High-Efficiency Adjustable Output Synchronous Boost Converter Reference Design

(ACTIVE) PMP10538

Description & Features | Technical Documents | Support & Community | Order Now

View the Important Notice for TI Designs covering authorized use, intellectual property matters and disclaimers.

Description

PMP10538 is a Single-Phase Synchronous Boost Converter using the LM5122 controller IC. The design accepts an input voltage of 18Vin to 20Vin and provides an output of 30Vout to 54Vout, capable of supplying 1.7A of continuous current to the load or 0A to 3.4A Max. The output voltage can be adjusted between 30Vout and 54Vout by driving the Vadj. input of the Op-Amp circuit between 0V and 3V.

Features

- High efficiency design
- Adjustable output voltage
- Cycle-by-Cycle Current limit with programmable hiccup mode overload protection
- Precision voltage reference accuracy of ±1%
- Synchronizable to external clock

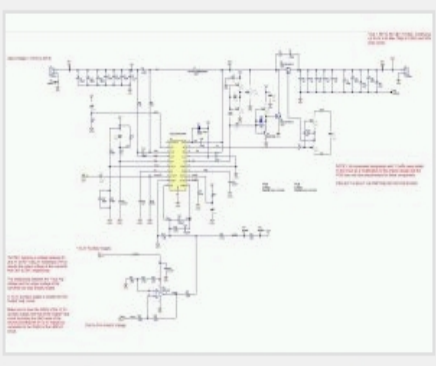
High-Efficiency Adjustable Output Synchronous Boost Converter Reference Design (top view)

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

TI's Standard Terms and Conditions for Evaluation Modules apply.

Schematic/Block Diagram

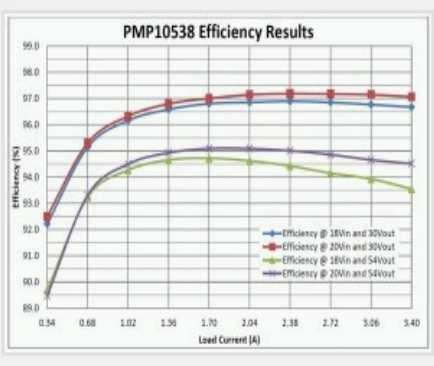
Quickly understand overall system functionality.



Download Schematic

Test Data

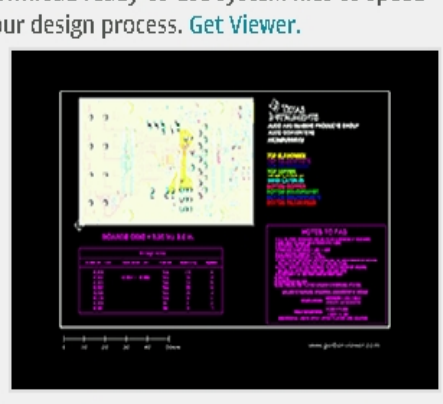
Get results faster with test and simulation data that's been verified.



Download Test Data

Design Files

Download ready-to-use system files to speed your design process. Get Viewer.



Download Design Files

Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP10538
Vin (Min) (V)	18
Vin (Max) (V)	20
Vout (Nom) (V)	54
Iout (Max) (A)	1.7
Output Power	91.8
Isolated/Non-Isolated	Non-Isolated
Input Type	DC
Topology	Boost- Synchronous

TI Devices (2)

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
LM321	Low Power Single Op Amp	Operational Amplifier (Op Amp)	Sample & Buy	View Design Kits & Evaluation Modules
LM5122	3-65V Wide Vin, Current Mode Synchronous Boost Controller with Multiphase Capability	Controller (External Switch)	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
LM321	SOT (DBV) | 5	Download	Download
LM5122	HTSSOP (PWP) | 20	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.

- read more -

Technical Documents

User guides (1)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10538 Test Results		PDF	1469	09 Jun 2015	0

Design files (6)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10538 Gerber (from PMP7950)		ZIP	308	09 Jun 2015	0
PMP10538 CAD Files		ZIP	721	09 Jun 2015	0
PMP10538 PCB (from PMP7950)		PDF	1305	09 Jun 2015	0
PMP10538 Assembly Drawing (from PMP7950)		PDF	145	09 Jun 2015	0
PMP10538 BOM		PDF	137	09 Jun 2015	0
PMP10538 Schematic		PDF	424	09 Jun 2015	0

Applications

- TV: High-Definition (HDTV)
- TV: LCD/Digital

Support & Community

TI E2E™ community

TI E2E™ Community

As a member of my.TI you can join the TI E2E™ Community where you can ask questions, share ideas and collaborate with fellow engineers and TI experts

Contents are provided "AS IS" by the respective TI and Community contributors and do not constitute TI specifications. See Terms of use.

Engage in the Community

- Amplifiers
- Broadband RF/IF & Digital Radio
- Clocks & Timers
- Data Converters
- DLP® & MEMS
- Interface
- Logic
- Power Management
- Wireless Connectivity

Wikis

Visit the TI Wiki

Other Support

- TI E2E Community
- Contact Technical Support

Your History

Products You Recently Viewed

- PMP11047
- PMP10977
- PMP9393
- PMP9415
- TIDA-00355

TI is a global semiconductor design and manufacturing company. Innovate with 100,000+ analog ICs and embedded processors, along with software, tools and the industry's largest sales/support staff.

© Copyright 1995-2015 Texas Instruments Incorporated. All rights reserved.
Trademarks | Privacy policy | Terms of use | Terms of sale