High Power Density 9V to 15V input, Intel® Pentium™ N3700 VCC0+VCC1 power design for Industrial PCs

[ACTIVE] TIDA-00572

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

Description

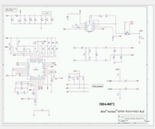
The TI TPS1623 VR12.1 reference design, supporting Intel® Pentium™ N3700 , uses TI's driverless PWM architecture with TI power stages for high power density, high efficiency, and low component count while meeting Intel voltage tolerance requirements with low ripple, tight loadline, and high output current monitoring accuracy.

Features

- 89% Efficiency at 12VIN, 1.2Vout, 1MHz, at 6.4A output current (VCC0+VCC1)
- Load transient performance well within the +/-35mV DC+AC guideline
- Only 30x22uF ceramic output caps
- 8mV pk-pk output voltage ripple at 12VIN, 6A load, PS0 power state
- Meets all Intel® Pentium™ N3700 VCC0+VCC1 rail specifications, including Fast and Slow Dynamic VID transition specs
- Driverless PWM architecture with external TI power stages for high effiency and power density

Schematic/Block Diagram

Quickly understand overall system functionality.



Download Schematic

Test Data

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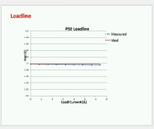

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Design Files

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

	TIDA-00572
Vin (Min) (V)	9
Vin (Max) (V)	15
Vout (Nom) (V)	1.2
Iout (Max) (A)	6.4
Output Power	7.68
Isolated/Non-Isolated	Non-Isolated
Input Type	DC
Topology	Buck- Synchronous

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Part Number	Status	Vin (Min) (V)	Vin (Max) (V)	Vout (Nom) (V)	Iout (Max) (A)	Output Power	Isolated/Non-Isolated	Input Type	Topology
TIDA-00572: High Power Density 9V to 15V input, Intel® Pentium™ N3700 VCC0+VCC1 power design for Industrial PCs	ACTIVE	9	15	1.2	6.4	7.68	Non-Isolated	DC	Buck-Synchronous

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TI Devices (3)

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
CSD97374Q4M	High Frequency Synchronous Buck NexFET Power Stage	Power MOSFET	Sample & Buy	Not Available
TPS51623	2-Phase, D-CAP(tm)M Step-Down Controller for VR12.1 Vcpu	DC/DC Switching Regulator	Sample & Buy	Not Available
TPS70102	Dual-Output Low-Dropout (LDO) Voltage Regulator with Power Up Sequencing For Split Vo	Linear Regulator (LDO)	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File [.bxl]	STEP Model [.stp]
CSD97374Q4M	VSON-CLIP (DPC)| 8	Download	-
TPS70102	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
TIDA-00572 Test Results		PDF	7557	07 May 2015	150

Design files (3)

Title	Abstract	Type	Size (KB)	Date	Views
TIDA-00572 Gerber		ZIP	2065	07 May 2015	38
TIDA-00572 BOM		PDF	321	07 May 2015	118
TIDA-00572 Schematic		PDF	2519	07 May 2015	223

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