PMBus Power System for Enterprise Ethernet Switches Reference Design

(ACTIVE) PMP11399

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Key Document

- PMP11399 Test Results (PDF 3617 KB)
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PMP11399 PMBus Power System for Enterprise Ethernet Switches Reference Design Board Image

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

Description

PMP11399 is a complete PMBus power system for 3 ASIC/FPGA cores, DDR3 core memory, VTT termination, and auxiliary voltages commonly found on high-performance Ethernet Switches. The hardware is accompanied by a GUI that allows the user to perform real-time configuration and monitoring of the power supplies.

Features

- 12V / 300W system power solution with nine point-of-load buck converters
- PMBus communication configures hot-swap, SWIFT buck converters, multiphase PWM controller, and power sequencer/supervisor
- High-density power conversion utilizing Inductor On Top of IC layouts
- Voltage margining through PMBus and PWM
- UCD90240 GPIs allow for event-based power supply control

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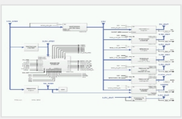
Schematic/Block Diagram

Quickly understand overall system functionality.



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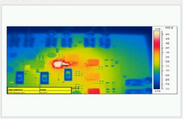
Design Guide

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

	PMP11399.1 (Output Voltage 1)	PMP11399.2 (Output Voltage 2)	PMP11399.3 (Output Voltage 3)	PMP11399.4 (Output Voltage 4)	PMP1 (Outp
Vin (Min) (V)	10.8	10.8	10.8	10.8	10.8
Vin (Max) (V)	13.2	13.2	13.2	13.2	13.2
Vout (Nom) (V)	12	5	3.3	5	3.3
Iout (Max) (A)	25	1	.08	10	14
Output Power (W)	300	5	.264	50	46.2
Isolated/Non-Isolated	Non-Isolated	Non-Isolated	Non-Isolated	Non-Isolated	Non-I
Input Type	DC	DC	DC	DC	DC
Topology	Hot Swap	Buck- Synchronous	Linear Regulator	Buck- Synchronous	Buck-

TI Devices (14)

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
CSD17570Q5B	30-V, N-Channel NexFET Power MOSFET, CSD17570Q5B	Power MOSFET	Sample & Buy	Not Available
CSD95372BQ5M	60A Synchronous Buck NexFET™ Smart Power Stage	Power MOSFET	Sample & Buy	Not Available
INA194	-16V to +80V, Low- or High-side, High-Speed, Voltage Output Current Shunt Monitor	Current Sense Amplifiers	Sample & Buy	Not Available

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CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
CSD95372BQ5M	LSON-CLIP (DQP) | 12	Download	-
INA194	SOT (DBV) | 5	Download	Download
TPS53317A	VQFN (RGB) | 20	Download	-
TPS53647	WQFN (RTA) | 40	Download	-
TPS544C25	LQFN-CLIP (RVF) | 40	Download	-
TPS62153	VQFN (RGT) | 16	Download	Download
TPS715	SOT (DCK) | 5	Download	Download
UCD90240	BGA MICROSTAR JUNIOR (ZRB) | 157	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 free download.

Step 2: Download the Symbol and Footprint from the CAD.bxl file table.

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Technical Documents

User guides (1)

Title	Abstract	Type	Size (KB)	Date	Views	TI Recommends
PMP11399 Test Results		PDF	3617	16 Mar 2016	16	✓

Design files (4)

Title	Abstract	Type	Size (KB)	Date	Views
PMP11399 CAD Files		ZIP	9337	16 Mar 2016	7
PMP11399 Assembly Drawing		PDF	531	16 Mar 2016	5
PMP11399 BOM		PDF	287	16 Mar 2016	11
PMP11399 Schematic		PDF	1105	16 Mar 2016	26

Related Tools & Software

Reference Designs (1)

Name	Part Number	Tool Type
Complete PMBus Power System for Enterprise Ethernet Switches Reference Design	PMP10896	TI Designs

Applications

- Ethernet Switch

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