12Vinput 1.2V/10A High Power Density, PMBus Step-Down DC-DC Converter Reference Design

TI Designs

(ACTIVE) PMP10961

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Key Document

- PMP10961 Test Results (PDF 1557 KB)
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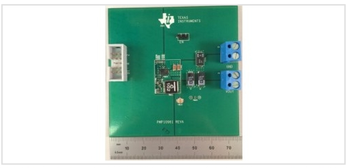

PMP10961 12Vinput 1.2V/10A High Power Density, PMBus Step-Down DC -DC Converter Reference Design Front of Board Image

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

Description

The PMP10961 is a high power density, 10A buck converter with PMBus interface. The layout is optimized for small form factor utilizing both sides of board and fits in a 0.6"x0.78" area. It enables 86.5% efficiency at 10Vin, 1.2V/10Aout, 400kHz. Due to DCAP3 control mode, it also provides fast load transient response within +/-1.5%, minimizing output capacitors . PMBus interface enables output voltage adjustment, soft-start, power-on delay, switching frequency, UVLO and fault reporting.

Features

- Small form factor 1.2V/10A PoL in 0.6" by 0.78" size (15.2mm x19.7mm)
- High efficiency 86.5% at 1.2V/10A, 400kHz, 10Vin
- 51C FET temperature under 10Vin, 1.2V/10A, natural convection and room temperature
- DCAP3-enabled fast transient response within +/-1.5%
- PMBus controlled output voltage, soft-start, power-on delay, switching frequency, UVLO and fault report
- PowerStack package for easy heatsinking to the internal PCB GND layers and excellent thermal performance

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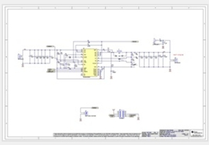
Schematic/Block Diagram

Quickly understand overall system functionality.



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Design Guide

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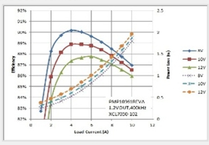

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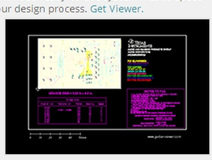
Design Files

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



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Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP10961
Vin (Min) (V)	7
Vin (Max) (V)	13.2
Vout (Nom) (V)	1.2
Iout (Max) (A)	10
Output Power (W)	12
Isolated/Non-Isolated	Non-Isolated
Input Type	DC
Topology	Buck- 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
TPS53915	1.5V to 18V Input (4.5V to 25V Bias), 12-A Synchronous Step-Down SWIFT™ Converter with PMBus™	Converter (Integrated Switch)	Sample & Buy	View Design Kits & Evaluation Modules

Technical Documents

User guides (1)

Title	Abstract	Type	Size (KB)	Date	Views	TI Recommends
PMP10961 Test Results		PDF	1557	18 Sep 2015	8	✓

Design files (4)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10961 Gerber		ZIP	135	18 Sep 2015	5
PMP10961 PCB		PDF	513	18 Sep 2015	6
PMP10961 BOM		PDF	108	18 Sep 2015	8
PMP10961 Schematic		PDF	112	18 Sep 2015	14

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