Quad Output, Highly Efficient Fly-Buck for Isolated Gate Drivers in Inverters - Reference Design

(ACTIVE) PMP9486

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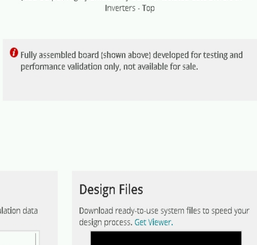

Quad Output, Highly Efficient Fly-Buck for Isolated Gate Drivers in Inverters - Top

Description

PMP9486 is a four output Fly-Buck converter for driving isolated driver stages (GND wrt high side sources) in DC/AC section of high frequency commercial or residential inverters (eg. solar micro inverters) using the LM5017 regulator IC. The design accepts an input voltage of 20Vin to 40Vin DC (from single panel in microinverters or 12V/24V batteries) and provides isolated outputs of 14.5V, 9V @100mA (referenced to same ground). It features a small size and is an inexpensive and more efficient solution for using Fly-Back or Push-Pull converters. High efficiency of 88% is achieved at 100mA load on each of the outputs.

Features

- Simple, low BOM-count, and low-cost design
- No external loop compensation
- Off the shelf magnetics
- Transient protect with no clamping circuitry
- Efficiency of 88% at 100mA load on each outputs
- Removes the need for external adapters in inverters

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

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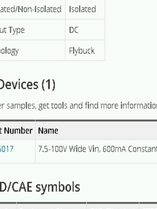
Schematic/Block Diagram

Quickly understand overall system functionality.



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Design Files

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Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP9486
Vin (Max) (V)	40
Vin (Min) (V)	20
Vout (Nom) (V)	14
Iout (Max) (A)	.1
Output Power	1.4
Isolated/Non-Isolated	Isolated
Input Type	DC
Topology	Flybuck

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
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

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Technical Documents

User Guides (1)

Title	Abstract	Type	Size (KB)	Date	Views
PMP9486 Test Results		PDF	2249	23 Sep 2014	15

Design Files (3)

Title	Abstract	Type	Size (KB)	Date	Views
PMP9486 Gerber		ZIP	160	23 Sep 2014	4
PMP9486 BOM		PDF	23	23 Sep 2014	12
PMP9486 Schematic		PDF	205	23 Sep 2014	30

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