LOW-POWER NOTEBOOK ICs

Data Sheets • Application Notes • Free Samples

23rd EDITION

Complete CPU Power Solutions for Notebooks and Ultra-Mobile PCs

Scalable Phase, CPU Controller Solutions Provide Accurate Output Regulation, Fast Transient Response, and Fault Protection

Mobile Intel® CPU Power

- MAX1907A
- MAX1987
- MAX1532A
- MAX8736
- MAX8770
- MAX8771

AMD® CPU Power

- MAX1544
- MAX8760
- MAX8774

3-/2-/1-PHASE CPU SOLUTIONS

LOW-COST, SMALL-PACKAGE SOLUTIONS

AVAILABLE IN LEAD-FREE PACKAGES

- Integrated Boost Switches
- Phase-Fault Output (MAX8771/MAX8774)
- 200kHz to 600kHz Programmable Switching Frequency
- Active Voltage Positioning
- Small, 6mm x 6mm, 40-Pin TQFN Package

For More Information on Maxim's Product Lines for Notebooks, Go to:
www.maxim-ic.com/notebooks

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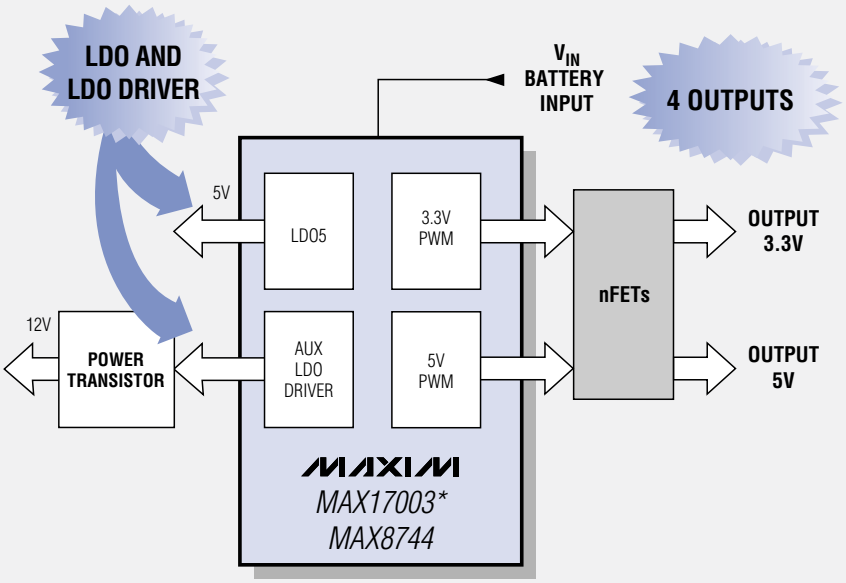
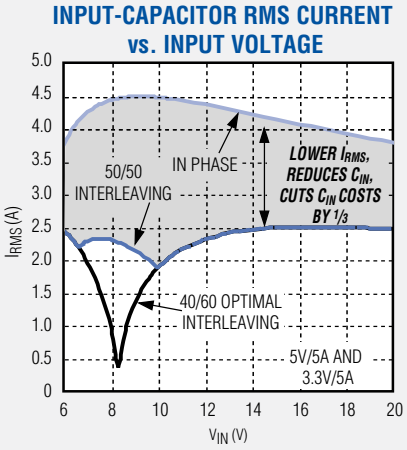
DALLAS SEMICONDUCTOR MAXIM

Simple, Low-Cost, Four-Output, Main-Power Controller for Notebooks

Optimal Interleaving Minimizes Input-Capacitance Requirements

The MAX17003*/MAX8744 integrate two switch-mode regulators, one bootstrapped linear regulator, and one external-switch linear-regulator controller to allow simple, compact designs. Optimal (40/60) interleaving in the MAX17003/MAX8744's two fixed-frequency controllers minimizes input-ripple current and input-capacitor requirements. Integrated boost switches, Dual Mode™ feedback, and simplified logic controls result in a low-cost application circuit with very few external components.





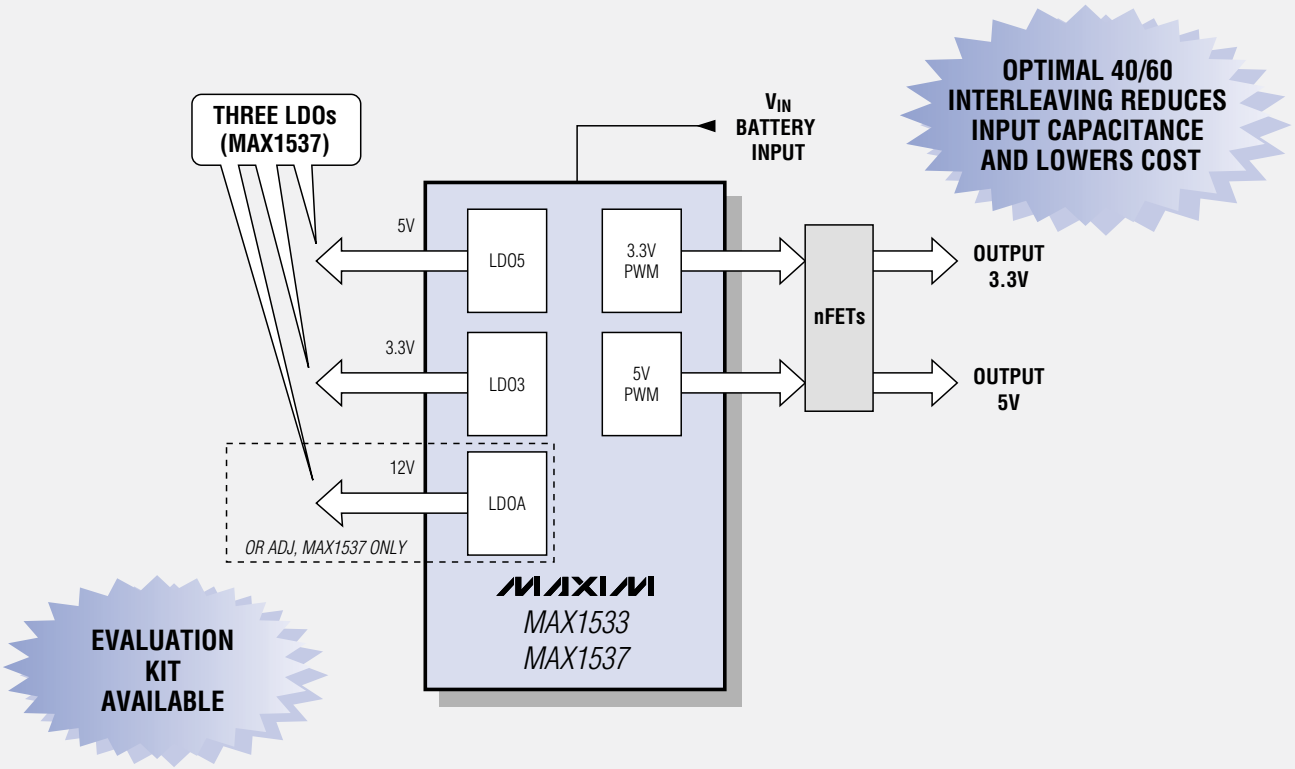
- **Integrated Boost Switches Minimize External Components**
- **Internal Bootstrapped, 5V Linear Regulator with 100mA Load Capability**
- **40/60 Interleaving Reduces Number of Input Capacitors**
- **Accurate Differential Current-Sense Inputs**
- **Auxiliary 12V or Adjustable External-Switch Linear Regulator with Scalable Current**
- **Dual Mode Feedback—3.3V/5V Fixed or Adjustable Output Voltages**
- **200kHz/300kHz/500kHz Switching Frequency**

Part	No. of Outputs	Fixed LDO (V at 100mA)	Aux LDO	Package (mm x mm)
MAX17003*	4	5	12V or adj	32-TQFN (5 x 5)
MAX8744	4	5	12V or adj	32-TQFN (5 x 5)
MAX1537	5	3.3/5	12V or adj, 150mA	36-TQFN (6 x 6)
MAX1533	5	3.3/5	—	32-TQFN (5 x 5)

Dual Mode is a trademark of Maxim Integrated Products, Inc.
*Future product—contact factory for availability.

Dual-Phase, Five-Output, Main-Power Controllers

The MAX1533/MAX1537 are dual step-down, switch-mode power-supply (SMPS) controllers with synchronous rectification. Each is intended for 5V/3.3V main-power generation in battery-powered systems. Fixed-frequency operation with optimal interleaving minimizes input-ripple current from the lowest input voltages up to the 26V maximum input voltage.



- Fixed-Frequency, Current-Mode Control
- Internal 5V and 3.3V Linear Regulators with 100mA Load Capability
- 40/60 Optimal Interleaving
- Accurate Differential Current-Sense Inputs
- Auxiliary 12V or Adjustable 150mA Linear Regulator (MAX1537)
- Dual Mode Feedback—3.3V/5V Fixed or Adjustable Output Voltages
- 200kHz/300kHz/500kHz Switching Frequency

Part	Fixed LDO (at 100mA)	Aux LDO	Package (mm x mm)
MAX1533	3.3V/5V	—	32-TQFN (5 x 5)
MAX1537	3.3V/5V	12V or 150mA (adj)	36-TQFN (6 x 6)

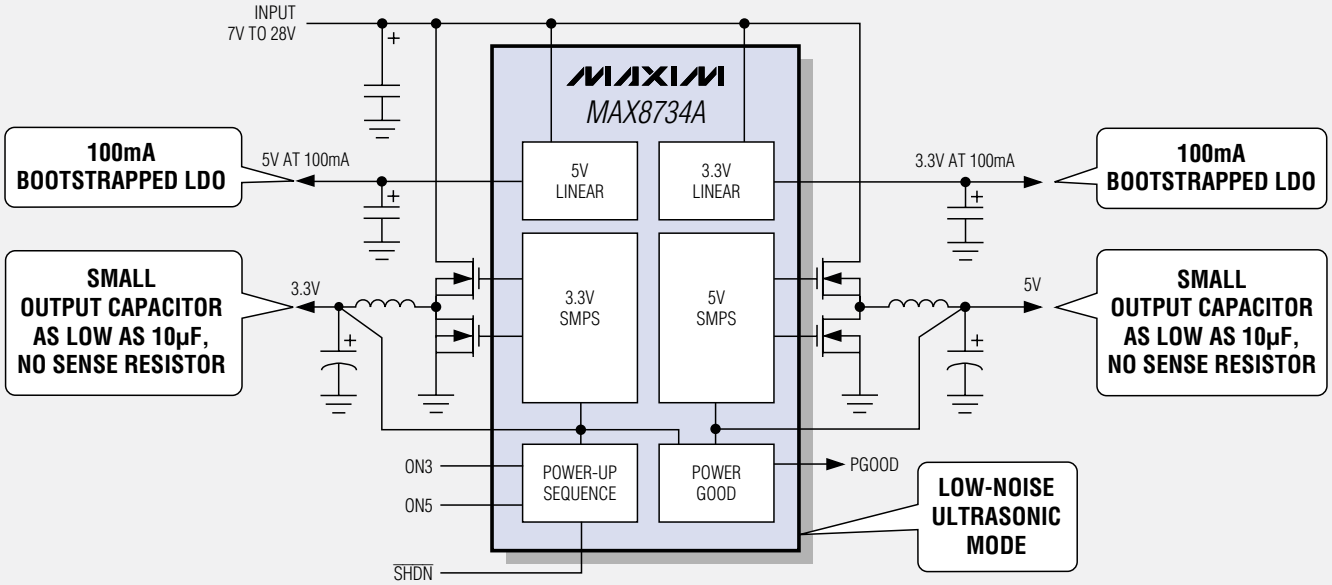
For More Product Information on the MAX1533/MAX1537, to Request Samples or a Reliability Report, and to Order an Evaluation Kit, Go to: www.maxim-ic.com/MAX1533

Main-Power Controllers Have Quad-Output Main-Power Supply

Devices Operate With Small, Inexpensive Output Capacitors and Without Sense Resistors

The MAX8732A/MAX8733A/MAX8734A include two PWM controllers, adjustable from 2V to 5.5V or fixed at 5V and 3.3V. Two linear regulators provide 5V and 3.3V always-on outputs. Each linear regulator provides up to 100mA output current, with automatic linear-regulator bootstrapping to the main switch-mode power-supply (SMPS) outputs. The devices include on-board power-up sequencing, a power-good (PGOOD) output, digital soft-start, internal soft-stop, and output discharge that prevents negative voltages on shutdown. Additionally, the outputs are high impedance when V_{CC} falls below its undervoltage-lockout (UVLO) set point while the outputs are enabled.

Maxim's proprietary Quick-PWM™, constant on-time control scheme operates without sense resistors and provides 100ns response to load transients, while maintaining a relatively constant switching frequency. The unique ultrasonic pulse-skipping mode maintains switching frequency above 20kHz, eliminating audio noise.



- **No Current-Sense Resistor Needed (MAX8734A, MAX1999)**
- **Accurate Current Sense with Current-Sense Resistor (MAX8732A/ MAX8733A, MAX1777/MAX1977)**
- **±1.5% Output-Voltage Accuracy**
- **Low-Noise, Ultrasonic, Pulse-Skipping Mode**
- **3.3V and 5V, 100mA Bootstrapped Linear Regulators**
- **Internal Soft-Start and Soft-Stop Output Discharge**
- **3.3V and 5V, Fixed or Adjustable Outputs (Dual Mode)**
- **4.5V to 28V Input-Voltage Range**
- **Overvoltage-Protection Enable/Disable**

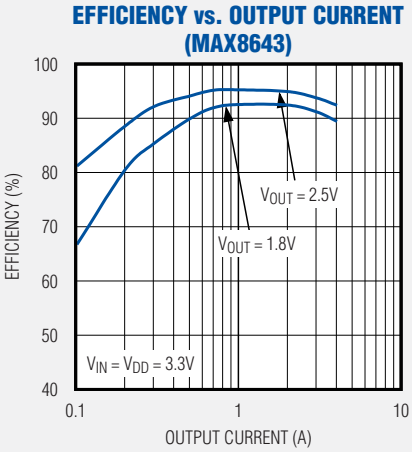
Part	Temp Range (°C)	Switching Frequency (kHz, 5V/3.3V)	Package
MAX8732A/MAX1777EEI	-40 to +85	200/300	28-QSOP
MAX8733A/MAX1977EEI	-40 to +85	400/500	28-QSOP
MAX8734A/MAX1999EEI	-40 to +85	200/300 or 400/500	28-QSOP

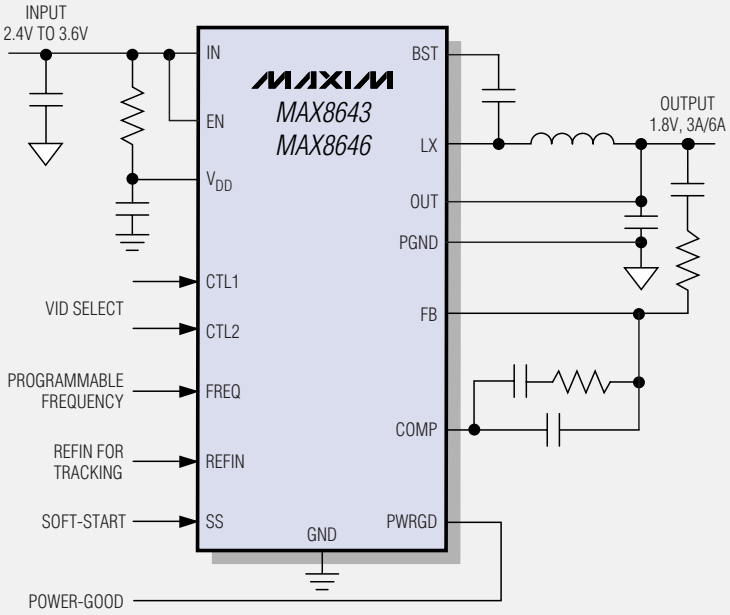
Quick-PWM is a trademark of Maxim Integrated Products, Inc.

First 3A/6A, Step-Down Regulators with Integrated Power Switches and VID Inputs

Over 95% Efficiency, Up to 2.4MHz Switching Frequency, Low On-Resistance, and Sync Input—All in a Small, 4mm x 4mm TQFN

The MAX8643/MAX8646 step-down regulators provide the highest integration with on-board, low on-resistance switches and full overcurrent and thermal protection. Frequencies are programmable and synchronizable from 250kHz to 2.4MHz. A two-pin VID input provides one of nine preset output voltages that can be selected by the user. This eliminates the need for an external resistor-divider, thus providing higher overall accuracy. PWRGD and EN facilitate sequencing, where REFIN can be used for tracking and/or termination, such as in DDR applications. This set of features makes these parts easy to use and suitable for any power-supply application.

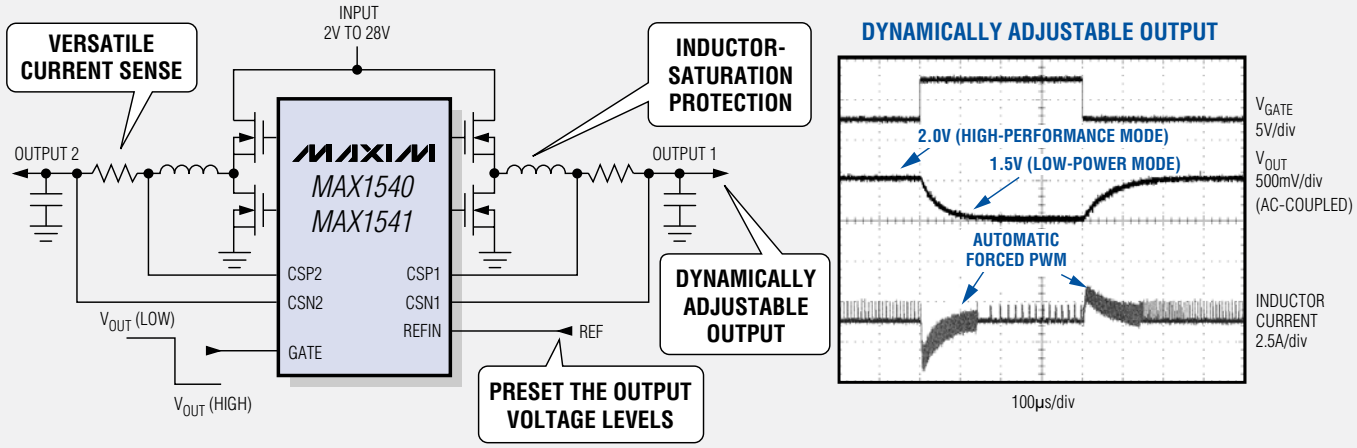




- **VID-Set Output Voltages: 0.6V, 0.7V, 0.8V, 1.0V, 1.2V, 1.5V, 1.8V, 2.0V, and 2.5V**
- **Continuous 3A/6A Output (MAX8643/MAX8646)**
- **±1% Output Accuracy over Temperature**
- **2.35V to 3.6V Input Supply**
- **Soft-Start Reduces Inrush Supply Current**
- **250kHz to 2.4MHz Adjustable Switching or Sync Input**
- **All-Ceramic Capacitor Design Reduces Space**
- **REFIN for Tracking and DDR Termination**
- **PWRGD and EN for Sequencing**
- **Available in 24-Pin TQFN Package with Exposed Pad**

Graphics and I/O Switch-Mode Power Solutions

Single/Dual Pulse-Width Modulation (PWM) Controllers Provide High Efficiency, Excellent Transient Response, and High DC-Output Accuracy



Single Step-Down Controllers

MAX1992/MAX1993

- Accurate Current Limit
- External Reference Input Voltage
- Two Dynamic States

MAX8776/MAX8777

- Integrated Boost Switch
- Programmable 200kHz to 600kHz Switching Frequency
- Two Dynamic States

MAX8792*

- Small, 3mm x 3mm TQFN Package
- Infinite Dynamic States

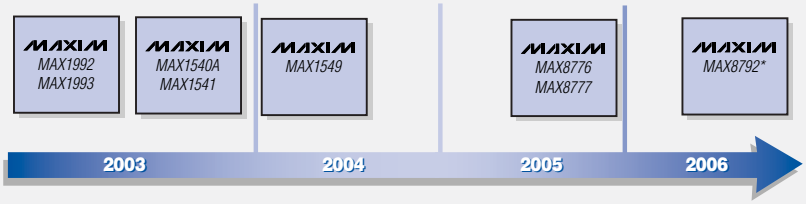
Dual Step-Down Controllers

MAX1540A/MAX1541

- Inductor-Saturation Protection
- Ultra-High Efficiency
- Quick-PWMs with 100ns Load-Step Response
- Two Dynamic States

MAX1549

- Dual Interleaved, Fixed Frequency
- Drives Large Synchronous-Rectifier FETs
- Four Dynamic States



*Future product—contact factory for availability.

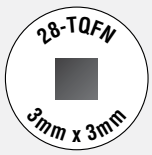
Small, Low-Cost†, Dual Controller

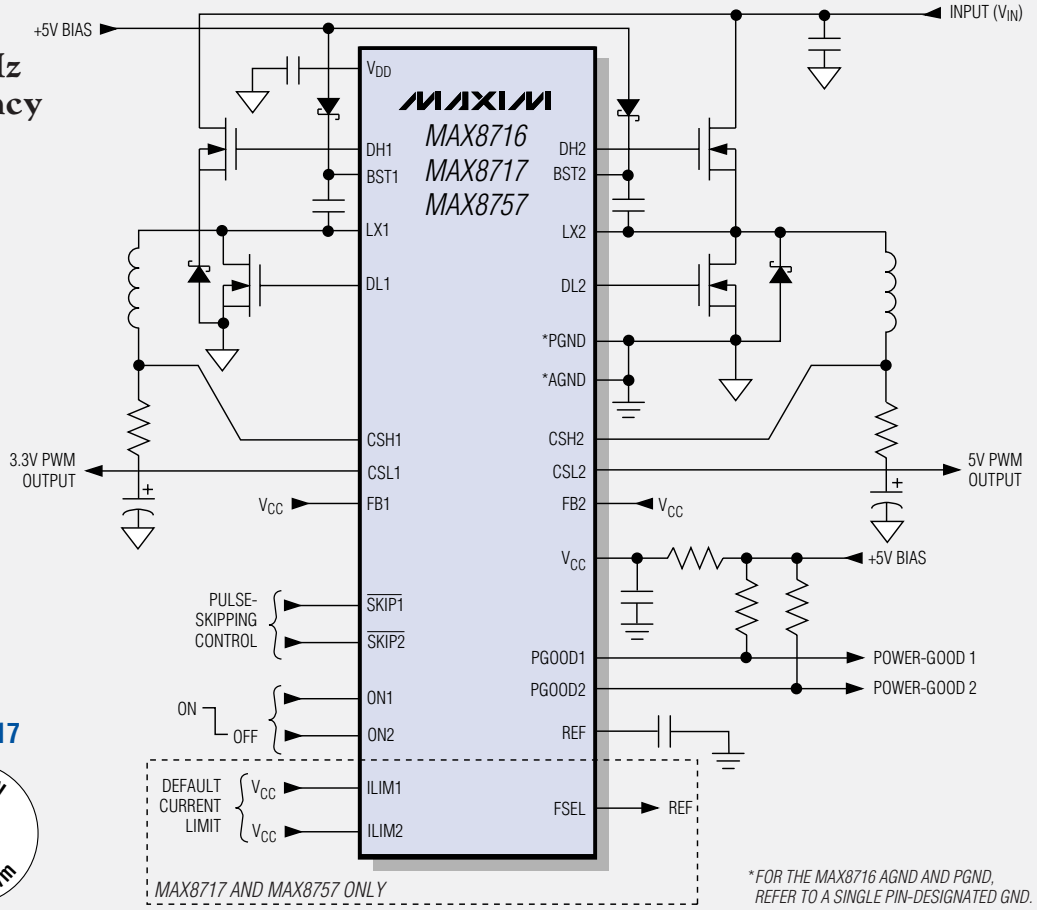
Interleaved, Fixed Frequency; Saves Input Capacitance

- Fixed 200kHz, 300kHz, or 500kHz Switching Frequency
- No Current-Sense Resistor Required
- Reduced Input-Capacitor Requirement
- 3.3V/5.0V or 1.0V to 5.5V Adj Output (Dual Mode)
- 4V to 26V Input Range
- 2V Precision Reference with ±0.75% Accuracy

MAX8716

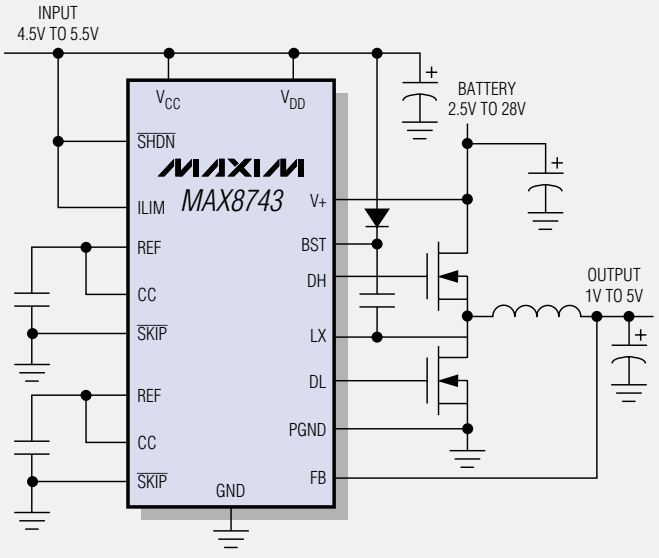
MAX8717





Low-Cost††, Ultra-Fast, Dual/Single Controllers

- ±1% Output Accuracy over Line and Load
- Dual Mode Operation
  - 2.5V/3.3V/1V to 5V Adj (MAX1714/MAX1844)
  - 1.8V/2.5V/3.3V/1V to 5V Adj (MAX1715/MAX1845)
- 20-Pin (MAX1714/MAX1844) and 28-Pin (MAX1715/MAX1845/MAX8743) QSOP/TQFN Packages
- > 90% Efficient, Optimized for Low Output Voltages
- Over-/Undervoltage Protection

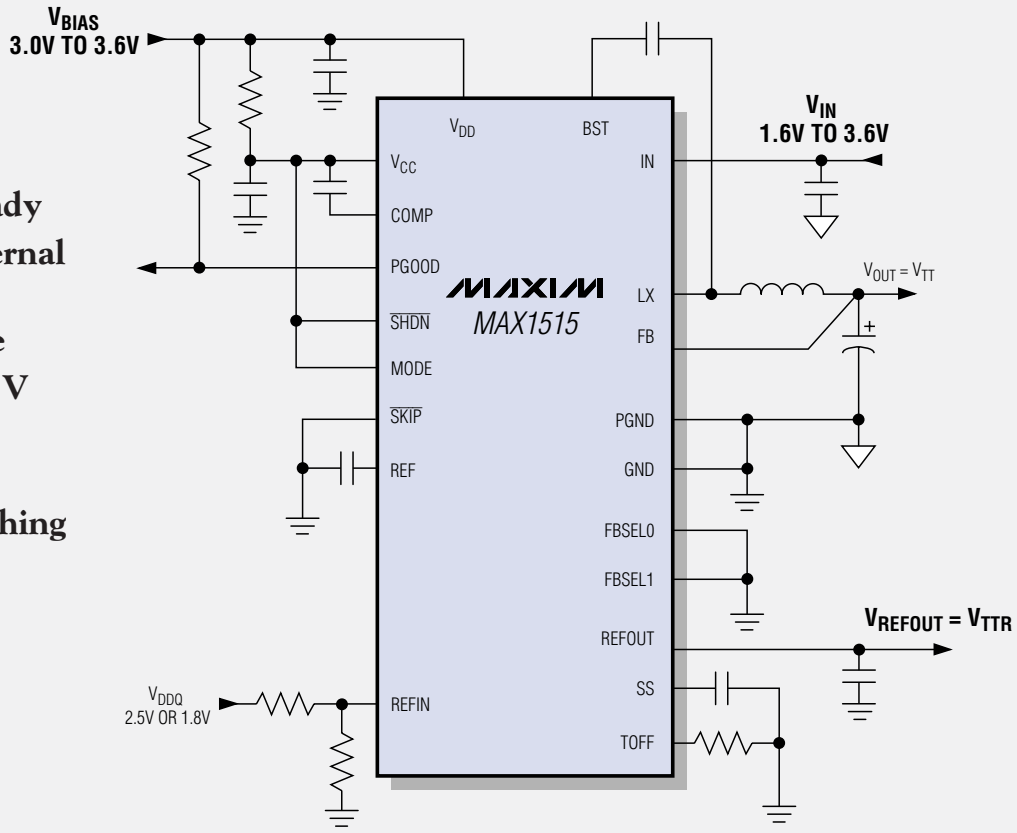


†Prices for the MAX8716 and MAX8717 start at $3.50. 10k-up, FOB USA. International prices will differ due to local duties, taxes, and exchange rates. Not all packages are offered in 1k increments, and some may require minimum order quantities.

††Prices start at $2.43 for the MAX1714; $3.30 for the MAX1715; $2.60 for the MAX1844; $3.85 for the MAX1845 and $3.85 for MAX8743. All 1k-up, FOB USA. International prices will differ due to local duties, taxes, and exchange rates. Not all packages are offered in 1k increments, and some may require minimum order quantities.

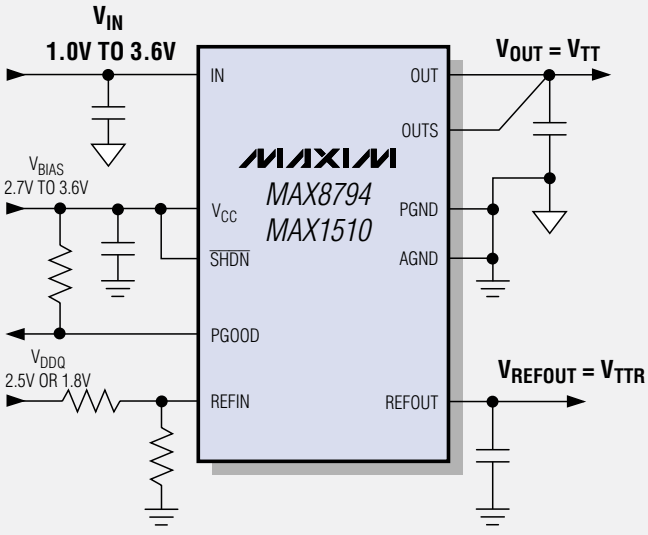
3A, 1.2MHz, Low-Voltage, Step-Down, Dual Internal nFET DDR Regulator

- V_{TT} and V_{TTR}
- Automatic Source/ Sink/Skip
- DDR and DDR2 Ready
- Dual n-Channel Internal Switch Buck
- Internal Boost Diode
- Conversion from 3.3V or V_{DDQ}
- ±3A Load Current
- Up to 1.2MHz Switching Frequency
- PGOOD Window Comparator
- Small, 4mm x 4mm, 24-Pin TQFN



Low-Voltage, Low-Cost† DDR Linear Regulator

- Internal Power MOSFETs with Current Limit
- Fast Load-Transient Response
- External Reference Input with Reference Output Buffer
- 1.0V to 3.6V Power Input
- +15mV (max) Load-Regulation Error
- Power-Good Window Comparator with 2ms (typ) Delay
- High-Side On-Resistance: 170mΩ (MAX8794), 250mΩ (MAX1510)
- Small, Low-Profile, 3mm x 3mm x 0.8mm, 10-Pin TDFN Package

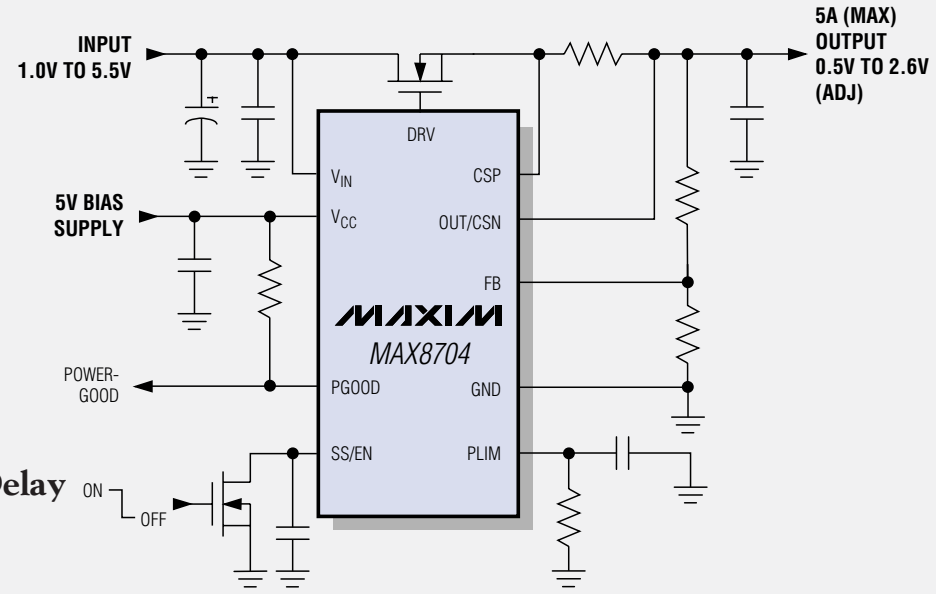


†Prices start at $0.83 (10k-up, FOB USA). Prices provided are for design guidance and are FOB USA. International prices will differ due to local duties, taxes, and exchange rates. Not all packages are offered in 1k increments, and some may require minimum order quantities.

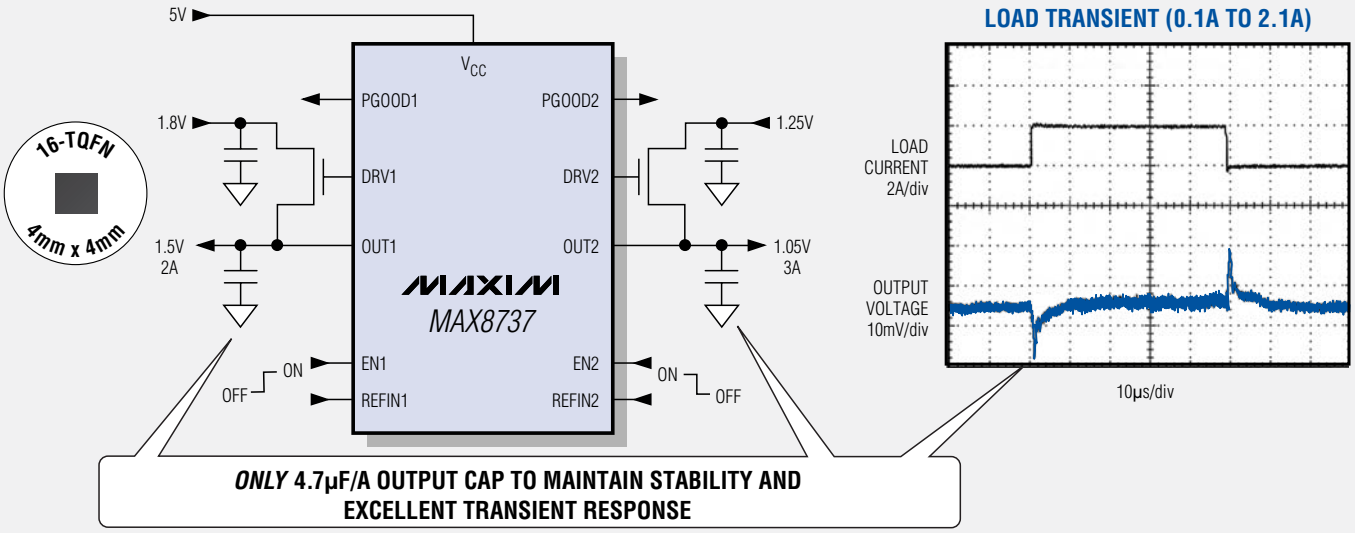
LDO Delivers High Output Current While Controlling MOSFET Dissipation

LDO Measures Output Current and Differential Voltage Across the External Power MOSFET to Limit Power Dissipation

- Low-Cost, High-Current Regulator (I_{OUT} > 5A)
- ±2% Output-Voltage Accuracy
- MOSFET Current and Power Limits
- Thermal-Fault Protection
- Programmable Soft-Start/ Soft-Stop
- Power-Good Open-Drain Output with 1ms Startup Delay
- 10-Pin TQFN Package



Dual, High-Current Linear Regulator Controller Has ±0.5% Output Accuracy

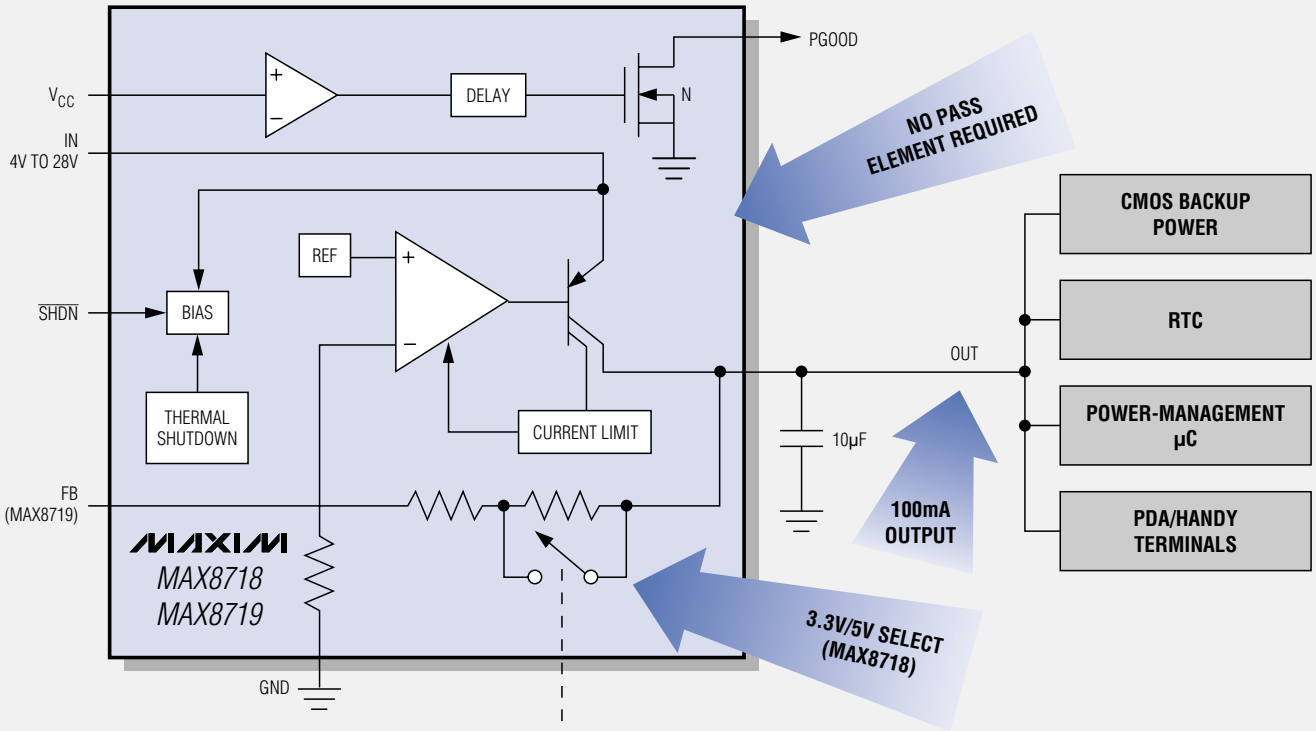


- Foldback Current-Limit Protection
- Soft-Shutdown Output Discharge
- Independent Enable and Power-Good Signals
- Independent 0.5V to 2.5V Reference Inputs
- Output UVLO Protection
- Thermal Limit (Internal Sensor)
- Low 0.6mA Supply Current
- Tiny, 4mm x 4mm, 16-Pin TQFN Package

High-Input-Voltage, Low-Power Linear Regulators

100mA Keep-Alive in a Small, 3mm x 3mm TQFN

The MAX8718/MAX8719 micropower, linear regulators are ideal for providing always-on, keep-alive power to CMOS RAM, real-time clocks (RTCs), and microcontrollers (µCs) in systems with high-voltage batteries. Packaged in a small, 3mm x 3mm TQFN, these linear regulators accept input voltages up to 28V and can power 3.3V or 5V loads to 100mA with only 18µA of quiescent current. No additional pass-elements or dropping resistors are required. For other output voltages, the MAX8719 output is adjustable from 1.24V to 28V with the use of output resistors.

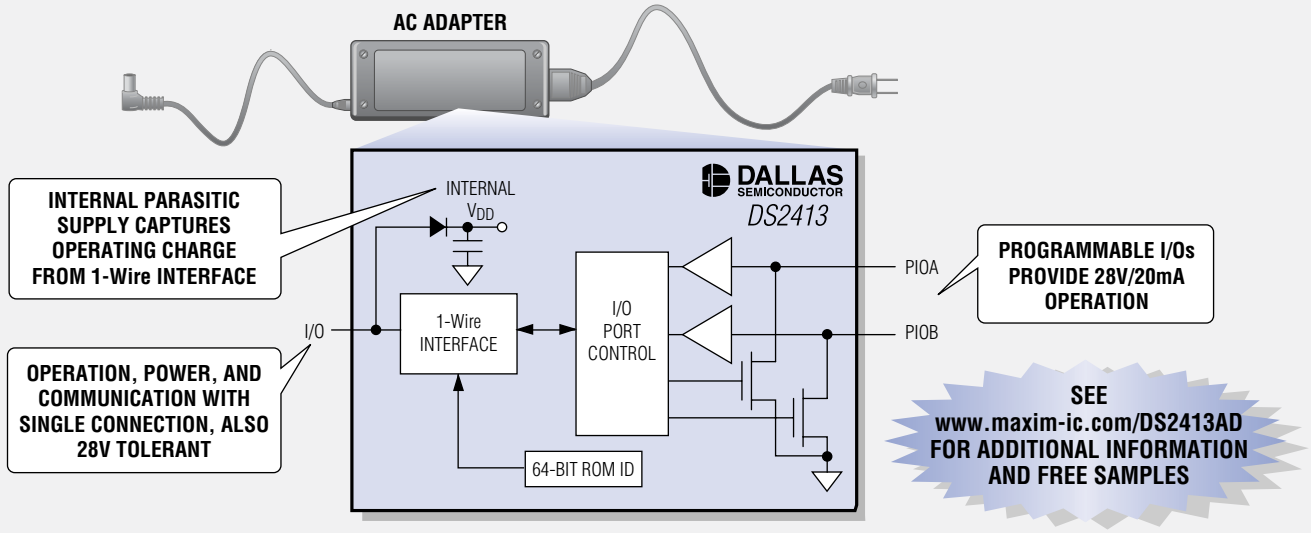


- 4V to 28V Input Range
- 18µA Quiescent Supply Current
- < 3µA Shutdown Supply Current
- Pin-Selectable 3.3V or 5V Output (MAX8718)
- Adjustable 1.24V to 28V Output (MAX8719)
- 100mA Output Current
- ±2% Output Accuracy
- Thermal-Overload Protection
- Delayed Power-Good Output
- Thermally Enhanced, 8-Pin TQFN Package

Part	Output Voltage (V)	Output Current (mA)	Temp Range (°C)	Package (mm x mm)
MAX8718ETA	3.3/5	100	-40 to +85	8-TQFN (3 x 3)
MAX8719ETA	Adj	100	-40 to +85	8-TQFN (3 x 3)
MAX1615	3.3/5	30	-40 to +85	5-SOT23
MAX1616	Adj	30	-40 to +85	5-SOT23

Identify and Control Notebook Peripherals with 1-Wire

The proper configuration of a base system requires identification of a PC board's hardware/software configuration, attached accessories, or peripherals. The optimal configuration also minimizes the number of contacts required for the base system to communicate with the label embedded in the accessory. EEPROM and EPROM memory combined with factory-administered 64-bit serialization make 1-Wire® memory products ideal solutions for electronic-labeling requirements.



Common 1-Wire Device Features

- Operating Power Derived Entirely from the 1-Wire Line
- Exceptional ESD Performance: IEC 1000-4-2 Level 4 (typ)
- Designed for Hot/Live System Insertion
- Wide Operating Ranges: 2.8V to 5.25V, -40°C to +85°C
- Each Part Uniquely Identified by a Factory-Lasered, 64-Bit ROM ID

Typical 1-Wire Silicon Label Applications

- Desktop/Laptop PC Accessory and Peripheral Identification
- PC-Board Serialization and Hardware/Software Revision Identification
- System Intellectual-Property Protection
- Network Node Address Assignment (Example: MAC-48, EUI-48, and EUI-64)

Part	Memory Type	Memory Size (Bit)	Additional Features	Packages
DS2431	EEPROM	1k	—	6-TSOC, CSP
DS2413	—	—	20V/20mA GPIO-2	6-TSOC
DS28E01-100	EEPROM	1k	SHA-1 security	6-TSOC, CSP
DS2433	EEPROM	4k	—	8-SO, flip chip
DS250x	EEPROM	1k, 16k, 64k	—	6-TSOC, 8-SO, CSP
DS2480B	—	—	Serial line driver	8-SO

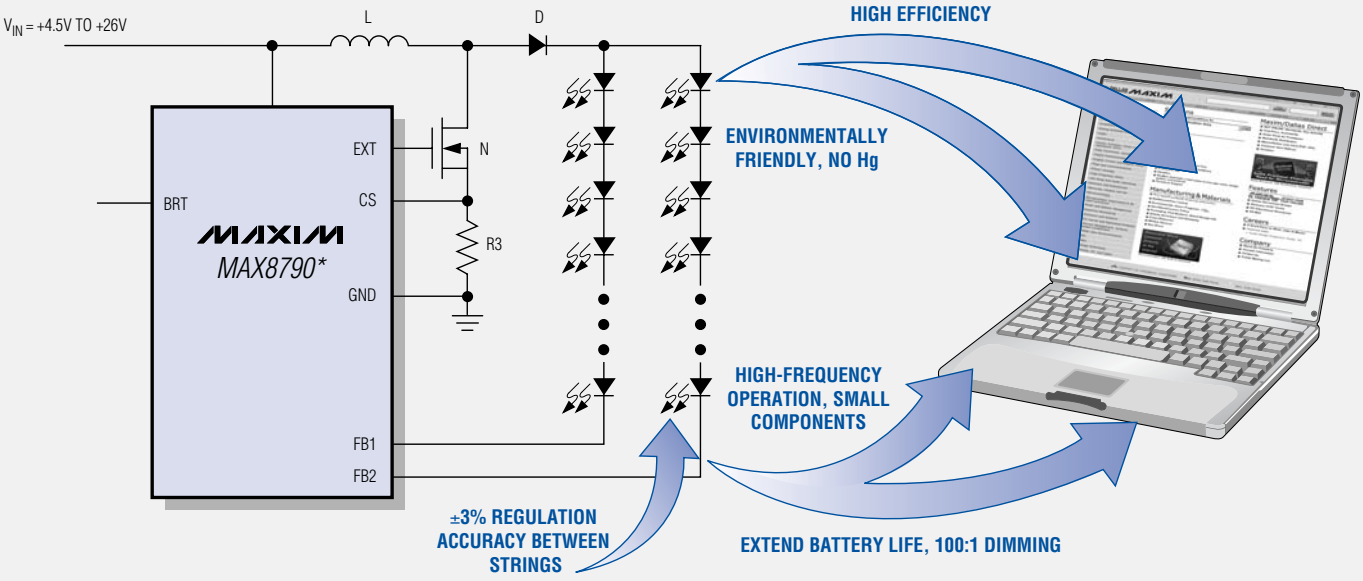
Use generic and customized 1-Wire devices to create and manage unique identifiers like those used for Ethernet technology. Visit: www.maxim-ic.com/AN186

1-Wire is a registered trademark of Dallas Semiconductor Corp.

High-Efficiency White-LED Driver Has 6-String Current Regulation for LCD Backlight Applications

±3% Accuracy Ensures Even LED Brightness

The MAX8790* is a high-efficiency driver for white-light-emitting diodes (WLEDs). It is designed for large liquid-crystal displays (LCDs) that employ an array of LEDs as a light source. The MAX8790 employs a current-mode step-up controller that drives six parallel strings of LEDs connected in multiple series. This built-in, string-current-control circuit achieves ±3% regulation accuracy between strings, which ensures even brightness for all LEDs. The MAX8790 has a wide +4.5V to +26V input-voltage range and provides a fixed (20mA) or adjustable (15mA to 25mA) full-scale LED current. The MAX8790 is available in a thermally enhanced, 4mm x 4mm, 20-pin TQFN package.



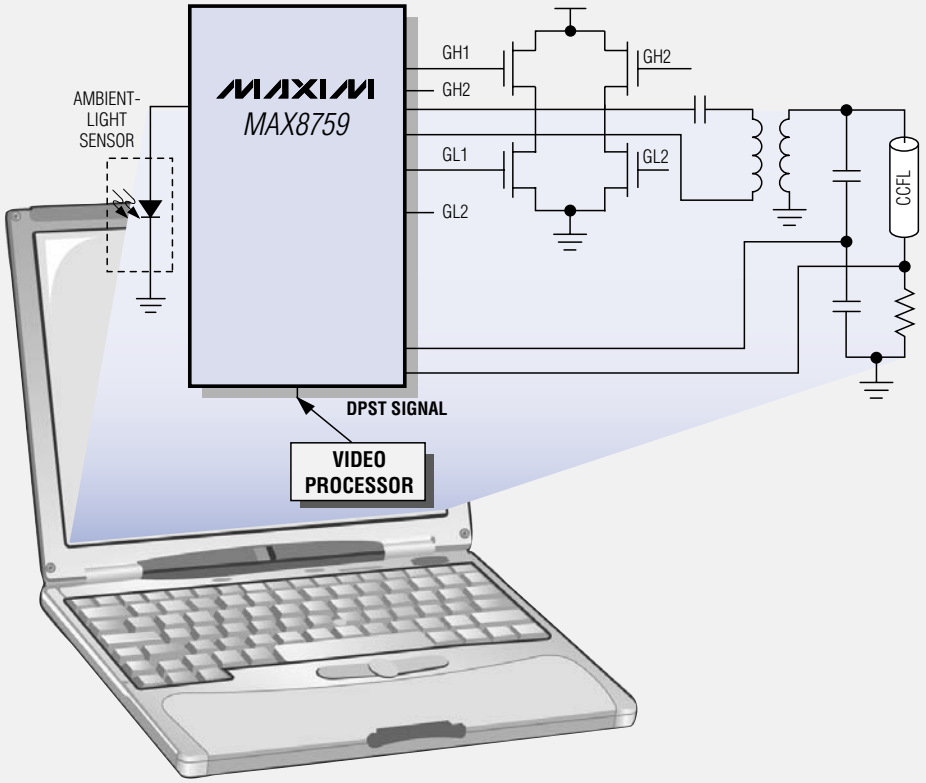
- ±3% Regulated String Current Accuracy
- Low 450mV Feedback Voltage at Full Current Improves Efficiency
- Step-Up Controller Regulates Output Just Above the Highest LED String Voltage
- Wide 100:1 Dimming Range
- Programmable Dimming Control: Direct PWM or Analog Dimming
- Open- and Short-Circuit LED Protection; Output Overvoltage Protection
- 500kHz/750kHz/1MHz Switching Frequency Allows Small External Components
- External MOSFET Allows a Large Number of LEDs per String
- Automatic Pulse Skipping Improves Efficiency at Light Loads

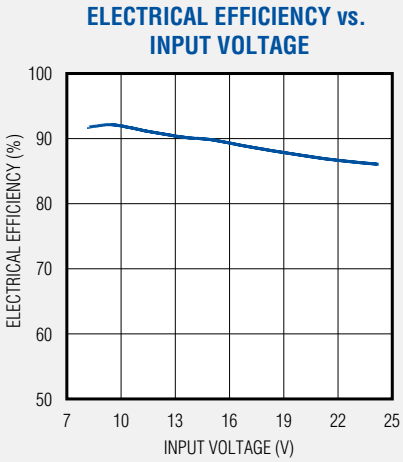
*Future product—contact factory for availability.

High-Efficiency CCFL Backlight Controllers Handle Wide Input-Voltage Range

MAX8759 Supports Ambient-Light Sensing and Intel DPST

The MAX8759/MAX8722/MAX8709 integrated backlight controllers are optimized to drive cold-cathode fluorescent lamps (CCFLs) using a resonant, full-bridge inverter architecture for maximum power-to-light-output efficiency. These controllers are ideal for battery-powered applications, such as notebook computers, and can work over a 4.6V to 28V input-voltage range while achieving 85% efficiency. The MAX8759/MAX8722/MAX8709 achieve dimming by "chopping" the lamp current on and off. The devices include safety features that protect against lamp-out and short-circuit faults.



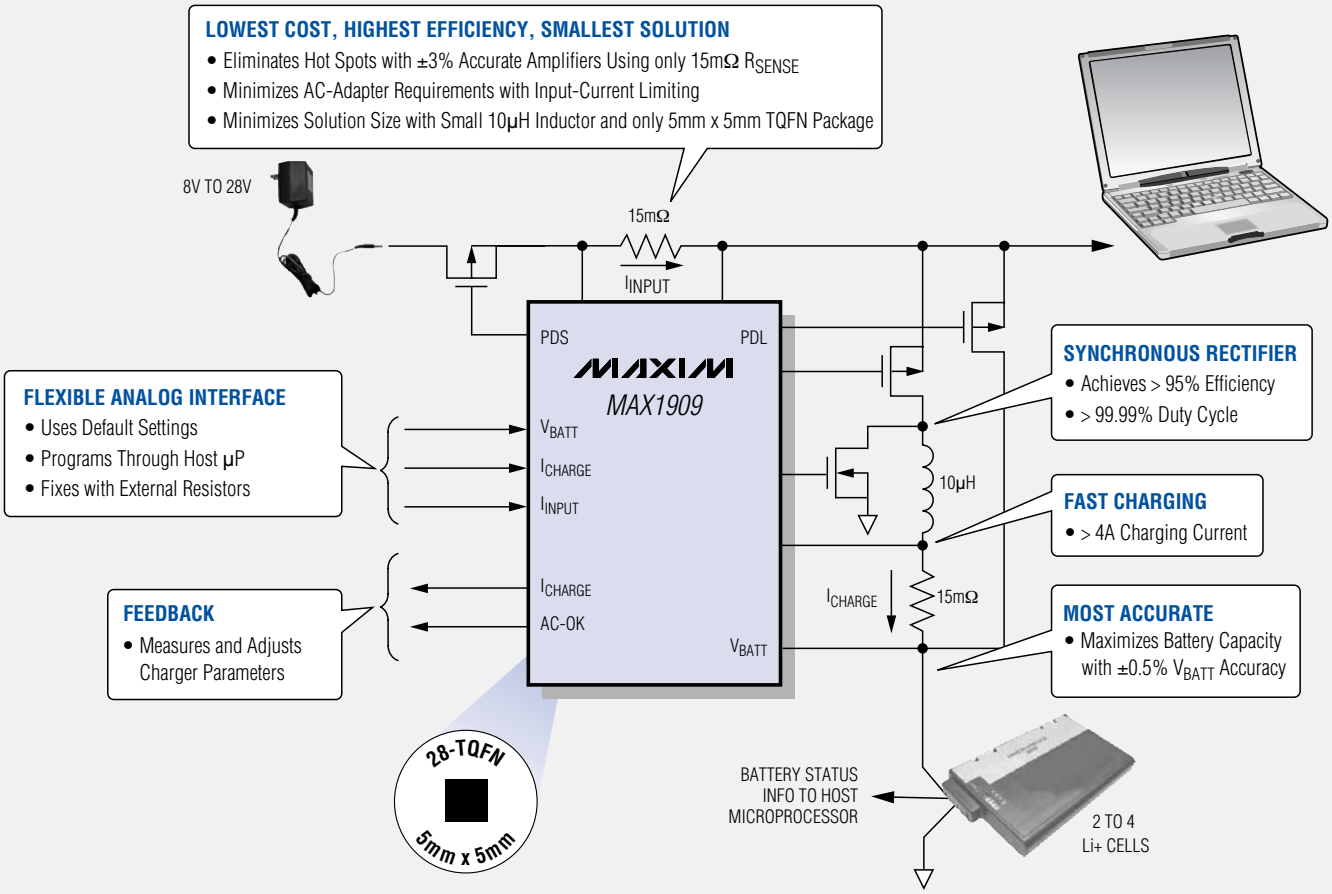


- **> 85% Efficiency Maximizes Battery Life**
- **MAX8759 Includes Special Features to Further Improve Efficiency**
  - **Proprietary Control Scheme**
  - **Ambient-Light-Sensing Support**
  - **Intel DPST (Display Power-Saving Technology) Support**
- **Wide 4.6V to 28V Input-Voltage Range**
- **DPWM Dimming Control**
  - **SMBus™-/Analog-Controlled 256:1 Dimming Range (MAX8759)**
  - **SMBus-Controlled 32:1 Dimming Range (MAX8709)**
  - **Analog-Controlled 10:1 Dimming Range (MAX8722)**
- **Comprehensive Fault Protection**
  - **Secondary Voltage Limit Reduces Transformer Stress**
  - **Adjustable Lamp-Out Protection with 1s Timer**
  - **Secondary Current Limit**

SMBus is a trademark of Intel Corporation.

±0.5% Accurate, Multichemistry Battery Chargers for Single-/Dual-Battery Systems

The MAX1909/MAX8725 are designed for single-battery systems. If an AC adapter is present, these ICs automatically select between the adapter and a battery to supply the system. The MAX1908/MAX8724/MAX8765 are designed for high-end, dual-battery systems and offer synchronous rectification using high- and low-side n-channel MOSFETs. All the ICs have ±3% accurate current-sense amplifiers and are available in tiny, 5mm x 5mm, 28-pin TQFN packages. The MAX1908 also integrates a built-in trickle-charge feature.



MAX1908/MAX1909/MAX8724/MAX8725/MAX8765

- 400kHz Operation Allows Use of Small 10µH Inductors
- ±3% Accurate Current-Sense Amplifiers
- Use 15mΩ Current-Sense Resistors and Eliminate Hot Spots in the System Chassis
- Maximize Input-Current Limit and Charge-Current Accuracy

MAX1908/MAX8724/MAX8765 Only

- Synchronous Operation with High-Side, n-Channel MOSFET
- Work with MAX1773 and MAX1538 Power-Source Selectors for Dual-Battery Systems

MAX1909/MAX8725 Only

- Automatic Power-Path Selection
- Battery Calibration to Maximize Battery Capacity
- Synchronous or Nonsynchronous Operation

Maximize Your Battery Capacity Using Industry's Most Accurate Fuel Gauge

The MAX1781 battery-pack controller is a smart battery-pack supervisor that integrates an 8-bit, user-programmable microcontroller core, EEPROM program memory, a coulomb-counter-based fuel gauge, a multichannel data-acquisition unit, and a master/slave SMBus interface. With a strong set of software development tools that include a C compiler, the MAX1781 offers battery-pack designers complete flexibility to quickly develop and verify fuel gauging and control algorithms. Accurate, user-adjustable current comparators and ±0.5% accurate, individual cell-voltage measurement capability eliminate the need for a separate pack-protection IC.

Most Accurate Fuel Gauge

- Uses Voltage-to-Frequency Method
- < 1µV Input Offset Voltage
- Minimizes Pack Cost with No External Calibration

Smallest Solution

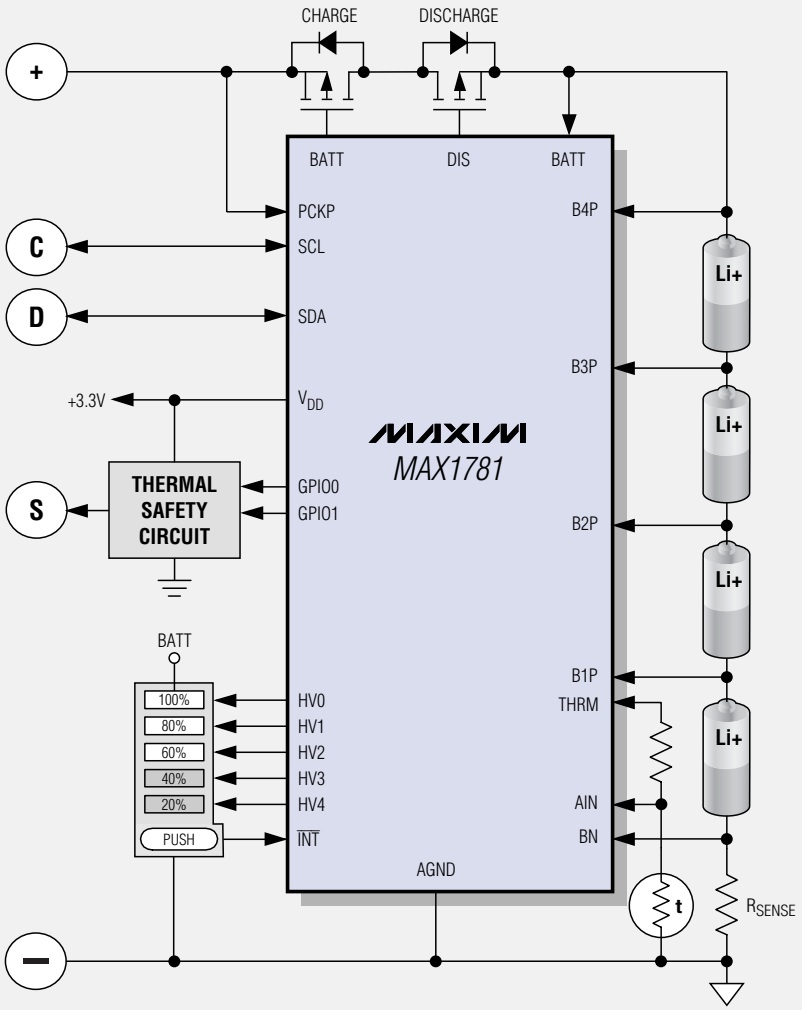
- Integrated Protection Features Eliminate Separate Primary-Protection IC
- Integrated Program and Data Memory
- Accurate Internal Oscillator Eliminates External Crystal
- 7mm x 7mm TQFN Package

World-Class Set of Software Development Tools

- Integrated Design Environment Allows Easy Access to All Software Tools
- Optimized C Compiler
- SMBus Monitor Tool

Lowest Current Consumption Maximizes Battery Life

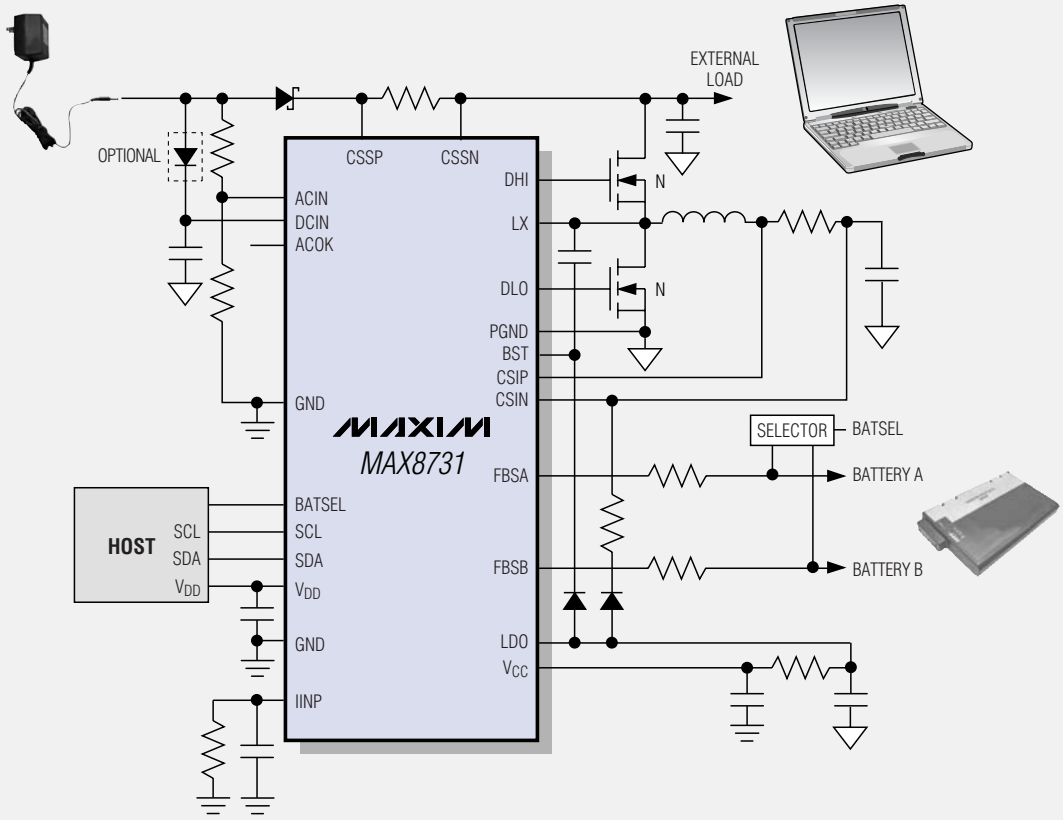
- < 200µA Typical Current Consumption
- < 1µA Shutdown Current



For More Information on Maxim's Complete Line of Battery-Management Solutions, Go to:
www.maxim-ic.com/PowerSupplies

Low-Cost SMBus Charger with Input-Current Limiting and Safety Timer

The high-efficiency MAX8731/MAX1535C charge batteries of any chemistry. Input current can be limited so it does not exceed a predetermined current drawn from the AC adapter, reducing the size and cost of the AC adapter. Input-current limit, battery-regulation voltage, and charge-current limit can be set over the SMBus. A 175s charge-safety timer prevents "runaway-charging" if the MAX8731/MAX1535C stop receiving charging-voltage and charging-current commands. Advanced, synchronous buck-regulator control circuitry lowers the minimum input-voltage-to-output-voltage drop by allowing the duty cycle to exceed 99%. The MAX8731/MAX1535C can charge one, two, three, or four Li+ cells in series, providing charge currents as high as 8A. The MAX8731 uses a high-side n-channel MOSFET for lower cost and higher efficiency. This device also has an output signal that monitors AC-adapter current.



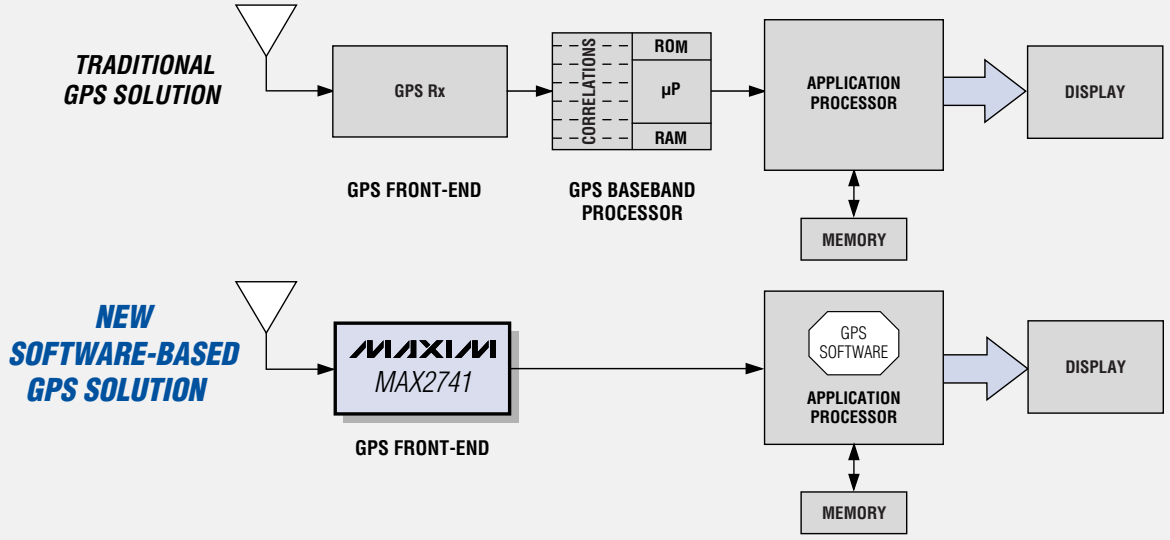
- **±3% Accurate Input-Current Limiting**
- **175s Charge-Safety Timeout**
- **99.99% Duty Cycle for Low-Dropout Operation**
- **Low-Cost, High-Efficiency, All n-Channel MOSFET Synchronous Buck Topology**
- **±0.5% Charge-Voltage Accuracy**
- **AC-Adapter Current-Monitor Output (MAX8731)**
- **Automatic System Power-Source Selection (MAX1535C)**
- **Flexible SMBus Control Interface**

Turn Your UMPC or Laptop Computer into a Full GPS Navigation System

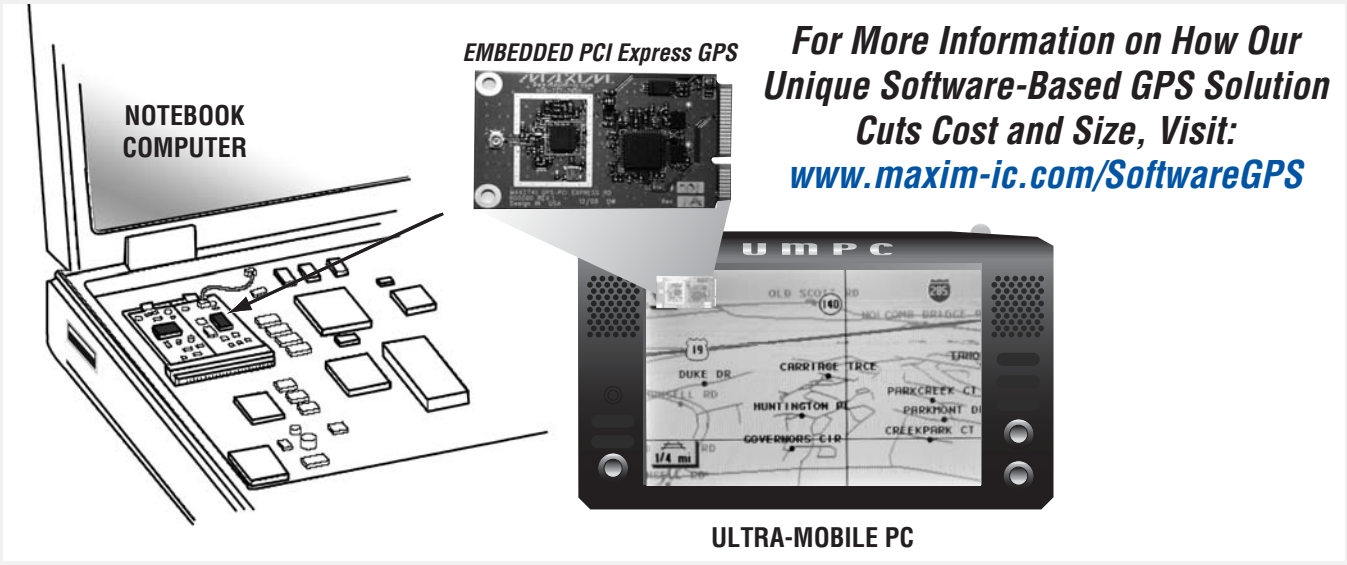
Unique Software-Based GPS Cuts Cost and Size by 50%

Maxim's revolutionary global positioning system (GPS) technique uses the system's host processor to perform all the required GPS calculations and eliminates the need for a costly, bulky GPS baseband IC. This software-based solution reduces the complete GPS hardware bill of materials (BOM) to only the RF front-end circuitry using the MAX2741. In addition, our highly integrated and flexible RF IC, the MAX2741, maximizes the reuse of other system resources, such as the reference clock. Also, the low BOM count of this software-based GPS further reduces the size and cost of your GPS solution.

Maxim's GPS solution offers unmatched flexibility to broaden the number of location-based applications in Ultra-mobile PCs (UMPCs), laptops, PDAs, and smartphones. Available in both stand-alone and assisted GPS modes and various form factors, the software can be optimized for different usage models, such as automotive navigation, personal navigation, or single-position-fix applications.



Complete USB and PCI Express® Reference Designs Available

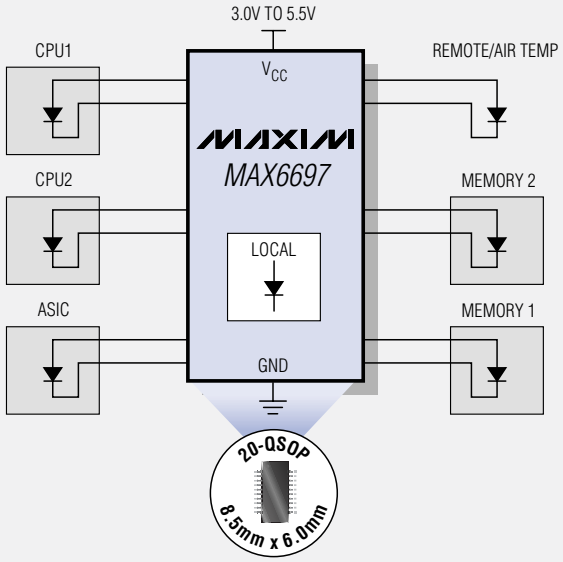


PCI Express is a registered trademark of PCI-SIG Corp.

Industry's First 7-Channel Temp Sensors

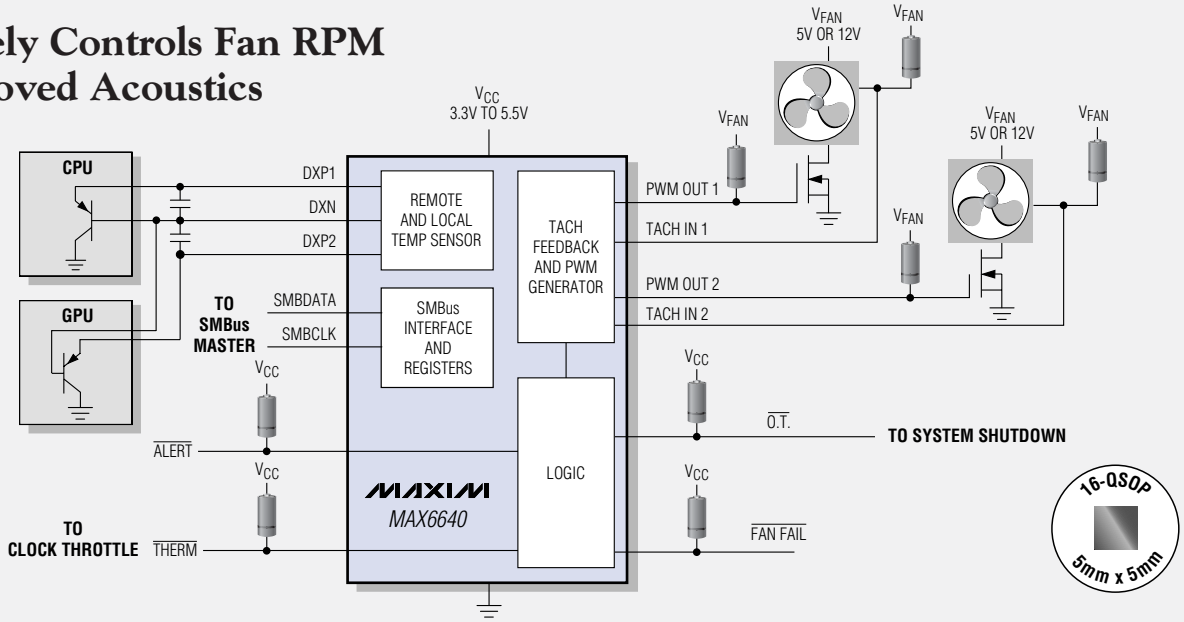
The MAX6697/MAX6698 temp sensors accurately measure their own temperature and the temperature of up to six external locations with ±1°C accuracy. The MAX6697 measures six remote diodes on CPU, GPU, and memory devices in notebook and desktop applications, and the MAX6698 includes three thermistor inputs and three remote-diode inputs ideal for industrial applications. Both devices offer a programmable temperature threshold, allowing the user to program the alarm outputs, which can serve as an interrupt, or can be connected to a system fan or other thermal-management circuitry.

- **Six Remote Channels**
- **Thermistor Inputs (MAX6698)**
- **One Local Temperature Sensor**
- **±1°C Remote Temperature Accuracy (+60°C to +100°C)**
- **Temperature Monitoring Begins at POR for Failsafe System Protection**
- **$\overline{\text{ALERT}}$ and $\overline{\text{OVERT}}$ Outputs for Interrupts, Throttling, and Shutdown**
- **Low Power: 500µA Supply Current**



Industry's Only Dual Temp Sensor and Fan Controller with RPM Control

Accurately Controls Fan RPM for Improved Acoustics

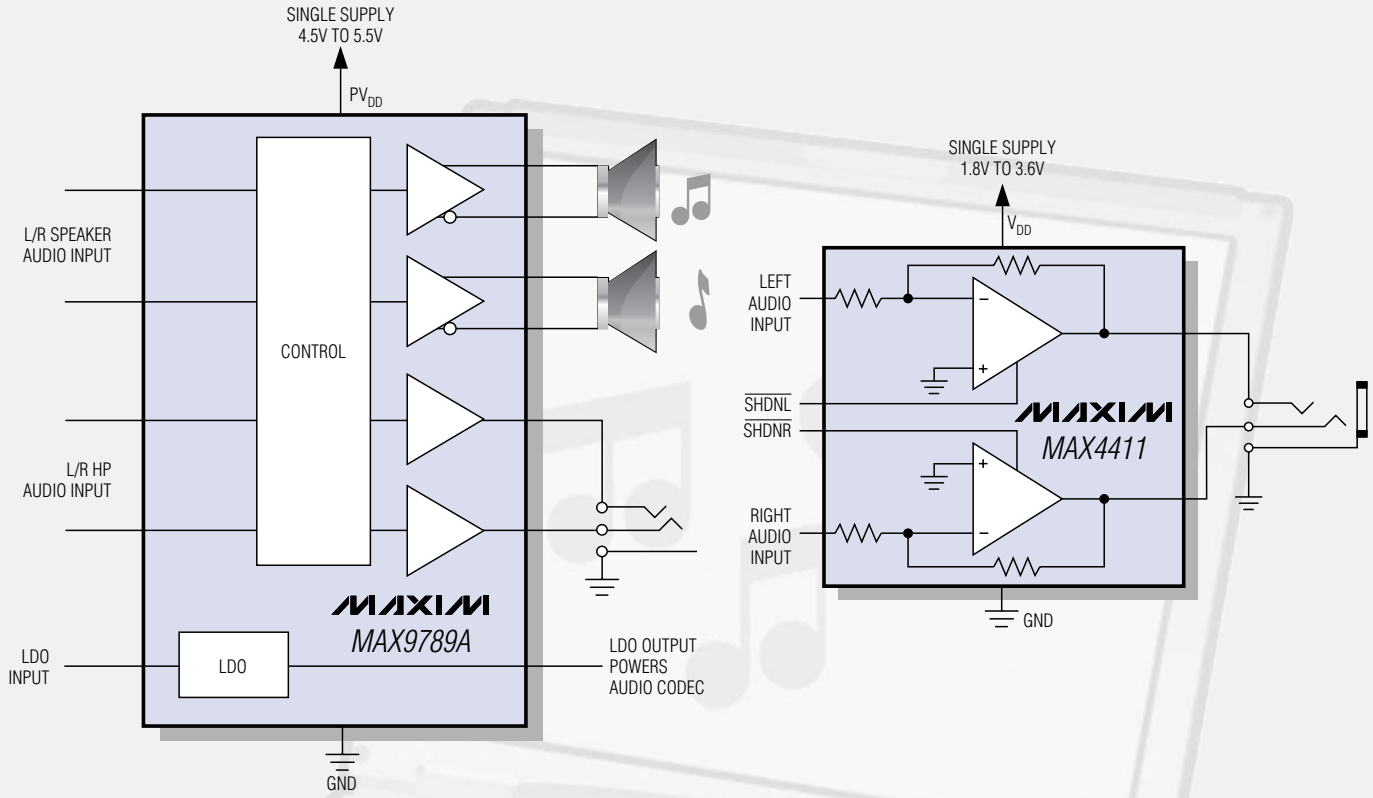


- **One Remote Temperature Channel and One Remote or Local Channel**
- **Programmable Fan-Control Characteristics for Smooth and Quiet Speed Adjustment**
- **Low 500µA Supply Current**
- **±1°C Remote Temperature-Sensing Accuracy**
- **Measures Remote Temperatures Up to +145°C**

Maxim Meets Windows® Vista™ Compliance

Windows Vista-Compliant Headphone Amplifiers, Speaker Amplifiers, Microphone Amplifiers, and First-to-Market Integrated Amplifier Solutions

The new Microsoft Windows Vista architecture requires separate speaker and headphone amplifier inputs for simultaneous playback of MP3 and real-time VoIP communication. Maxim's best-in-class audio amplifiers deliver premium mobile THD+N, SNR, and crosstalk performance standards.



Parameter	Windows Vista Requirement*	MAX9789A*	MAX4411
THD+N	≤ -45dB FS (20Hz, 20kHz)	≤ -70dB FS (20Hz, 20kHz)	≤ -80dB FS (20Hz, 20kHz)
Dynamic Range	≤ -60dB FS (20Hz, 20kHz)	≤ -98dB FS (20Hz, 20kHz)	≤ -98dB FS (20Hz, 20kHz)
Crosstalk	≤ -60dB (20Hz, 20kHz)	≤ -75dB (20Hz, 20kHz)	≤ -65dB (20Hz, 20kHz)

* Headphone-amplifier requirements for premium mobile solutions; R_L = 32Ω

For a Complete List of Maxim's Windows Vista-Compliant Parts, Please Visit:
www.maxim-ic.com/Audio-for-Notebooks

Windows is a registered trademark and Windows Vista is a trademark of Microsoft Corporation.