

INTELLIGENT POWER²®

for

Industrial/Automotive Applications



Product Guide

Part Number	Description	Cell(s)	Package(s) Available	Page No.
Battery Management Units (BMU) and Gauges (with cell balance)				
OZ8825	High Power BMU + Embedded uC	4-7 Cells	40 QFN, Lead-free	5
OZ890	High Power BMU	5-13 Cells	64 LQFP, Lead-free	6
OZ8920	High Power BMU	5-8 Cells	48 LQFP, Lead-free	7
OZ8930	High Power BMU	3-6 Cells	24 QFN, TSSOP, Lead-free	8
OZ8940	High Power BMU	6 -12 Cells	32 LQFP, Lead-free	9
Cell Monitor, BMU and Gauges (without cell balance)				
OZ8800	Second Level Protection/Monitor	3-7 Cells	10 DFN, Lead-free	10
OZ8802	Second Level Protection/Monitor	3-7 Cells	16 QFN, SOP, Lead-free	11
OZ8805	Monitor + High Accuracy Fuel Gauge	1 Cell	10 DFN, Lead-free	12
OZ8812	High Power Lilon BMU	3-6 Cells	24 QFN, SSOP, Lead-free	13
OZ8952/ OZ8953	Lilon and LiPolymer BMU	3-4 Cells/ 5 Cells	16 SOP, Lead-free/ 16 SOP, Lead-free	14
Battery Adapter/Charger				
OZ8980	Smart Charger Control IC for Medium Power Lead-Acid and Lilon Battery		16 SOP, Lead-free	15
OZ8981	Smart Charger Control IC for Medium Power Lead-Acid and Lilon Battery		16 SOP, Lead-free	16
DC/DC Converter Controllers				
OZ8033	3A Low Dropout (LDO) Linear Regulator		8 E-SOP, Lead-free	17
OZ8116/ OZ8138	Single Ultra High Efficiency DC/DC / Dual Ultra High Efficiency DC/DC		16 QFN, Lead-free/ 24 QFN, Lead-free	18

Product Guide

Part Number	Description	Package(s) Available	Page No.
LED Controller ICs for INDUSTRIAL/AUTOMOTIVE Applications			
OZ9950	Low Cost White LED Controller	8 MSOP, SOP, Lead-free	19
OZ9960	High Power LED	12 DFN, 16 SSOP, Lead-free	20
OZ9961	Six String LED Controller	20 E-TSSOP, SSOP, Lead-free	21
OZ9965	LED Controller + 2 – DC/DC	28 E-TSSOP, Lead-free	22
OZ9986	Phase Shift, 6 String, High Power LED	30 SOP, SSOP, Lead-free	23
OZ9990	Four String, High Power, Buck/Boost LED Driver	24 E-TSSOP, Lead-free	24
OZ9998A	Eight String High Power LED	24 E-TSSOP, QFN, SOP, Lead-free	25
LED Controller ICs for GENERAL LIGHTING Applications			
OZ9986	Phase Shift, 6 String, High Power LED	30 SOP, SSOP, Lead-free	23
OZ9992	Offline LED Driver	8 SOP, Lead-free	26

Industrial/Automotive Applications

Mission Statement

Lead the industry as the supplier of highly integrated and efficient Industrial and Automotive solutions for battery and power management in electronic products for the Computer, Consumer, Industrial, Automotive, and Communications markets worldwide.

Products

O₂Micro's *Intelligent Power for Industrial and Automotive Application* products cross three IC categories – Battery, Power Management, and Lighting.



Battery Management Unit (BMU) products are highly integrated, mixed signal ICs designed with **Cool Battery Technology**[®]. BMUs provide next generation, safe battery management.

DC/DC Controllers are Power Management ICs. Equipped with **Constant-Ripple-Current**[®] technology, they are specially developed to design high efficiency power supplies.

Lighting controllers, part of the *Intelligent Lighting* family of ICs, include highly efficient solutions for General Lighting and Industrial/Automotive applications.



OZ8825

FEATURES

- Single chip high power BMU with embedded 16 bit microcontroller
- Highly integrated battery pack monitor and protection
 - Lilon/Polymer (Co, Mn and FeP chemistries)
 - 4 ~ 7 cells/pack with 4 ~ 7 voltage and 2 external temperature channels
 - Code: EEPROM, ROM macros
 - Data: SRAM
 - BMU optimized instruction set for compact program size and rapid programming
 - Protection Capabilities: Software programmable safety thresholds for cell over-voltage (OV), under-voltage (UV), over-temperature (OT), under-temperature (UT), and cell balancing (CB)
- External/Internal cell balancing
- Low power consumption

GENERAL DESCRIPTION

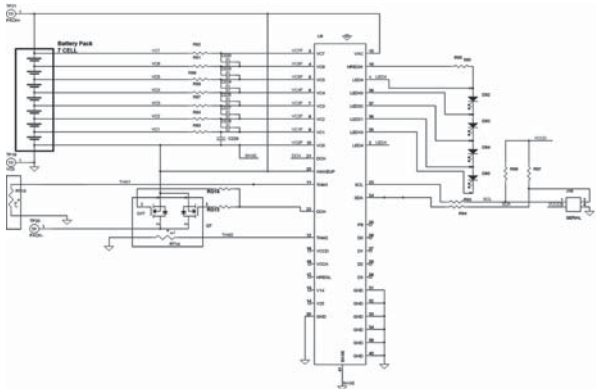
The OZ8825 is a highly integrated, embedded uC, battery gauge and protection IC for use in high voltage/high current Lithium Ion (Lilon)/Lithium Polymer (LiPolymer) packs with 4 – 7 series cells battery pack applications.

With an integrated, multi-channel 12-bit Analog to Digital Converter (ADC), OZ8825 continuously monitors each cell voltage and pack temperature providing maximum battery safety. OZ8825 also provides a 4-LED, voltage-mode pack “State-of-Charge” indicator, and 4 GPIO pins for various signal functions.

APPLICATIONS

- Power Tools
- Light Electric Vehicles (LEV)
- UPS

APPLICATION DIAGRAM



OZ890

FEATURES

- High power BMU
- Highly integrated battery pack monitor and protection
 - Lilon/Polymer (Co, Mn and FeP chemistries) and NiMH battery cells
 - 5 ~ 13 cells standalone, and addressable up to 208 cells (16 BMU ICs)
 - 5 ~ 13 voltage channels, 3 external temperature channels and 1 current channel
 - Fully EEPROM programmable battery protection parameters
 - Built-in protections include: Over-voltage (OV), Under-voltage (UV), Over-current (OC), Short Circuit (SC), Over-temperature (OT), Under-temperature (UT), Cell Unbalance (UB), and Permanent Failure (PF)
- External/Internal cell balancing
- Current measurement for coulomb counting with external uC
- Low power consumption

GENERAL DESCRIPTION

OZ890 is a highly integrated battery pack protection and monitor IC used to manage Lithium Ion (Lilon)/Lithium Polymer (LiPolymer) or Nickel Metal Hydride (NiMH) packs with 5 – 13 series cells battery pack applications.

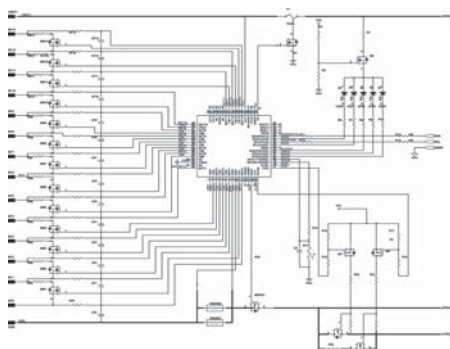
With an integrated, multi-channel, 16-bit Analog to Digital Converter (ADC), OZ890 continuously monitors each cell voltage, charge/discharge current and pack temperature providing maximum battery safety. It also provides a Permanent Failure function that will automatically assert a signal to blow an external fuse to cut off the power line or to issue an alarm to the user in extreme conditions.

OZ890 may be configured to work in standalone “hardware” mode or with a uC in “software” mode by configuring the EEPROM.

APPLICATIONS

- Electric Bicycle
- Electric Motorcycle
- Power Tools
- UPS Backup Battery
- Electric Vehicles (EV/HEV/PHEV)

APPLICATION DIAGRAM



U.S. Patent #'s 6,744,394; 7,081,737; 7,161,520; 7,196,652; 7,352,155; 7,466,104; 7,629,771; 7,642,750; and more patents pending.

OZ8920

FEATURES

- High power BMU
- Highly integrated battery pack monitor and protection
 - Lilon/Polymer (Co, Mn and FeP chemistries) and NiMH battery cells
 - 5 ~ 8 cells standalone, and addressable up to 144 cells (16 BMU ICs)
 - 5 ~ 8 voltage channels, 3 external temperature channels and 1 current channel
 - Fully EEPROM programmable battery protection parameters
 - Built-in protections include: Over-voltage (OV), Under-voltage (UV), Over-current (OC), Short Circuit (SC), Over-temperature (OT), Under-temperature (UT), Cell Unbalance (UB), and Permanent Failure (PF)
- External/Internal cell balancing
- Current measurement for coulomb counting with external uC
- Low power consumption

GENERAL DESCRIPTION

OZ8920 is a highly integrated battery pack protection and monitor IC used to manage Lithium Ion (Lilon)/Lithium Polymer (LiPolymer) packs with 5 – 8 series cells battery pack applications.

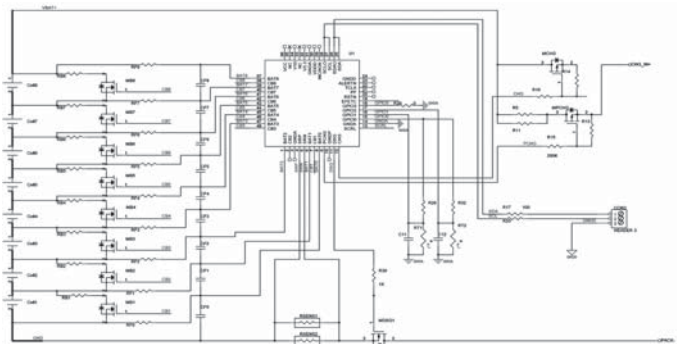
With an integrated, multi-channel 16-bit Analog to Digital Converter (ADC), OZ8920 continuously monitors each cell voltage, charge/discharge current and pack temperature providing maximum battery safety. It also provides a Permanent Failure function that will automatically assert a signal to blow an external fuse to cut off the power line or to issue an alarm to the user in extreme conditions.

OZ8920 may be configured to work in standalone “hardware” mode or with a uC in “software” mode by configuring the EEPROM.

APPLICATIONS

- Electric Bicycle
- Electric Motorcycle
- Power Tools
- UPS backup battery

APPLICATION DIAGRAM



U.S. Patent #'s 6,744,394; 7,081,737; 7,161,520; 7,196,652; 7,352,155; 7,466,104; 7,629,771; 7,642,750; and more patents pending.

OZ8930

FEATURES

- High power BMU
- Highly integrated battery pack monitor and protection
 - Lilon/Polymer, and Phosphate battery cells
 - 3 ~ 6 cells standalone
 - 3 ~ 6 voltage channels, 2 external temperature channels and 1 current channel
 - JEITA standard compliant
 - Self-diagnostics
 - OTP programmable battery protection parameters
 - Built-in protections include: Over-voltage (OV), Under-voltage (UV), Over-current (COC, DOC0, DOC1), Short Circuit (SC), Over-temperature (OT), Under-temperature (UT), Cell Unbalance (UB), and Permanent Failure (PF)
- Internal cell balancing
- Current measurement for coulomb counting with external uC
- Low power consumption

GENERAL DESCRIPTION

OZ8930 is a highly integrated battery pack protection and monitor IC used to manage Lithium Ion (Lilon)/Lithium Polymer (LiPolymer) packs with 3 – 6 series cells battery pack applications.

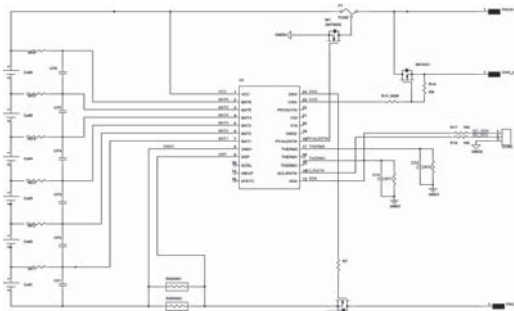
With an integrated, multi-channel 14-bit Analog to Digital Converter (ADC), OZ8930 continuously monitors each cell voltage, charge/discharge current and pack temperature to provide maximum battery safety. It also provides a Permanent Failure function that will automatically assert a signal to blow an external fuse to cut off the power line or to issue an alarm to the user in extreme conditions.

OZ8930 may be configured to work in standalone “hardware” mode or with a uC in “software” mode by configuring the OTP.

APPLICATIONS

- Power Tools
- Backup Power Supply

APPLICATION DIAGRAM



U.S. Patent #'s 6,744,394; 7,081,737; 7,161,520; 7,196,652; 7,352,155; 7,466,104; 7,629,771; 7,642,750; and more patents pending.

OZ8940

FEATURES

- High power BMU
- Highly integrated battery pack monitor and protection
 - Lilon/Polymer (Co, Mn and FeP chemistries), NiMH and Fuel cells
 - 6 ~ 12 cells standalone
 - 6 ~ 12 voltage channels, 2 external temperature channels
 - Fully programmable battery protection parameters
 - Built-in protections include: Over-voltage (OV), Under-voltage (UV), Over-current (OC), Short Circuit (SC), Over-temperature (OT), Under-temperature (UT), Cell Unbalance (UB), and Permanent Failure (PF)
- Internal cell balancing
- Low power consumption

GENERAL DESCRIPTION

OZ8940 is a highly integrated battery pack protection and monitor IC used to manage Lithium Ion (Lilon)/Lithium Polymer (LiPolymer) packs with 6 – 12 series cells battery pack applications.

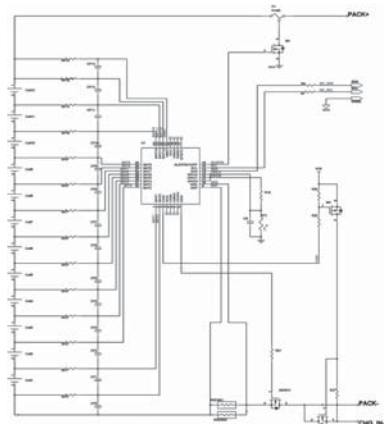
With an integrated, multi-channel 12-bit ADC, OZ8940 continuously monitors each cell voltage and pack temperature providing maximum battery safety. It also provides a Permanent Failure function that will automatically assert a signal to blow an external fuse to cut off the power line or to signal an alarm to the user.

OZ8940 may be configured to work in standalone “hardware” mode or with a uC in “software” mode by configuring the EEPROM.

APPLICATIONS

- Electric Bicycle
- Electric Motorcycle
- Power Tools
- UPS Backup Battery
- Fuel Cell Applications

APPLICATION DIAGRAM



U.S. Patent #'s 6,744,394; 7,081,737; 7,161,520; 7,196,652; 7,352,155; 7,466,104; 7,629,771; 7,642,750; and more patents pending.

OZ8800

FEATURES

- Second level protection/monitor IC for 3 – 7 cells
- Ensures Lilon cell safety in case of BMU failure
- Both Low Active Power and Standby Current consumption
- Accurate over-voltage protection
- Fault signal may blow an electrically controllable fuse or light LED

GENERAL DESCRIPTION

OZ8800 is a family of secondary protection/monitor ICs with precision over-voltage detection circuits for 3 – 7 cell Lithium Ion (Lilon) battery packs to maximize pack safety.

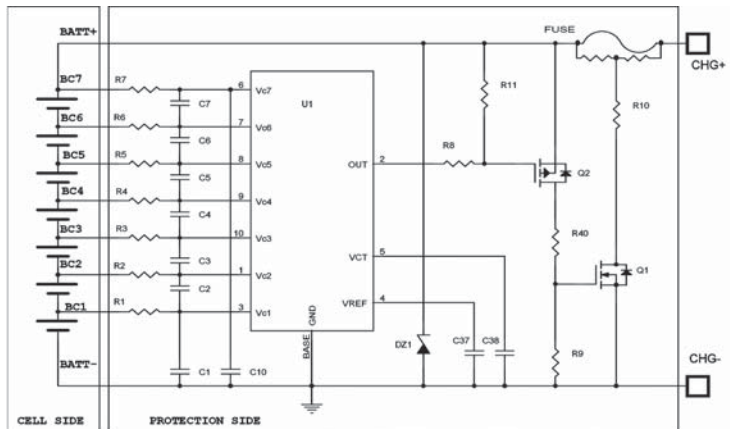
Over charge Voltage Protection (OVP) ensures that no cell exceeds its nominal cell voltage. Over-voltage threshold is model selectable from 3.25V to 4.45V. If any one of the cells reaches the OVP threshold, a time delay is started on the VCT pin. Upon time-out, if the over-voltage condition is still present, this failure condition turns ON the external PMOS transistor (driven by the OUT pin) to isolate the path between the charger and the battery, by opening a fuse.

OZ8800 has a user-configurable delay for over-voltage detection time. This reduces false triggering and inadvertently blowing the Battery Pack protection fuse.

APPLICATIONS

- Power Tools
- UPS
- LEV, EV, HEV

APPLICATION DIAGRAM



OZ8802

FEATURES

- Second Level protection/monitor IC for 3 – 7 Cells
- Ensures Lilon cell safety in case of BMU failure
- Low active power consumption
- Ultra low standby current
- Accurate over-voltage and over-temperature protection
- Fault signal may blow an electrically controllable fuse or light LED
- High current output driver for Power NMOS

GENERAL DESCRIPTION

OZ8802 is a family of secondary protection/monitor ICs with precision over-voltage detection circuit for 3 – 7 cell Lithium Ion (Lilon) battery packs to maximize pack safety.

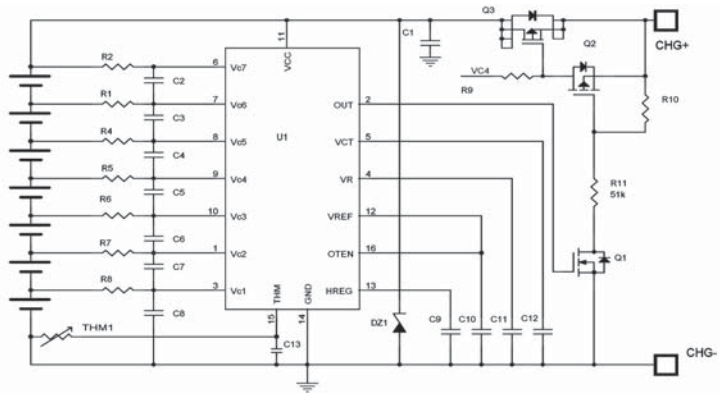
Over charge Voltage Protection (OVP) ensures that no cell exceeds its nominal cell voltage. Over-voltage threshold is model selectable from 3.65V to 4.50V. If any one of the cells reaches the OVP threshold, a time delay is started on the VCT pin. Upon time-out, if the over-voltage condition is still present, this failure condition turns ON the external PMOS transistor (driven by the OUT pin) to isolate the path between the charger and the battery, by opening a fuse.

OZ8802 has a user-configurable delay for over-voltage detection time. This reduces false triggering and inadvertently blowing the Battery Pack protection fuse.

APPLICATIONS

- Power Tools
- UPS
- LEV, EV, HEV

APPLICATION DIAGRAM



OZ8805

FEATURES

- Efficient Smart Phone battery monitor and high accuracy Fuel Gauge
- Monitors:
 - Battery voltage
 - Temperature
 - Current for built-in hardware Coulomb counting (Accurate Battery State-of-Charge)
- Resides in either the Host or the Battery Pack
- Supports I2C communication protocol
- Supports O.C.V (Open Circuit Voltage) detection when chip is in start-up and sleep modes
- Low power consumption

GENERAL DESCRIPTION

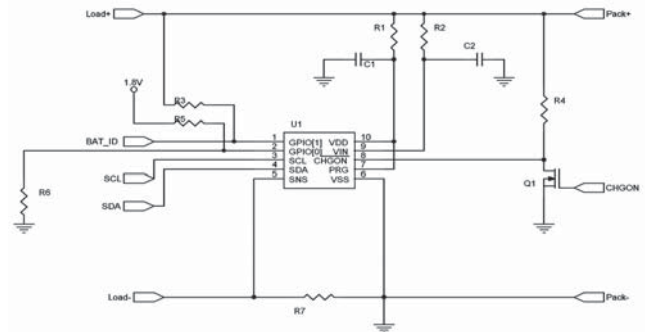
OZ8805 is a single cell battery monitor chip that can work either in the battery pack or host. It provides current flow, voltage, and temperature measurement data to support battery capacity monitoring in cost-sensitive applications.

Current measurement and coulomb counting is accomplished by monitoring the voltage drop across an external sense resistor; voltage measurement is accomplished through a separate voltage-sense input; and 2 GPIO may be used to detect battery temperature or for other purposes.

APPLICATIONS

- Smart Phone
- PDA
- Cell Phone
- Handheld Rechargeable Battery Powered Products

APPLICATION DIAGRAM



OZ8812

FEATURES

- Highly integrated 3 – 6 Cell Monitor and Protection circuit for Lilon batteries
- Low Power Consumption:
 - Normal mode Icc
 - Low power mode Icc
 - Power down mode Icc
- High accuracy fault protection, with time delay to prevent false trigger
 - Over-voltage (OV) and Under-voltage (UV) detection
 - Over-temperature (OT) and Under-temperature (UT) detection – JEITA compliant
 - Discharge Over Current (DOC) and Short Circuit Current (SCC) detection
 - Charge Over Current (COC) detection
- Self-contained charge/discharge power path control with strong power MOSFET drivers
- Open cell tap and Load (OL) detection
- Charger detection
- Pre-charge enable
- Optional 2 wire charger interface
- Basic one LED battery gauge indicator

GENERAL DESCRIPTION

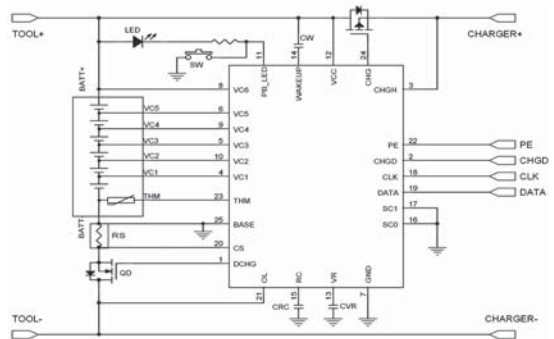
OZ8812 is a Lithium Ion (Lilon) Battery Pack Protection circuit that performs cell voltage, current and temperature monitoring. It can monitor lithium ion battery packs with 3 – 6 cells.

A user-selectable combination of fault condition signals will turn OFF the external charge and/or discharge power MOSFETs to disconnect the entire battery pack from the charger and/or from the load.

APPLICATIONS

- Power Tools and Appliances
- Notebook PC
- UPS
- Remote Controlled Vehicles

APPLICATION DIAGRAM



OZ8980

FEATURES

- Adapter/Charger Controller IC
- Dedicated PWM output
- Flexible selection, supporting Lilon and PbA battery charge
- Intelligent charging control with ZV/UV charge, Pre-charge, CC, CV and End Of Charge Control (EOC) / Floating pulse Charge Control (FC)
- Auto-recharge function for Lilon battery
- Programmable EOC/FC current threshold setting, and programmable CV timer setting (Maximum: 5 hours, or disable)
- Support programmable settings for Pre-charge, CC, CV value
- High accuracy voltage (<1%) and current (<5%) regulation
- Support UVLO (Under Voltage Lock Out) function with Hysteresis
- Support OV (Lilon only), OC protection functions in application
- Support chip Over-temperature protection (OTP) function (115°C)
- Support external OTP function
- Support battery on-line detection

GENERAL DESCRIPTION

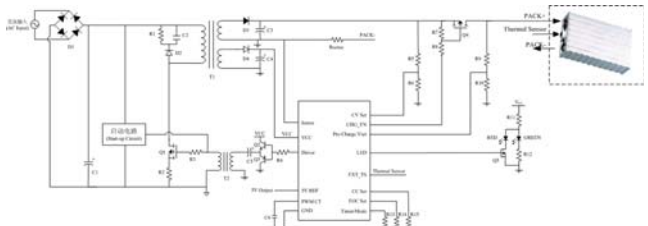
OZ8980 is designed for multi-cell Lithium Ion (Lilon) and Lead Acid (PbA) battery pack charger applications.

A significant benefit of OZ8980 is that it supports the full charge functions of Lilon and PbA battery packs with the fewest external components. This IC supports single-stage flyback topology, which is most suitable for medium-power and small-power switch mode power supplies (SMPS).

APPLICATIONS

- Power Tools
- Electric Bicycle
- Electric Vehicle (EV)
- Boat

APPLICATION DIAGRAM



OZ8981

FEATURES

- Adapter/Charger Controller IC
- High capability error amp output
- Flexible selection, supporting Lilon and PbA battery charge
- Intelligent charging control with ZV/UV charge, Pre-charge, CC, CV and End Of Charge Control (EOC) / Floating pulse Charge Control (FC)
- Auto-recharge function for Lilon battery
- Programmable EOC/FC current threshold setting, and programmable CV timer setting (Maximum: 5 hours, or disable)
- Support programmable settings for Pre-charge, CC, CV value
- High accuracy voltage (<1%) and current (<5%) regulation
- Support UVLO (Under Voltage Lock Out) function with Hysteresis
- Support OV (Lilon only), OC protection functions in application
- Support chip Over-temperature protection (OTP) function (115)
- Support external OTP function
- Support battery on-line detection

GENERAL DESCRIPTION

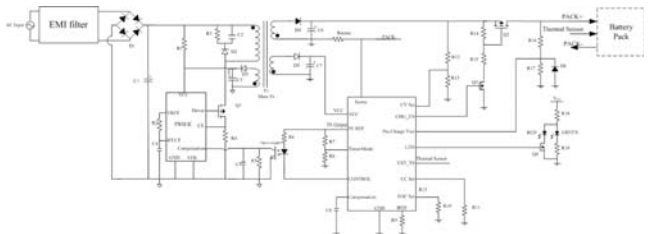
OZ8981 is designed for multi-cell Lithium Ion (Lilon) and Lead Acid (PbA) battery pack charger applications.

A significant benefit of OZ8981 is that it supports the full charge functions of Lilon and PbA battery packs with the fewest external components. This IC supports single-stage flyback topology, which is most suitable for medium-power and small-power switch mode power supplies (SMPS).

APPLICATIONS

- Power Tools
- Electric Bicycle
- Electric Vehicle (EV)
- Boat

APPLICATION DIAGRAM



OZ8033

FEATURES

- Ultra low dropout (LDO) regulator
- 170mV dropout
- 1.5% Accuracy over Line/Load/Temperature
- Fast load Transient Response
- Internal soft start function
- Protections include: Over-current (OCP), Output Under-voltage (UVP), Under-voltage Lock Out (UVLO) for VDDA and VIN, and Over-temperature (OTP)

GENERAL DESCRIPTION

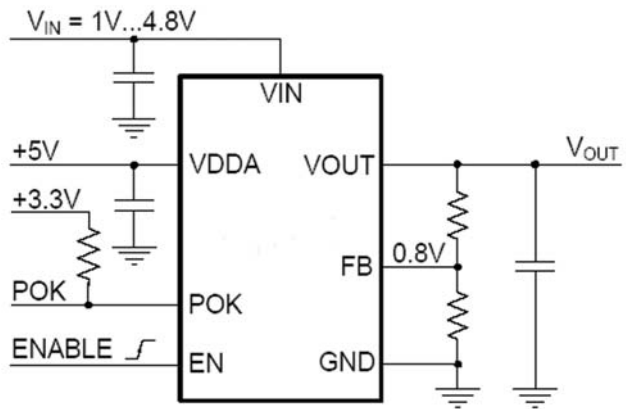
OZ8033 is a fast, high current, and ultra low dropout (LDO) regulator designed for DSP Core, front side bus VTT and other similar applications.

The device uses two power supplies: VIN and VDDA. VIN is the main supply providing the output current; VDDA is an auxiliary supply for all other internal circuitry. The voltages of both power supplies are internally monitored by the Under-Voltage Lock-out circuitry, which disables the chip when any of these voltages is lower than the safe operation threshold.

APPLICATIONS

- Notebook PC
- Industrial PC
- Automotive Infotainment
- FPGA
- DSP Core and I/O Voltage
- Front Side Bus VTT
- Motherboard

APPLICATION DIAGRAM



OZ8116/8138

FEATURES

- **OZ8116:** Single DC/DC SMPS controller with integrated drivers
- **OZ8138:** Dual DC/DC SMPS controller with integrated drivers
- Constant-Ripple-Current control allows optimum inductor size
- High full load efficiency up to 94%; High light load efficiency >85% at 100mA
- High VOUT accuracy
- Input voltage: 3V to 26V; Output voltage: adjustable from 0.5V to 2.75V
- Output current – up to 15A
- Protections include:
 - Output latched over-voltage and under-voltage, and over-current
 - Input under-voltage lock out on VDDA and VIN
- Soft start at start-up
- Soft stop at shutdown

GENERAL DESCRIPTION

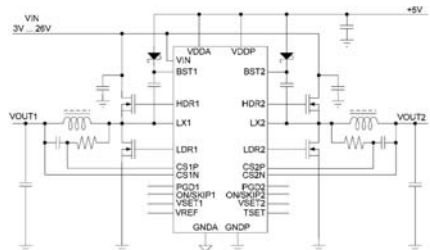
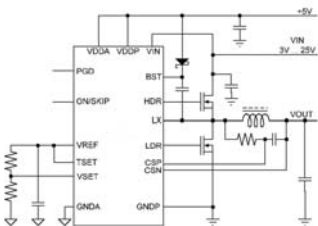
OZ8116/8138 are DC/DC Switched Mode Power Supply (SMPS) controllers specially developed to provide power control for next generation microprocessors, their peripherals and chipsets.

These ICs step down the high battery voltage to low output voltages in the range of 0.5V to 2.75V. High efficiency, DC accuracy and excellent transient response make OZ8116/8138 the perfect choice to supply low voltage CPU peripherals, chipset cores, and graphics processors.

APPLICATIONS

- Power Supplies for Notebook CPU, Microcontrollers and Peripherals
- Industrial PC
- GPS

APPLICATION DIAGRAMS



OZ9950

FEATURES

- High efficiency DC/DC step up converter for white LED drivers
- 1.8V to 5.5V input voltage range
- Over-voltage protection
- Soft start function

GENERAL DESCRIPTION

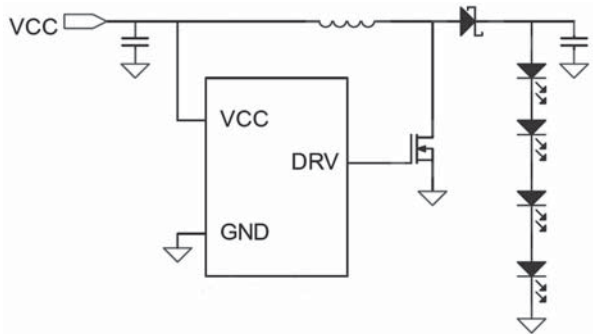
OZ9950 is a low cost, high efficiency, DC/DC step up converter that allows a series connection of White LEDs, resulting in uniform brightness. The step-up converter topology works in a discontinuous mode to allow the use of a small inductor and ease-of-loop stability that results in a high efficiency and low cost module.

An external Pulse Width Modulation (PWM) signal or external voltage can be used for the dimming control function.

APPLICATIONS

- Automotive Head Light
- Automotive Fog Light

APPLICATION DIAGRAM



OZ9961

FEATURES

- High frequency DC/DC power converter controller
- Drives 6 LED strings in parallel
- Integrated LED current balance control circuit
- Up to 2.35MHz switching frequency
- Analog or external PWM or internal LPWM dimming control
- Over-current and over-voltage protection
- Thermal protection
- Open diode and open/short circuit protection
- Soft start function

GENERAL DESCRIPTION

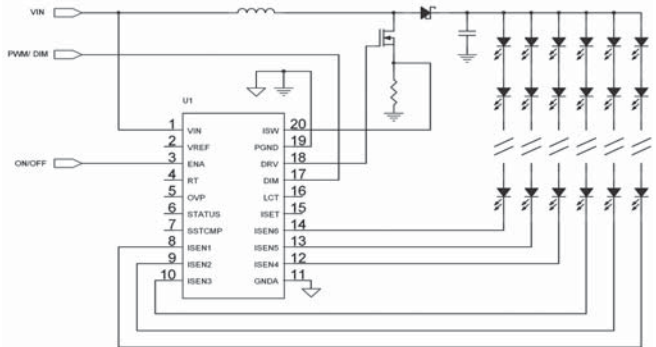
The OZ9961 is a LED controller that drives up to six (6) strings of LEDs in parallel configuration, with multiple LEDs per string connected in series. It provides six (6) LED current sense inputs in an “OR” configuration to improve backlight reliability. This allows the backlight to remain functioning in the event that any string (s) is damaged during normal operation.

OZ9961 supports either analog, external Pulse Width Modulation (PWM) or internal Low frequency PWM (LPWM) dimming control.

APPLICATIONS

- LCD Monitor
- GPS

APPLICATION DIAGRAM



OZ9965

FEATURES

- Integrated LED controller and two (2) DC/DC converters
- Drive up to 4 strings of LEDs in parallel
- User-defined operation frequency
- LED Controller, Boost Converter, and General Purpose Converter features
- Thermal protection
- User-defined shutdown delay timer
- Failure status output
- Soft start function

GENERAL DESCRIPTION

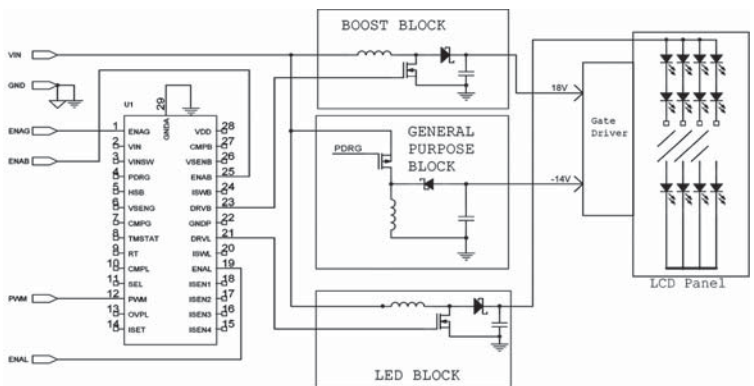
OZ9965 is a wide input range multi-output power management controller for small panel LCD applications. It controls the DC/DC power conversion from a single input supply voltage to provide the power needed to drive an LED backlight module, source drivers and gate drivers used in a LCD application.

OZ9965 consists of a high power LED driver controller, a boost converter, and one general purpose converter that can be configured into either a buck or negative buck-boost converter. The LED driver supports external Pulse Width Modulation (PWM) dimming, can drive 3 or 4 LED strings depending on the SEL pin voltage setting, and provides an integrated circuit to balance the current flow through each LED string.

APPLICATIONS

- Car TV
- GPS

APPLICATION DIAGRAM



OZ9986

FEATURES

- Boost and buck converter
- High efficiency DC/DC converter controller
- Drives up to 6 strings in parallel; number of LEDs in series limited by external MOSFET rating
- Supports up to 3 phase-shift drive outputs for boost converter
- High efficiency switching mode LED current balance
- User selectable phase shift PWM dimming function with 3, 4, 5 and 6 phases
- PWM dimming control signals synchronized with external signal
- Over-voltage and over-current protection
- Soft start function

GENERAL DESCRIPTION

OZ9986 is a high efficiency, DC/DC controllers that drives up to six (6) strings connected in parallel configuration with multiple LEDs in each string connected in series. It is targeted for large-size monitor applications.

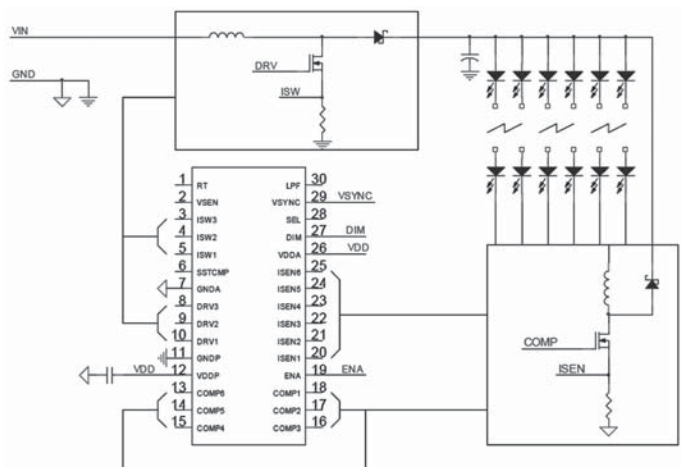
It provides six (6) LED current sense inputs in an “OR” configuration to improve backlight reliability. This allows the backlight to remain functioning in the event that any string (s) is damaged during normal operation.

OZ9986 supports internal Pulse Width Modulation (PWM) dimming control. Plus, it provides an integrated circuit to balance the current flow through each LED string.

APPLICATIONS

- LCD Monitor

APPLICATION DIAGRAM



OZ9998A

FEATURES

- Up to 80mA per ISEN channel
- High power DC/DC boost converter controller
- Drives up to 8 strings in parallel
- Integrated LED current balance control circuit
- User-defined string selection
- External PWM dimming control
- Time-shift PWM phase dimming control for low audible noise
- Multi-chip parallel operation for more than 8 LED strings
- MOSFET over-current protection
- LED short circuit and open string protection
- Thermal protection
- Status output
- Soft start function

GENERAL DESCRIPTION

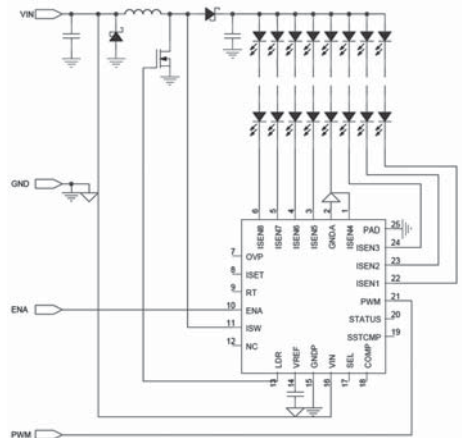
OZ9998A is a high efficiency, DC/DC controllers that drives up to eight (8) strings of LEDs connected in parallel configuration, with multiple LEDs in each string connected in series. It provides eight (8) LED current sense inputs in an “OR” configuration to improve backlight reliability. This allows the backlight to remain functioning in the event that any string (s) is damaged during normal operation.

OZ9998A supports external Pulse Width Modulation (PWM) dimming control. Plus, it provides an integrated circuit to balance the current flow through each LED string.

APPLICATIONS

- LCD Monitor

APPLICATION DIAGRAM



OZ9992

FEATURES

- Quasi-resonant AC/DC converter controller for high brightness LEDs
- 3-level analog dimming control brightness levels using a Wall Switch (Patent Pending)
- Low start-up current and operating current maximizing conversion efficiency
- Peak current mode control simplifies circuit design
- Under-voltage lockout with hysteresis
- Minimum off-time control for light-load operation maximizing efficiency
- Constant output power for universal AC input
- Provides complete protection functions
 - Maximum gate drive output at 18.0V
 - Over-voltage protection for IC bias voltage
 - Cycle-by-cycle current limit at current sense
 - LED short circuit protection
 - Over-voltage protection
 - Thermal protection

GENERAL DESCRIPTION

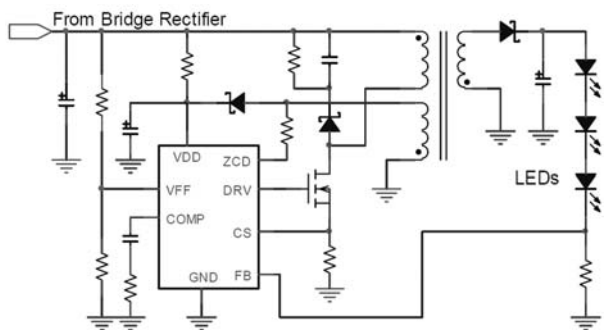
OZ9992 is a controller for off-line AC/DC flyback converter applications utilizing quasi-resonant power conversion technology. One application using OZ9992 is for driving the high power LEDs. It uses a compensated peak current mode control to regulate the average current through the LEDs.

OZ9992 requires very low start-up current, which maximizes the efficiency of the converter and provides a proprietary (patent pending) dimming technology by turning-on/off the wall switch.

APPLICATIONS

- General Lighting
- PFC Controller

APPLICATION DIAGRAM



Company Background

Founded in April 1995, O₂Micro[®] International Limited (NASDAQ[®]: OIIM) designs, develops and markets innovative **power management** and **security** components and systems for the Computer, Consumer, Industrial/Automotive, and Communications markets.

O₂Micro maintains an extensive portfolio of intellectual property, and has numerous trademark Applications and Copyright Registrations.

The company's extensive list of customers includes most of the world's leading electronics manufacturers of Computer, Consumer, Industrial and Communications products.

For additional information, including sales office locations, please visit the O₂Micro web site at **www.o2micro.com**.



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