Isolated quad-output Fly-Buck Bias for PLC applications Reference Design

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(ACTIVE) PMP9409

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

Description

The PMP9409 reference design is an 4-output isolated Fly-Buck power supply for PLC applications. It takes 24V nominal input and provides 4 isolated sets of (+15V) bias voltage, Each rail has a load of 30mA. Each set of rails is generated from one single transformer windings on the secondary side. A compact solution size is achieved (56x43mm). The design features the LM5017 synchronous buck converter configured as a Fly-Buck regulator. With the benefit of primary side regulation, the supply has the outputs regulated without the opto-coupler or additional transformer winding. The LM5017 has a wide Vin range which is up to 100V and 600mA output current capability with integrated switch FETs. The input voltage to the reference board can be loosely regulated with a range of 17V to 36V.

Features

- Four isolated outputs, 4x(+15V@30mA)
- Fly-Buck converter design, primary side regulation, compact solution for multiple isolated output supply
- Wide input voltage range of 17V to 36V
- 85% peak efficiency.
- LM5017 sync buck regulator, up to 100V wide Vin range, 600mA capability
- This circuit board is tested, and the design files and test report are included.

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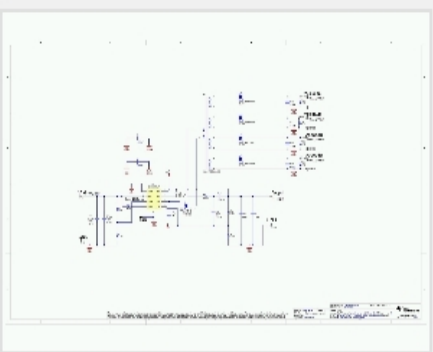
Schematic/Block Diagram

Quickly understand overall system functionality.



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Test Data

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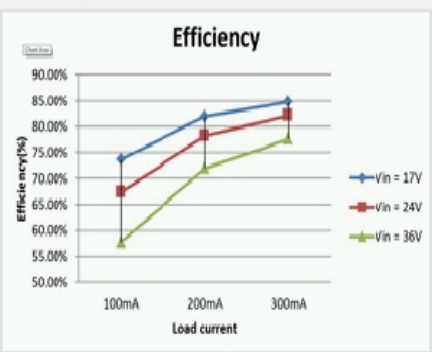

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Design Files

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

TI Devices (1)

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Part Number	Name	Product Family	Sample & Buy	Design Kits & Evaluation Modules
LM5017	7.5-100V Wide Vin, 600mA Constant On-Time Synchronous Buck Regulator	Converter (Integrated Switch)	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
LM5017	HSOP (DDA) | 8	Download	Download
	WSON (NGU) | 8	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
PMP9409 Test Results		PDF	615	04 Mar 2015	0

Design files (3)

Title	Abstract	Type	Size (KB)	Date	Views
PMP9409 Gerber		ZIP	40	04 Mar 2015	0
PMP9409 BOM		PDF	28	04 Mar 2015	0
PMP9409 Schematic		PDF	97	04 Mar 2015	0

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