Automotive Multi-Phase Synchronous Buck Power Module Reference Design

TI Designs

(ACTIVE) PMP10979

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Key Document

- PMP10979 Test Results (PDF 1118 KB) 04 Jun 2015

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PMP10979 Automotive Multi-Phase Synchronous Buck Power Module Reference Design Top of Board Image

Description

The PMP10979 is a highly efficient, multi-phase synchronous buck power module. The input voltage range is 11V to 24.30V, with an output of 13.50V at 95A. The design is intended for automotive applications.

Features

- Output of 13.50V at 95A
- 90 degrees phase shifted -4 Phase Synchronous Buck Converter
- Efficiency is greater than 97% with a 24V input at full load
- Good thermal performance
- Test report available

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

Schematic/Block Diagram

Quickly understand overall system functionality.

Download Schematic

Test Data

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

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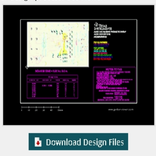
Design Files

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



Download Design Files

Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP10979
Vin (Min) [V]	11
Vin (Max) [V]	24.3
Vout (Nom) [V]	13.5
Iout (Max) [A]	90
Output Power	1215
Isolated/Non-Isolated	Non-Isolated
Input Type	DC
Topology	Buck- Multiphase

TI Devices (3)

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
LM5119Q	Automotive Grade 5.5-65V Wide Vin, Current Mode Dual Synchronous Buck Controller	Controller (External Switch)	Sample & Buy	Not Available
LMC555	Low power 555 Timer for Generating Accurate Time Delays and Oscillation	Clock and Timing	Sample & Buy	Not Available
SN74LVC1G04	Single Inverter	Logic	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
SN74LVC1G04	DSBGA (YZV) | 4	Download	-
	SOT (DBV) | 5	Download	Download
	SOT (DCK) | 5	Download	Download
	SOT (DRL) | 5	Download	Download
	DSBGA (YZP) | 5	Download	-
	X2SON (DSF) | 6	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: 92MB

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
PMP10979 Test Results		PDF	1118	04 Jun 2015	0	✓

Design files (4)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10979 Gerber		ZIP	354	04 Jun 2015	0
PMP10979 Assembly Drawings		PDF	413	04 Jun 2015	0
PMP10979 BOM		PDF	137	04 Jun 2015	0
PMP10979 Schematic		PDF	304	04 Jun 2015	0

Applications

- Head Unit

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