6V to 8.4V input, 12Vout @ 84A Peak Pulse Multi-Phase Boost Converter Reference Design

(ACTIVE) PMP7921

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PMP7921 6V to 8.4V input, 12Vout @ 84A Peak Pulse Multi-Phase Boost Converter Reference Design Board Top View

Description

PMP7921 is a multi-phase boost converter. The design accepts an input voltage of 7V to 8V, and outputs 12V, capable of providing 84A peak current for 5msec. The design outputs 1000W of peak power, and peak efficiency reaches 96%.

Features

- Synchronous rectifier for high efficiency
- Lower temp rise in output rectifier for FET Vs very high*C (Diode)
- Synchronizable to external Clock
- Stackable for higher output currents
- Current sharing accuracy of +/- 10%
- Bypass mode capable when Vin >Vout

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

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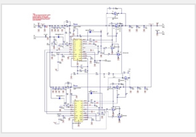
Schematic/Block Diagram

Quickly understand overall system functionality.



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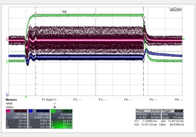
Test Data

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

	PMP7921
Vin (Min) (V)	6
Vin (Max) (V)	8.4
Vout (Nom) (V)	12
Iout (Max) (A)	84
Output Power (W)	1008
Isolated/Non-isolated	Non-isolated
Input Type	DC
Topology	Boost- Multiphase

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
CSD16415Q5	N-Channel NexFET Power MOSFET	Power MOSFET	Sample & Buy	Not Available
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)
CSD16415Q5	VSON-CLIP (DQH) | 8	Download	-
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
PMP7921 Test Results		PDF	1260	29 Sep 2015	25	✓

Design files (6)

Title	Abstract	Type	Size (KB)	Date	Views
PMP7921 Gerber (from PMP7850)		ZIP	252	29 Sep 2015	9
PMP7921 CAD Files		ZIP	558	29 Sep 2015	7
PMP7921 PCB (from PMP7850)		PDF	614	29 Sep 2015	9
PMP7921 Assembly Drawing (from PMP7850)		PDF	147	29 Sep 2015	9
PMP7921 BOM		PDF	126	29 Sep 2015	13
PMP7921 Schematic		PDF	478	29 Sep 2015	33

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