MAX8796, MAX8797, MAX17401

1-Phase, Quick-PWM Intel IMVP-6/GMCH Controllers

1-Phase, Intel IMVP-6/6+ Controllers Ideal for Atom CPU and UMPC Designs

Status

Part Number	Status
MAX17401	Active: In Production.
MAX8796	Active: In Production.
MAX8797	Custom Order: Minimum order quantities and other restrictions may apply.

Data Sheet

Request Full Data Sheet
Custom Order

Description

The MAX8796/MAX8797/MAX17401 are 1-phase Quick-PWM™ step-down VID power-supply controllers for Intel notebook CPUs and graphics. The Quick-PWM control provides instantaneous response to fast load current steps. Active voltage positioning reduces power dissipation and bulk output capacitance requirements and allows ideal positioning compensation for tantalum, polymer, or ceramic bulk output capacitors.

The MAX8796/MAX8797/MAX17401 are intended for two different notebook CPU/GPU core applications: either bucking down the battery directly to create the core voltage, or else bucking down the +5V system supply. The single-stage conversion method allows this device to directly step down high-voltage batteries for the highest possible efficiency. Alternatively, 2-stage conversion (stepping down the +5V system supply instead of the battery) at higher switching frequency provides the minimum possible physical size.

A slew-rate controller allows controlled transitions between VID codes. A thermistor-based temperature sensor provides programmable thermal protection. A power monitor provides an analog voltage output proportional to the power consumed by the CPU/GPU.

The MAX8796/MAX17401 implement both the Intel IMVP-6 CPU core specifications, as well as the Intel GMCH graphics core specifications. The MAX8797 implements the Intel GMCH graphics core specifications. The MAX8796/MAX17401 are available in a 32-pin TQFN package. The MAX8797 is available in a 28-pin TQFN package.

Key Features

- 1-Phase Quick-PWM Controllers
- ±0.5% V_{OUT} Accuracy Over Line, Load, and Temperature
- 7-Bit IMVP-6 DAC (MAX8796/MAX17401 Only)
- 5-Bit GMCH DAC
- Active Voltage Positioning with Adjustable Gain
- Accurate Droop and Current Limit
- Remote Output and Ground Sense
- Adjustable Output-Voltage Slew Rate
- Power-Good Window Comparator
- Power Monitor
- Temperature Comparator
- Drives Large Synchronous Rectifier FETs
- 2V to 26V Power Input Range
- Adjustable Switching Frequency (600kHz max)
- Output Overvoltage Protection (MAX8796/MAX8797 Only)
- Undervoltage and Thermal-Fault Protection
- Soft-Startup and Soft-Shutdown
- Internal Boost Diodes

Applications/Uses

- 2 to 4 Lithium-Ion (Li+) Cell Battery-to-CPU Core Supply Converters
- Graphics Core Power Supply
- IMVP-6/IMVP-6+ Core Power Supply
- Intel GMCH Crestline/Cantiga
- Notebooks/Desktops/Servers
- Voltage-Positioned Step-Down Converters

Reliability Reports

Reliability Report: MAX8796.pdf
Show FIT data for: MAX8796 Go

Request Reliability Report for: MAX8797 Go

Product Change Notices

Device	Issue Date	Area	Product Change Notice
MAX8796GTJ+	2011-11-29 2010-11-29 2010-10-06 2010-09-28	WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 799 (PDF, 52.3kB)
MAX8796GTJ+T	2011-11-29 2011-08-31 2010-11-29 2010-10-06 2010-09-28	WAFER FAB WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 958_PRE-PCN Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 799 (PDF, 52.3kB)
MAX8796GTJ+TC8V	2011-11-29 2010-11-29 2010-10-06 2010-09-28	WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 799 (PDF, 52.3kB)
MAX8796GTJ+TG05	2011-11-29 2010-11-29 2010-10-06 2010-09-28	WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 799 (PDF, 52.3kB)
MAX8796GTJ+TG071	2011-11-29 2010-11-29 2010-10-06 2010-09-28	WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 799 (PDF, 52.3kB)
MAX8796GTJ+TGC1	2011-11-29 2010-11-29 2010-10-06 2010-09-28	WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 799 (PDF, 52.3kB)
MAX8797GTI+	2011-11-29 2010-11-29 2010-10-06 2010-03-26	WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 737 (PDF, 282.7kB)
MAX8797GTI+T	2011-11-29 2010-11-29 2010-10-06 2010-03-26	WAFER FAB ASSEMBLY WAFER FAB ASSEMBLY	Product Change Notice 873 (PDF, 112.2kB) Product Change Notice 831 (PDF, 46.5kB) Product Change Notice 813 (PDF, 432.9kB) Product Change Notice 737 (PDF, 282.7kB)

Disclaimer
PCN's displayed are for notification only and are effective on the date distributed.

Software/Models

none

Ordering Information

Filters: Part Number [ ] Package: Any Temperature: Any ☐ Tape and Reel ☐ Sample Go

Part Number	Free Sample	Buy	Status	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX8796EVKIT#		Buy	Custom Order	KIT; Land Pattern: Not Available		See data sheet
MAX8796GTJ+	Sample	Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
				TQFN;32 pin;26 mm²		

MAX8796GTJ+C8V	Buy	Custom Order	Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+G05	Buy	Custom Order	QFN; Land Pattern: Not Available	-40°C to +105°C	See data sheet
MAX8796GTJ+G071	Buy	Custom Order	QFN; Land Pattern: Not Available	-40°C to +105°C	See data sheet
MAX8796GTJ+G1D	Buy	Active: Data sheet on request only	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+G51	Buy	Custom Order	QFN; Land Pattern: Not Available	-40°C to +105°C	See data sheet
MAX8796GTJ+GA4	Buy	Custom Order	QFN; Land Pattern: Not Available	-40°C to +105°C	See data sheet
MAX8796GTJ+GB4	Buy	Custom Order	QFN; Land Pattern: Not Available	-40°C to +105°C	See data sheet
MAX8796GTJ+GC1	Buy	Custom Order	QFN; Land Pattern: Not Available	-40°C to +105°C	See data sheet

Part Number	Free Sample	Buy	Status	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX8796GTJ+T		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TC8V		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TG05		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TG071		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TG1D		Buy	Active: Data sheet on request only	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TG51		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TGA4		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TGB4		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF) Use pkgcode/variation: T3255+3*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8796GTJ+TGC1		Buy	Custom Order	TQFN;32 pin;26 mm² Outline Drawing:21-0140 (PDF) Land Pattern: 90-0001 (PDF)	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis

				Use pkgcode/variation: T3255+3*		
MAX8797EVKIT+		Buy	Custom Order	KIT; Land Pattern: Not Available		See data sheet

Part Number	Free Sample	Buy	Status	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX8797GTI+	Sample	Buy	Custom Order	TQFN;28 pin;16.8 mm² Outline Drawing:21-0139 (PDF) Land Pattern: 90-0035 (PDF) Use pkgcode/variation: T2844+1*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8797GTI+GB4		Buy	Custom Order	QFN; Land Pattern: Not Available	-40°C to +105°C	See data sheet
MAX8797GTI+T		Buy	Custom Order	TQFN;28 pin;16.8 mm² Outline Drawing:21-0139 (PDF) Land Pattern: 90-0035 (PDF) Use pkgcode/variation: T2844+1*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX8797GTI+TGB4		Buy	Custom Order	TQFN;28 pin;16.8 mm² Outline Drawing:21-0139 (PDF) Land Pattern: 90-0035 (PDF) Use pkgcode/variation: T2844+1*	-40°C to +105°C	RoHS/Lead-Free: Lead Free Materials Analysis

Notes:

1. Other options and links for purchasing parts are listed at: http://www.maximintegrated.com/sales.
2. Didn't Find What You Need? Ask our applications engineers. Expert assistance in finding parts, usually within one business day.
3. Part number suffixes: T or T&R = tape and reel; + = RoHS/lead-free; # = RoHS/lead-exempt; -D = drypack; -U/+U on DS parts = cut tape. More: See Full Data Sheet or Maxim Product Naming Conventions.
4. * Some packages have variations, listed on the drawing. "PkgCode/Variation" tells which variation the product uses. Note that "+", "#", "-" in the part number suffix describes RoHS status. Package drawings may show a different suffix character.

Similar Products by Function

MAX17028, MAX17428 1-Phase Quick-PWM Intel IMVP-6.5/GMCH Controllers
MAX17021, MAX17082, MAX17482 Dual-Phase, Quick-PWM Controllers for IMVP-6+/IMVP-6.5 CPU Core Power Supplies

Similar Products by Application

Access Point > IMVP Power

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