220V-400VDC Input, 12V/160W Active Clamp Forward

(ACTIVE) PMP7410

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Description

This reference design generates an isolated 12V/160W output from a high voltage DC input. This design is intended to operate from the output of PFC front end regulator. The UCC2897A is used to control an active clamp forward converter. Texas Instruments CSD18531Q5A synchronous rectifiers allow this design to achieve over 92% efficiency. An accurate current limit is provided by directly sensing the output current. A clock pulse output is also provided for synchronizing with other converters.

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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

	PMP7410
Vin (Max) (V)	400
Vin (Min) (V)	220
Vout (Nom) (V)	12
Iout (Max) (A)	13
Output Power	156
Isolated/Non-Isolated	Isolated
Input Type	DC
Topology	Forward- Active Clamp Forward- Synchronous

TI Devices (3)

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Part Number	Name	Product Family	Sample & Buy	Design Kits & Evaluation Modules
CSD18531Q5A	60V N-Channel NexFET Power MOSFETs, CSD18531Q5A	Power MOSFET	Sample & Buy	View Design Kits & Evaluation Modules
SN74AHCT74	Dual Positive-Edge-Triggered D-Type Flip-Flops With Clear and Preset	Flip-Flop/Latch/Register	Sample & Buy	Not Available
UCC2897A	Advanced Current-Mode Active Clamp PWM Controller	AC/DC and Isolated DC/DC Power Supply	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
SN74AHCT74	SOIC (D) | 14	Download	Download
	SSOP (DB) | 14	Download	-
	TVSOP (DGV) | 14	Download	-
	PDIP (N) | 14	Download	-
	SOP (NS) | 14	Download	-
	TSSOP (PW) | 14	Download	Download
	VQFN (RGY) | 14	Download	-
UCC2897A	TSSOP (PW) | 20	Download	Download
	VQFN (RGP) | 20	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
PMP7410 Test Results		PDF	4341	14 May 2012	63

Design Files (2)

Title	Abstract	Type	Size (KB)	Date	Views
PMP7410 Schematic		PDF	182	14 May 2012	114
PMP7410 Bill of Materials		PDF	82	14 May 2012	62

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