Automotive Power Supply with Pre-Boost Reference Design

(ACTIVE) PMP10223.4

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Key Document

- PMP10223 Test Results (PDF 1356 KB)
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PMP10223.4 Automotive Power Supply with Pre-Boost Reference Design Board Image

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

Description

The PMP10223 automotive power reference design provides 5.0V @ 1.1A, 3.3V @ 0.6A and 1.3V at 1.0A. A pre-boost provides 9.0V @ 1.7A to ensure proper operation even during startup of the engine. A synchronous buck converters generates 6.0V @ 2.2A as an intermediate rail for the following buck converters.

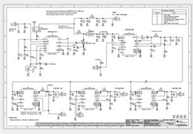
Features

- Complete Automotive Power Solution
- Includes Pre-Boost for Cranking
- High Efficiency
- Small Form Factor

TI's Standard Terms and Conditions for Evaluation Modules apply.

Schematic/Block Diagram

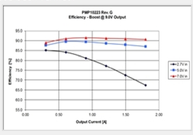
Quickly understand overall system functionality.



Download Schematic

Design Guide

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



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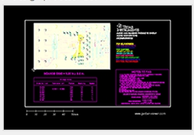
Design Files

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



Download Design Files

Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP10223.4
Vin (Min) (V)	6
Vin (Max) (V)	6
Vout (Nom) (V)	3.3
Iout (Max) (A)	.6
Output Power (W)	1.98
Isolated/Non-Isolated	Non-Isolated
Input Type	DC
Topology	Buck- Synchronous

TI Devices (4)

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
LM53603-Q1	3.5 to 36Vin, 3 Ampere Synchronous DC-DC Converter for Automotive Applications	Converter (Integrated Switch)	Sample & Buy	View Design Kits & Evaluation Modules
TPS40210-Q1	Automotive Wide Input Range Current Mode Boost Controller	Controller (External Switch)	Sample & Buy	Not Available
TPS62130A-Q1	TPS62130A-Q1 3 to 17-V 3-A Automotive Step-Down Converter in 3 × 3 QFN Package	Converter (Integrated Switch)	Sample & Buy	View Design Kits & Evaluation Modules

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CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
TPS40210-Q1	HVSSOP (DGQ) | 10	Download	-
TPS62130A-Q1	VQFN (RGT) | 16	Download	Download
TPS62133A-Q1	VQFN (RGT) | 16	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.

- read more -

Technical Documents

User guides (1)

Title	Abstract	Type	Size (KB)	Date	Views	TI Recommends
PMP10223 Test Results		PDF	1356	19 Oct 2015	36	✓

Design files (5)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10223 Gerber		ZIP	36	19 Oct 2015	17
PMP10223 PCB		PDF	224	19 Oct 2015	26
PMP10223 Assembly Drawing		PDF	213	19 Oct 2015	23
PMP10223 BOM		PDF	35	19 Oct 2015	35
PMP10223 Schematic		PDF	414	19 Oct 2015	79

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