55 Vin, Low Noise Synchronous Buck Converter Reference Design with 6V, 7A Output

(ACTIVE) PMP10898

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Key Document

- PMP10898 Test Results (PDF 431 KB)
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PMP10898 55 Vin, Low Noise Synchronous Buck Converter Reference Design with 6V, 7A Output Top of Board Image

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

Description

PMP10898 was designed to power a high frequency radio transmitter with up to 7 A off 6 V powered from "Telecom 48V". This application needs both low noise and excellent dynamic response when load is switched from near zero to full. Also it needs satisfactory thermal performance for outdoors operation with wide temperature range and no fan. Test Report documents performance in all 3 areas.

Features

- Low output ripple & well damped main switching node for noise sensitive applications such as high frequency radio
- Tested at full load with no fan
- Tested with step load from near no load to full load
- Ultra-stable design: 75 degrees of Phase Margin & 20 dB gain margin
- This circuit design is tested and includes a full test report, schematic, and gerber files

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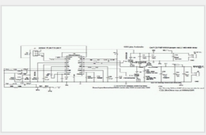
Schematic/Block Diagram

Quickly understand overall system functionality.



Download Schematic

Design Guide

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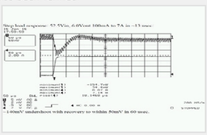

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Design Files

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

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Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

Parametrics

	PMP10898
Vin (Min) (V)	50
Vin (Max) (V)	55
Vout (Nom) (V)	6
Iout (Max) (A)	7
Output Power (W)	42
Isolated/Non-Isolated	Non-Isolated
Input Type	DC
Topology	Buck- 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
CSD19534Q5A	100V, N-Channel NexFET Power MOSFET	Power MOSFET	Sample & Buy	Not Available
TPS40170	4.5 V to 60 V Wide-Input Synchronous PWM Buck Controller	Controller (External Switch)	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
TPS40170	VQFN (RGY) | 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.

- read more -

Technical Documents

User guides (1)

Title	Abstract	Type	Size (KB)	Date	Views	TI Recommends
PMP10898 Test Results		PDF	431	11 Jan 2016	51	✓

Design files (4)

Title	Abstract	Type	Size (KB)	Date	Views
PMP10898 Gerber		ZIP	136	11 Jan 2016	17
PMP10898 PCB (from PMP6680)		PDF	152	11 Jan 2016	30
PMP10898 BOM		PDF	31	11 Jan 2016	32
PMP10898 Schematic (from PMP6680 and PMP10828)		PDF	31	11 Jan 2016	74

Applications

- Video Recorder (NVR, DVR, etc.)

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