34.5
Vin (Max) (V)	37.5
Vout (Nom) (V)	55.5
Iout (Max) (A)	3
Output Power (W)	166.5
Isolated/Non-isolated	Non-isolated
Input Type	DC
Topology	Boost- Synchronous

TI Devices (2)

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
CSD18532Q5B	60-V, N-Channel NexFET™ Power MOSFET	Power MOSFET	Sample & Buy	View Design Kits & Evaluation Modules
LM5121	3-65V Wide Vin, Current Mode Synchronous Boost with Disconnection Switch Control	Controller (External Switch)	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
CSD18532Q5B	VSON-CLIP (DNK) | 8	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
PMP8673 Test Results		PDF	455	09 Oct 2015	10	✓

Design files (5)

Title	Abstract	Type	Size (KB)	Date	Views
PMP8673 Gerber		ZIP	41	09 Oct 2015	3
PMP8673 CAD Files		ZIP	381	09 Oct 2015	4
PMP8673 PCB		PDF	677	09 Oct 2015	4
PMP8673 BOM		PDF	81	09 Oct 2015	9
PMP8673 Schematic		PDF	407	09 Oct 2015	14

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