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Technical Documents

♥Worldwide (In English)

Universal Input to 3.3V, 12V, 36V, 200W Continuous PSU for Class-D Amplifier Reference Design (ACTIVE) PMP10215

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- Key Document

Description & Features

PMP10215 Test Results (PDF 1929 KB) 03 May 2016 90 views

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Description

This power module generates all voltages to supply a class-D audio amplifier. The main output voltage is 36V and delivers 200W continuously and 540W peak. The first stage is a power-factor corrected Boost. A Flyback converter supplies 12V on primary side as well as 12V @ 300mA and 3.3V @ 200mA on secondary side. A hardware switch + remote input let the converter enter in stand-by mode: in this status the 36V output is disabled and 12V, 3.3V are "always on". This way the stand-by power is reduced down to 150mW @ 115Vac and 270mW @ 230Vac. A second digital input switches the main

output voltage from 36V to 18V, allowing low current consumption mode in case of the audio amplifier needs less power.

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PMP10215 Universal Input to 3.3V, 12V, 36V, 200W Continuous PSU for Class-D Amplifier Reference Design Top of Board View

fully assembled board (shown above) developed for testing and performance validation only, not

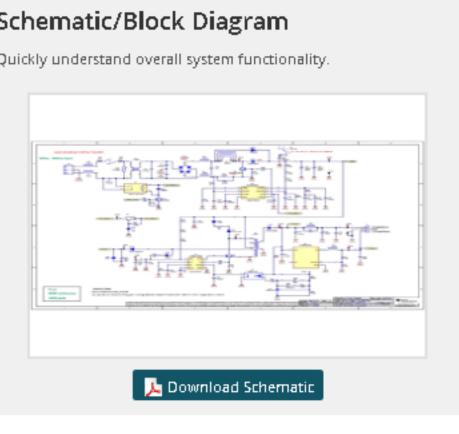
Features

- Low cost PFC + Quasi-resonant 2-Switch Flyback Topology provides 200W average, 540Wpeak power
- Constant switching frequency: particularly suitable for audio applications. Simple thermal interace: two small heat-sinks placed on one side of the board.
- Good plug-to-plug efficiency: 84% @ 115Vac, 86% @ 230Vac

Compact construction: 126mm x 145mm, height 35mm

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Schematic/Block Diagram Quickly understand overall system functionality.





PMP10215.4



Find the complete list of components in this reference design.

Bill of Materials (BOM)

PMP10215.1

📐 Download BOM

Parametrics

	(Output Voltage 1)	(Output Voltage 2)	(Output voitage 3)	(Output Voltage 4)
Vin (Min) (V)	85	120	10	350
Vin (Max) (V)	264	430	14	430
Vout (Nom) (V)	400	12	3.3	36
lout (Max) (A)	.55	.3	.2	15
Output Power (W)	220	3.6	.66	540
Isolated/Non-Isolated	Non-Isolated	Isolated	Non-Isolated	Isolated
Input Type	AC	DC	DC	DC
Topology	Boost- CCM	Flyback- DCM	Buck- Synchronous	Forward- 2 Switch

CAD File (.bxl) | STEP Model (.stp)

PMP10215.2

PMP10215.3

TI Devices (8) 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
LM5021	AC-DC Current Mode PWM Controller	Offline and Isolated DC/DC Controllers and Converters	Sample & Buy	Not Available
LMV431A	Low-Voltage (1.24V) Adjustable Precision Shunt Regulators	Voltage Reference	Sample & Buy	Not Available
SN74LVC1G17	Single Schmitt-Trigger Buffer	Logic	Sample & Buy	View Design Kits & Evaluation Modules
TL431A	Adjustable Precision Shunt Regulator	Voltage Reference	Sample & Buy	Not Available
TMP709	Resistor-Programmable Trip Point Temperature Switch	Temperature Sensors	Sample & Buy	View Design Kits & Evaluation Modules
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Part# Package | Pins

CAD/CAE symbols

LM5021	🔼 VSSOP (DGK) 8	Download	Download
	PDIP ⟨P⟩ 8	Download	Download
LMV431A	SOT (DBZ) 3	Download	Download
	▶ TO-92 (LP) 3	Download	Download
SN74LVC1G17	DSBGA (YZT) 4	Download	-
	DSBGA (YZV) 4	Download	-
	SOT(DBV) 5	Download	Download
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	I TSSOP ⟨PW⟩ 8	Download	Download
TPS560200	SOT⟨DBV⟩ 5	Download	Download
UCC27714	SOIC (D) 14	Download	-
Technical	Documents		

Step 2: Download the Symbol and Footprint from the CAD.bxl file table. - read more -

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 free download.

User guides (1)

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Design files (6)

Title

Title

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Applications						

Abstract Type Size (KB) Date

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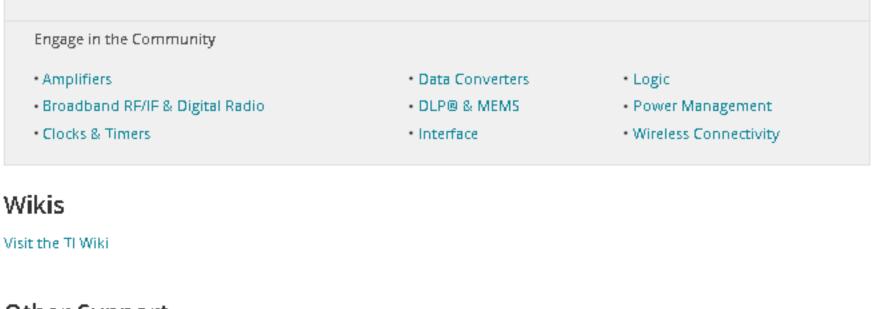
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AV Receiver

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