Power Supply Solution for Positron Emission Tomography (PET) Scanner Processing and Control Board

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

Description

A 12V-20V input, 95W, five (5) rail design for a PET Scanner control board with the TPS40303/304 PWM step-down controllers and Dual-Cool CSD16322Q5C NexFETs powering DDR core, DSP core, and analog circuitry like detectors, front-end amplifiers/filters and Analog-to-Digital Converters.

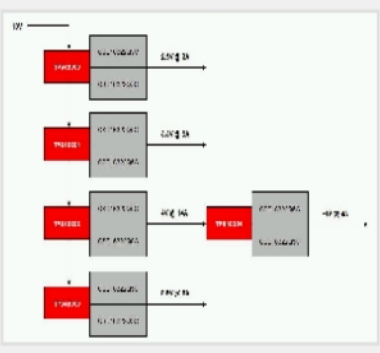
Features

- 92% Efficiency
- Frequency Spread Spectrum (FSS) to reduce EMI noise peaks
- 3% voltage regulation tolerance
- 25degC to +85degC Operating Temperature Range
- 300KHz/600KHz Switching Frequency
- 600mm2 total power supply area per voltage rail

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

Schematic/Block Diagram

Quickly understand overall system functionality.



Download Schematic

Test Data

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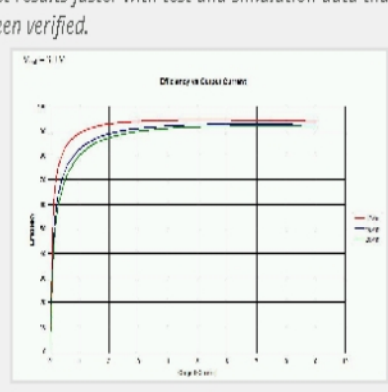

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Design Files

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

	PMP5754
Vin (Max) (V)	20
Vin (Min) (V)	12
Vout (Nom) (V)	4
Iout (Max) (A)	6
Output Power	24
Isolated/Non-Isolated	Non-Isolated
Input Type	DC
Topology	Buck- 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
CSD16322Q5C	DualCool™ N-Channel NexFET™ Power MOSFET	Power MOSFET	Sample & Buy	View Design Kits & Evaluation Modules
TPS40303	3V to 20V Wide Input Synchronous Buck Controller for High Power Density, High Efficiency,	Controller (External	Sample & Buy	View Design Kits & Evaluation

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CAD/CAE symbols

Part #	Package | Pins	CAD File (.bxl)	STEP Model (.stp)
TPS40303	VSON (DRC) | 10	Download	-
TPS40304	VSON (DRC) | 10	Download	-
TPS40305	VSON (DRC) | 10	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
PMP5754 Test Results		PDF	3136	15 Aug 2011	80

Design Files (4)

Title	Abstract	Type	Size (KB)	Date	Views
PMP5754 P-CAD (Rev. A)		ZIP	740	05 May 2014	39
PMP5754 PCB		PDF	344	18 Aug 2011	35
PMP5754 Schematic		PDF	110	04 Aug 2011	106
PMP5754 BOM		PDF	38	04 Aug 2011	52

Related Tools & Software

Software (1)

PMP5754 Design File
(ZIP, 6993 KB) 85 views, 05 May 2014

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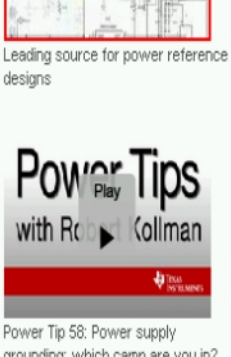

Power Tip 58: Power supply grounding; which camp are you in?

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