Public Announcement Audio Reference Design utilizing best in class Boost Controller

(ACTIVE) PMP10710

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Key Document

- PMP10710 Test Results (PDF 4207 KB)
  04 Sep 2015 52 views

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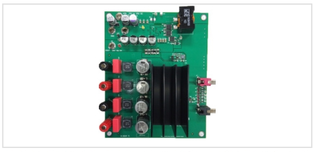

PMP10710 Public Announcement Audio Reference Design utilizing best in class Boost Controller Top View

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

Description

PMP10710 is a 200W design for public announcement audio system which can be used in 100W +100W Stereo or 200W Woofer Applications. The design is broadly divided into four main stages:

1. Single-Phase Synchronous Boost Converter using the LM5122 controller IC. The design accepts an input voltage of 10V to 15 VIN (12 VIN Nominal) and provides an output of 30V capable of supplying 6.5A of continuous current to the load.
2. 100W + 100W Stereo Audio Amplifier with TAS5611 Class D device.
3. Single ended to differential conversion (with active low pass filter) for Stereo inputs using OPA1632 differential amplifier.
4. Simple Switcher LM16006 is used for all Aux supply needs.

Features

- Synchronous Rectification in Boost for very High Efficiency
- Ultra Low Footprint Area for LM5122 Actual Power Stage
- Single Speaker (Woofer). Dual Speaker(Stereo) Support in the design
- Free-Run/Synchronizable Switching to 1 MHz in Boost device
- Single ended input to differential conversion for TAS5611 Amp inputs

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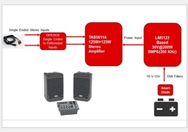
Schematic/Block Diagram

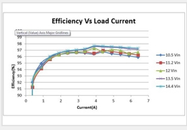
Quickly understand overall system functionality.



Download Schematic

Test Data

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



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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

	PMP10710
Vin (Min) (V)	10
Vin (Max) (V)	15
Vout (Nom) (V)	30
Iout (Max) (A)	6.5
Output Power (W)	195
Isolated/Non-Isolated	Non-isolated
Input Type	DC
Topology	Boost- Synchronous

TI Devices (4)

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
LM5122	3-65V Wide Vin, Current Mode Synchronous Boost Controller with Multiphase Capability	Controller (External Switch)	Sample & Buy	View Design Kits & Evaluation Modules
LMR16006Y-Q1	Automotive Qualified SIMPLE SWITCHER® 40V (65V transient), 0.6A Buck Regulator with 28µA IQ	Converter (Integrated Switch)	Sample & Buy	View Design Kits & Evaluation Modules
OPA1632	Fully Differential I/O Audio Amplifier	Operational Amplifier (Op Amp)	Sample & Buy	Not Available

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CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
LM5122	HTSSOP (PWP) | 20	Download	Download
OPA1632	SOIC (D) | 8	Download	Download
	HVSSOP (DGN) | 8	Download	-
TAS5611A	HTQFP (PHD) | 64	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	TI Recommends
PMP10710 Test Results		PDF	4207	04 Sep 2015	52	✓

Design files (4)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10710 Gerber		ZIP	578	04 Sep 2015	29
PMP10710 BOM		PDF	27	04 Sep 2015	33
PMP10710 Block Diagram		PDF	225	04 Sep 2015	54
PMP10710 Schematic		PDF	489	04 Sep 2015	84

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