400VDCin, 12V@460W, LLC with Synchronous Rectifiers

(ACTIVE) PMP5967

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Description

The PMP5967 reference design provides a 12V/38A output with over 94% efficiency from a 380VDC input. This design uses the UCC25600 to control the resonant LLC converter. The UCC24610 synchronous rectifier controller is used to control two banks of CSD18501Q5A MOSFETs, eliminating the need for heat sinks on the output rectifiers.

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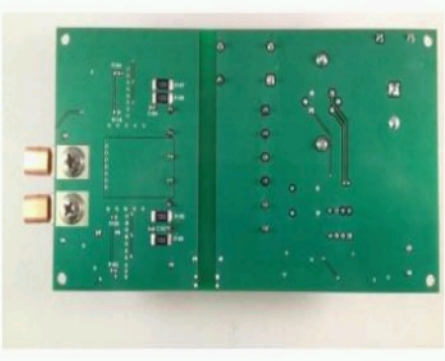

Bottom of Board

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

Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP5967
Vin (Max) (V)	400
Vin (Min) (V)	320
Vout (Nom) (V)	12
Iout (Max) (A)	39
Output Power	468
Isolated/Non-Isolated	Isolated
Input Type	DC
Topology	Half Bridge- LLC Half Bridge- Resonant

TI Devices (7)

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
CSD18501Q5A	40V N-Channel NexFET Power MOSFETs, CSD18501Q5A	Power MOSFET	Sample & Buy	Not Available
TL331	Single Differential Comparator	Amplifiers and Linear	Sample & Buy	Not Available

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CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
TL331	SOT (DBV) | 5	Download	Download
TL431A	SOT (DBZ) | 3	Download	Download
	TO-92 (LP) | 3	Download	Download
	SIP (PK) | 3	Download	-
	SOT (DBV) | 5	Download	Download
	SOT (DCK) | 6	Download	Download
	SOIC (D) | 8	Download	Download
	PDIP (P) | 8	Download	Download
	SOP (PS) | 8	Download	-
	TSSOP (PW) | 8	Download	-
TPS71550	SOT (DCK) | 5	Download	Download
UCC24610	SOIC (D) | 8	Download	Download
	VSON (DRB) | 8	Download	-
UCC25600	SOIC (D) | 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
PMP5967 Test Results		PDF	1350	16 Aug 2011	149

Design Files (4)

Title	Abstract	Type	Size (KB)	Date	Views
PMP5967 PCB		PDF	80	09 Jan 2013	57
PMP5967 Gerber		ZIP	170	09 Jan 2013	33
PMP5967 BOM		PDF	18	04 Aug 2011	94
PMP5967 Schematic		PDF	97	04 Aug 2011	301

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