

The **POWER**[®] ₂ of **EFFICIENCY** Intelligent Lighting



O₂Micro[®]
Breathing Life into Mobility

Intelligent Lighting Family Product Guide

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* NOTE: The OZ9928, OZ9966, OZ9972/72A, OZ9976, and OZ9977/77A/77B are inverter controllers specially designated for use in televisions or applications with multiple lamps, are warranted and licensed for use in these or any other appropriate applications, and are sold with a license to all relevant O2Micro patents. Sale of all other O2Micro inverter controllers are subject to the following restrictions: (i) the product is not warranted, indemnified, or licensed for use in televisions or applications with multiple lamps; (ii) sale of the product and license to O2Micro inverter controller patents are expressly conditioned upon not using this product in a television or applications with multiple lamps; (iii) by using the product, you agree to notify customers of the limited scope of the license and sale; and (iv) use of the product in a television or applications with multiple lamps is expressly prohibited, is a material breach of such sale, and violates any express or implied license to any O2Micro patent. All sales are subject to O2Micro's conditions and terms of sale and use.

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LED Backlight Controller ICs (cont.)			
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LED Backlight Controller ICs (cont.)			
AUTOMOTIVE / CAR TV / GPS / PND APPLICATIONS			
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Intelligent Lighting

Mission Statement

Be the leading supplier of highly efficient Intelligent Lighting solutions for power management of electronic products in the Computer, Consumer, Industrial, Automotive, and Communications markets worldwide.

Product

O₂Micro® offers a family of *Intelligent Lighting* backlight Cold Cathode Fluorescent Lamp (CCFL), External Electrode Fluorescent Lamp (EEFL), Flat Fluorescent Lamp (FFL), and LED controllers ideal for various sizes of Liquid Crystal Display (LCD) and Power Management Unit (PMU) applications – e.g., Monitors, TVs, Notebooks/Netbooks, PDVDs, Car TVs, GPS, Digital Photo Frames, PNDs (Personal Navigation Devices). Solutions are also available for General Lighting and Automotive applications.

CONSUMER Applications



OZ9919

FEATURES

- Supports half-bridge or push-pull topology
- 0% to 100% PWM dimming range
- Constant operating frequency
- Drives positive/negative-impedance lamps during ignition
- High drive current for external MOSFETs
- User-defined ignition time and shutdown delay time
- Built-in intelligence for lamp ignition and normal operation of CCFLs
- Open-lamp and over-voltage protection
- Soft-start function

GENERAL DESCRIPTION

OZ9919 is a high performance, cost-effective Cold Cathode Fluorescent Lamp (CCFL) controller designed to drive large-size LCD monitors using 2 or 4 CCFLs.

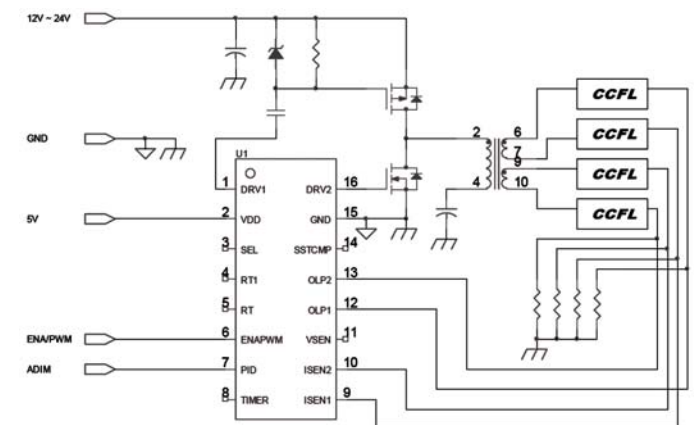
This controller converts an unregulated DC voltage into a nearly sinusoidal lamp voltage and current waveforms. It supports either half-bridge or push-pull power conversion topology, while maintaining high efficiency operation.

The OZ9919 offers a high level of integration, while maintaining flexibility and high efficiency operation that reduces external component heating, resulting in higher reliability and longer CCFL life. The proprietary design technique provides a simple, low-cost system solution.

APPLICATIONS

- LCD Monitor

APPLICATION DIAGRAM



OZ9933

FEATURES

- Constant operating frequency
- Drives positive/negative-impedance lamps during ignition
- High drive current for external MOSFETs
- User-defined ignition time and shutdown delay time
- Built-in intelligence for lamp ignition and normal operation of CCFLs
- Open-lamp and over-voltage protection
- Soft start function

GENERAL DESCRIPTION

OZ9933 is a high performance, cost-effective Cold Cathode Fluorescent Lamp (CCFL) controller designed to drive large-size LCD applications using 2, 4, or 6 CCFLs. It supports a full bridge, power conversion topology, while maintaining high efficiency operation.

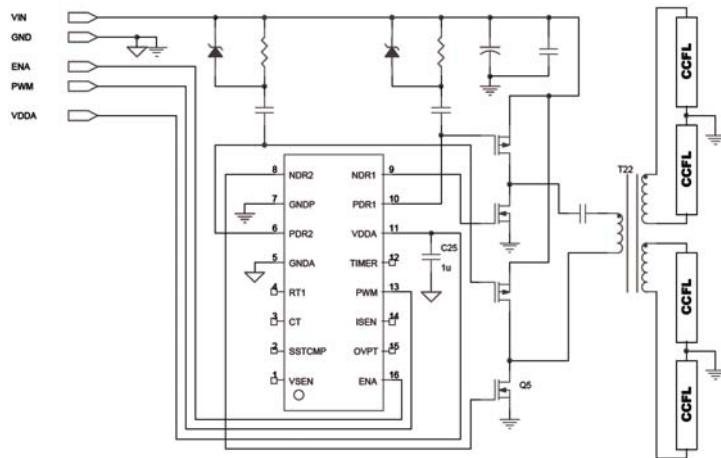
This controller converts an unregulated DC voltage into a nearly sinusoidal lamp voltage and current waveforms. It supports full-bridge power conversion topology, while maintaining high efficiency operation.

The OZ9933 offers a high level of integration, while maintaining flexibility and high efficiency operation that reduces external component heating, resulting in higher reliability and longer CCFL life. The proprietary design technique provides a simple, low-cost system solution.

APPLICATIONS

- LCD Monitor

APPLICATION DIAGRAM



U.S. Patent #'s 6,259,615; 6,396,722; 6,559,606; 6,804,129; 6,809,938; 6,856,519; 6,897,698; 6,900,993; 7,026,860; 7,120,035; 7,151,394; 7,394,209; 7,417,382; 7,515,445; 7,515,446; 7,777,425; and more patents pending.

OZ9937

FEATURES

- Universal panel interface
- Drives positive/negative-impedance lamps during ignition
- Independent PWM and analog dimming control
- Operating frequency compensation
- User-defined PWM dimming frequency
- User-defined striking and normal operating frequency
- Open-lamp and over-voltage protection
- User-defined ignition and shutdown delay time
- Soft start function

GENERAL DESCRIPTION

The OZ9937 is a high performance, cost-effective Cold Cathode Fluorescent Lamp (CCFL) controller designed to drive large-size LCD Monitor applications using 2 to 6 CCFLs.

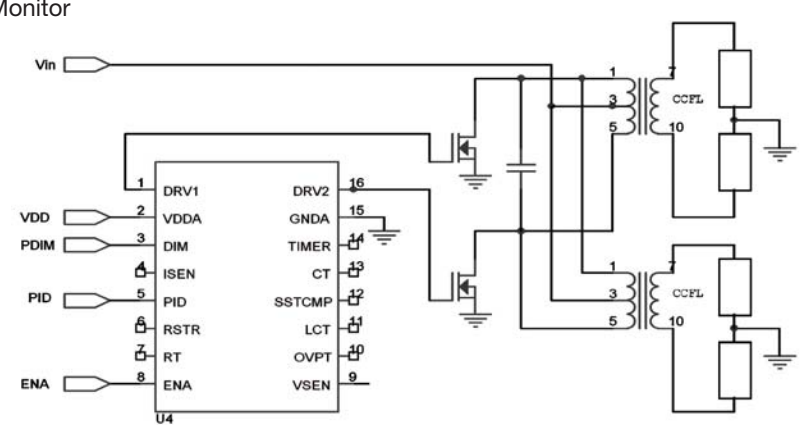
OZ9937 receives a panel ID signal from the system and provides an optimal operating frequency and power to the LCD panel. The adaptive feature enables a single inverter design to suit various panel applications.

The controller converts unregulated DC voltage into a nearly sinusoidal lamp voltage and current waveforms. It provides two drive signals for most power conversion topologies, while maintaining high efficiency operation.

APPLICATIONS

- LCD Monitor

APPLICATION DIAGRAM



U.S. Patent #'s 6,259,615; 6,396,722; 6,559,606; 6,804,129; 6,809,938; 6,856,519; 6,900,993; 7,120,035; 7,372,213; 7,394,209; 7,417,382; 7,515,445; 7,515,446; 7,777,425; and more patents pending.

OZ9938

FEATURES

- Positive PWM dimming polarity
- Constant operating frequency
- Drives positive/negative-impedance lamps during ignition
- High drive current for external MOSFETs
- User-defined ignition time and shutdown delay time
- Multiple mode dimming control
- Built-in intelligence for lamp ignition and normal operation of CCFLs
- Open-lamp and over-voltage protection
- Soft start function

GENERAL DESCRIPTION

The OZ9938 is a high performance, cost-effective Cold Cathode Fluorescent Lamp (CCFL) controller designed to drive large-size LCD applications requiring 2 to 6 CCFLs.

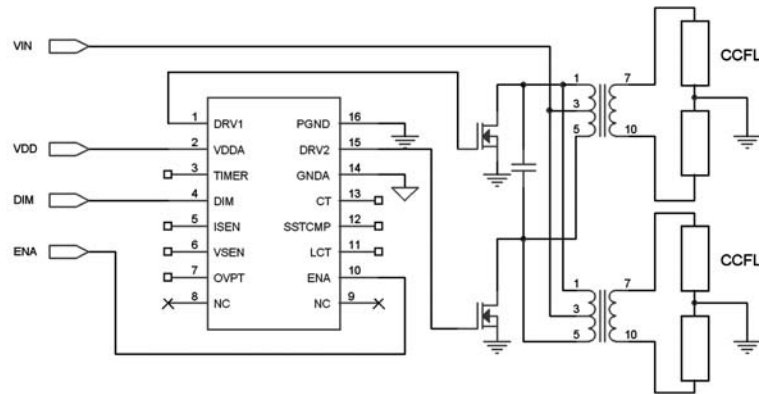
This controller converts an unregulated DC voltage into a nearly sinusoidal lamp voltage and current waveforms. It provides two drive signals for most power conversion topologies, while maintaining high efficiency operation.

The OZ9938 offers a high level of integration, while maintaining flexibility and high efficiency operation that reduces external component heating. This results in higher reliability and longer CCFL life. The proprietary design technique provides a simple, low-cost system solution.

APPLICATIONS

- LCD Monitor

APPLICATION DIAGRAM



U.S. Patent #'s 6,104,146; 6,259,615; 6,396,722; 6,559,606; 6,804,129; 6,809,938; 6,856,519; 6,897,698; 6,900,993; 7,095,392; 7,120,035; 7,151,394; 7,233,117; 7,372,213; 7,394,209; 7,417,382; 7,515,445; 7,515,446; 7,777,425; and more patents pending.

OZ9928

FEATURES

- Dual CCFL inverter controller
- Synchronization for multiple ICs
- Supports differential drive
- Supports system operation frequency synchronization
- Constant operating frequency
- 180 degree phase-shift PWM dimming
- Mixed-mode dimming control
- Integrated high side N-MOSFET driver
- High drive capability
- Selectable shutdown protection mode
- User-defined ignition and shutdown delay timers
- Built-in intelligence for lamp ignition and normal operation of CCFLs
- Open-lamp and over-voltage protection
- Soft start function

GENERAL DESCRIPTION

The OZ9928 is a high performance, cost-effective, 2-channel controller designed for large-size Cold Cathode Fluorescent Lamp (CCFL) or External Electrode Fluorescent Lamp (EEFL) LCD TV applications.

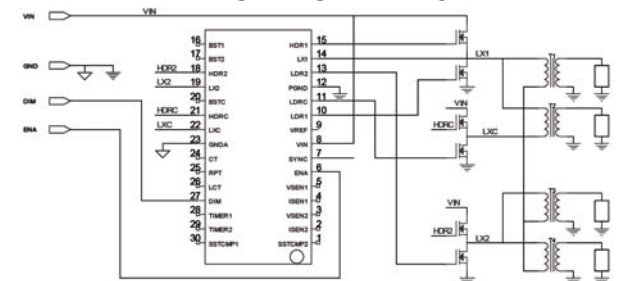
The controller provides six drive signals and is capable of driving full-bridge and Class-D topologies. The drive outputs are fixed phase when used for single-side or differential drive applications. Multiple OZ9928s can be synchronized to drive numerous lamps.

OZ9928 provides total system protection for differential drive and single-side drive applications. It receives either a DC voltage and/or external Pulse Width Modulation (PWM) signal to perform mixed-mode PWM dimming.

APPLICATIONS

- LCD TV

APPLICATION DIAGRAM



U.S. Patent #'s 6,104,146; 6,259,615; 6,396,722; 6,501,234; 6,570,344; 6,707,264; 6,781,325; 6,804,129; 6,897,698; 6,936,975; 7,075,245; 7,095,392; 7,126,289; 7,151,394; 7,190,123; 7,248,240; 7,345,431; 7,394,209; 7,417,382; 7,425,949; 7,477,024; 7,515,445; 7,515,446; 7,550,928; 7,554,273; 7,777,425; and more patents pending.

OZ9966

FEATURES

- Full-bridge or dual-forward topology
- Integrated high side N-MOSFET driver
- High drive capability and System synchronization
- Dedicated pins for Analog and LPWM dimming
- Selectable PWM dimming polarity
- Constant operating frequency
- Built-in intelligence to manage lamp ignition and normal operation
- Open-lamp, over-voltage, over-current, and under-voltage lockout protection
- User-defined striking and shutdown delay timers
- Soft start function

GENERAL DESCRIPTION

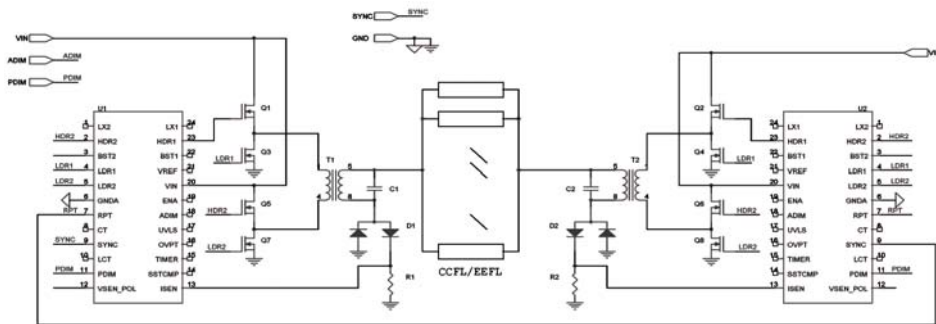
The OZ9966 is a high performance controller designed for large-size LCD TV applications requiring multiple lamps. It achieves a high efficiency power conversion with minimal switching loss using a full-bridge N-Channel MOSFET topology. The OZ9966 is ideal for single-side drive or differential drive applications.

OZ9966 allows selection of the Pulse Width Modulation (PWM) dimming polarity, and provides two dedicated pins for analog and PWM dimming control.

APPLICATIONS

- LCD TV

APPLICATION DIAGRAM



U.S. Patent #'s 6,259,615; 6,396,722; 6,570,344; 6,781,325; 6,804,129; 6,897,698; 6,936,975; 7,075,245; 7,126,289; 7,151,394; 7,190,123; 7,248,240; 7,345,431; 7,394,209; 7,417,382; 7,425,949; 7,515,445; 7,515,446; 7,550,928; 7,554,273; 7,777,425; and more patents pending.

OZ9972/72A

FEATURES

- **OZ9972:** System synchronization for dimming and operation frequency
- Full-bridge topology
- Integrated high side N-MOSFET driver
- High drive capability and soft start function
- Constant operating frequency
- Built-in intelligence to manage lamp ignition and normal operation of CCFLs
- Open-lamp, over-voltage, over-current, and under-voltage lockout protection
- User-defined striking and shutdown delay timers
- Soft start function

GENERAL DESCRIPTION

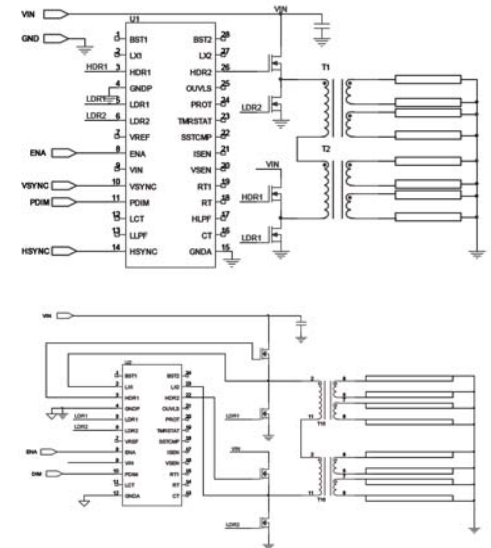
OZ9972/72A are high performance, Pulse Width Modulation (PWM) controllers designed for large-size LCD TV applications requiring multiple lamps. They achieve high efficiency power conversion with minimal switching loss in a PWM, full-bridge, N-Channel MOSFET topology.

OZ9972/72A provide high drive capability, support a wide input range, and provide a constant, user-defined operating frequency.

APPLICATIONS

- LCD TV

APPLICATION DIAGRAMS



U.S. Patent #'s 6,259,615; 6,396,722; 6,570,344; 6,781,325; 6,804,129; 6,897,698; 6,936,975; 7,075,245; 7,126,289; 7,151,394; 7,190,123; 7,248,240; 7,345,431; 7,394,209; 7,417,382; 7,425,949; 7,515,445; 7,515,446; 7,550,928; 7,554,273; and more patents pending.

OZ9976

FEATURES

- Offline Inverter Controller (IPB)
- Supports both fixed and variable frequency applications
- Half-bridge or push-pull topology
- Directly drives pulse transformers
- Dedicated pins for Analog and LPWM dimming
- User-defined minimum operating frequency
- User-defined striking frequency range
- Open-load, over-voltage, and under-voltage lockout protection
- User-defined striking and shutdown delay timers
- Soft start function

GENERAL DESCRIPTION

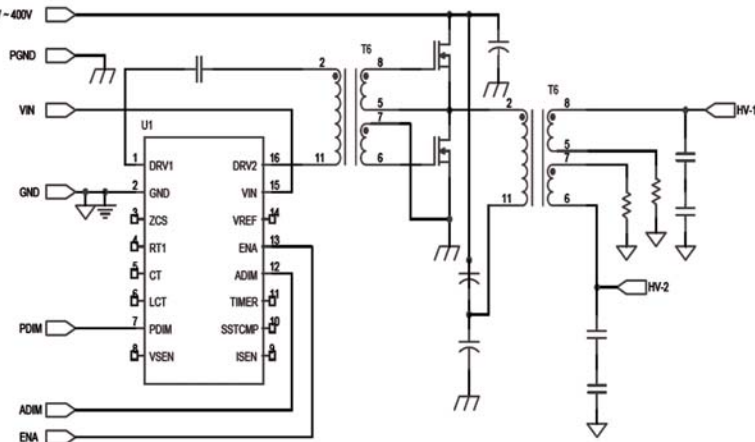
The OZ9976 is a high efficiency, Pulse Width Modulation (PWM) controller designed for off line LCD backlight application. It achieves high efficiency power conversion with minimal switching loss using Zero Current Switching (ZCS) technology. OZ9976 applications can operate under fixed or variable operating frequency with ZCS technology.

The minimum operating frequency can be set by either an external RC network or operate in self-oscillating mode. The intelligent operating frequency management circuitry extends Cold Cathode Fluorescent Lamp (CCFL) lifetime and offers design flexibility.

APPLICATIONS

APPLICATION DIAGRAM

- LCD TV



U.S. Patent #'s 6,259,615; 6,396,722; 6,570,344; 6,781,325; 6,804,129; 6,809,938; 6,856,519; 6,900,993; 6,936,975; 7,075,245; 7,120,035; 7,126,289; 7,190,123; 7,248,240; 7,345,431; 7,394,209; 7,417,382; 7,425,949; 7,515,445; 7,515,446; 7,550,928; 7,554,273; and more patents pending.

OZ9901

FEATURES

- Integrated 3A, 0.2Ω switching MOSFET
- Integrated VGH and VGL charge pump regulators
- Adjustable VGH Delay
- Operational amplifier for VCOM buffer
- Open-drain reset output for TCON
- 1.2MHz fixed switching frequency boost converter with soft start and adjustable output
- Thermal protection

GENERAL DESCRIPTION

OZ9901 offers a complete power supply solution for TFT LCD panel applications. The LCD Bias Supply Controller consists of a high performance boost converter, open drain reset output, charge-pump regulators for VGH and VGL, operational amplifier, input voltage detector and a logic-controlled gate-on pulse modulator. The boost converter operates using current mode control, and offers fast line and load responses for LCD bias supplies.

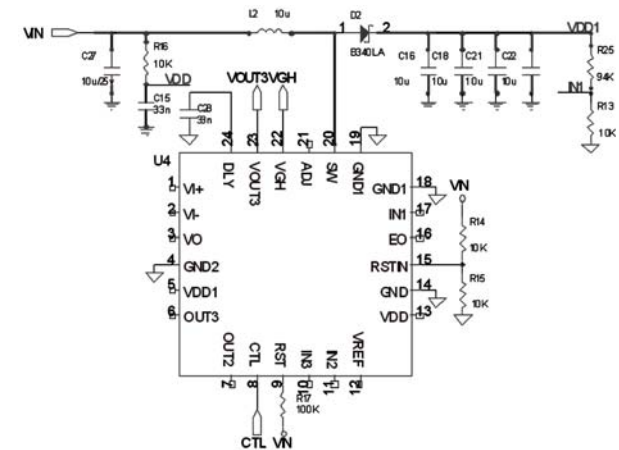
The integrated charge pumps provide a regulated supply for the panel gate driver ICs. The charge-pump regulators provide a positive gate-on supply voltage (VGH) and negative gate-off supply voltage (VGL).

The operational amplifier works as a VCOM buffer and supplies a high output current, fast slew rate and wide bandwidth for driving capacitive loads.

APPLICATIONS

APPLICATION DIAGRAM

- Notebook/Netbook Computer



U.S. Patent #7,498,793; and more patents pending.

OZ9956B

FEATURES

- High frequency DC/DC power converter controller
- Drives up to 6 strings in parallel
- Integrated LED current balance control circuit
- Wide input voltage range
- Up to 2.0MHz switching frequency
- External PWM dimming
- Over-voltage and over-current protection
- Soft start function

GENERAL DESCRIPTION

The OZ9956B is a high efficiency, DC/DC controller that drives up to six (6) strings of LEDs in parallel configuration, with multiple LEDs in each string connected in series. It is targeted for notebook/netbook applications.

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

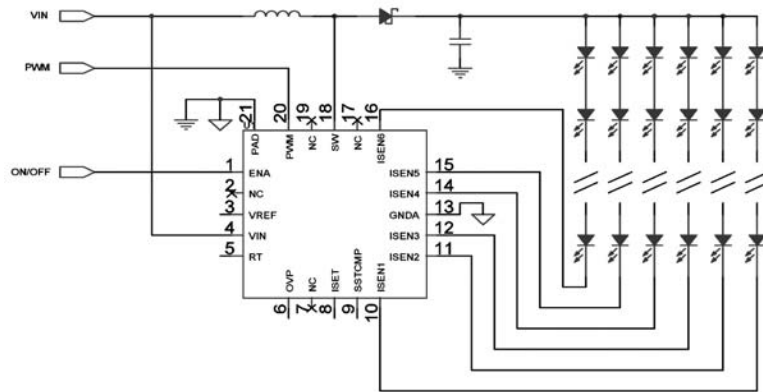
OZ9956B can receive either an analog signal or an external Pulse Width Modulation (PWM) signal for the dimming control function.

This IC provides an integrated circuit to balance the current flow through each LED string, as well as, the integrated power MOSFET.

APPLICATIONS

- Notebook/Netbook Computer

APPLICATION DIAGRAM



OZ9956C

FEATURES

- High frequency DC/DC power converter controller
- Drives up to 6 strings in parallel
- Integrated LED current balance control circuit
- Integrated power MOSFET
- Up to 1.5MHz switching operation
- Supports phase-shift dimming with adaptive phase control
- External PWM dimming control
- Output over-voltage and short circuit protection
- LED over-current and short circuit protection
- Switch over-current protection
- Thermal protection
- Under-voltage protection

GENERAL DESCRIPTION

The OZ9956C is a high efficiency, DC/DC controller that drives up to six (6) strings of LEDs in parallel configuration, with multiple LEDs in each string connected in series. It is targeted for notebook/netbook applications.

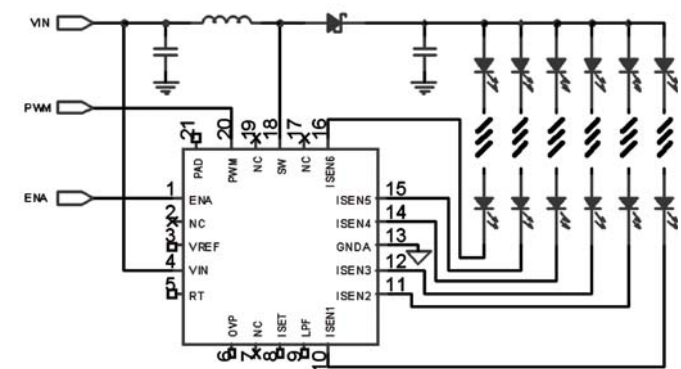
It provides six (6) LED current sense inputs in an “OR” configuration for improved backlight reliability. This allows the backlight to remain functioning in the event that any string (s) is damaged during normal operation.

OZ9956C supports an external Pulse Width Modulation (PWM) signal for the phase-shifted dimming control function. It provides an integrated circuit to balance the current flow through each LED string, as well as, the integrated power MOSFET.

APPLICATIONS

- Notebook/Netbook Computer

APPLICATION DIAGRAM



OZ9960

FEATURES

- High frequency DC/DC boost converter controller
- Integrated power MOSFET
- Supports low input voltage
- Up to 200mA LED current
- External PWM dimming
- Open LED protection
- MOSFET over-current protection
- Soft start function

GENERAL DESCRIPTION

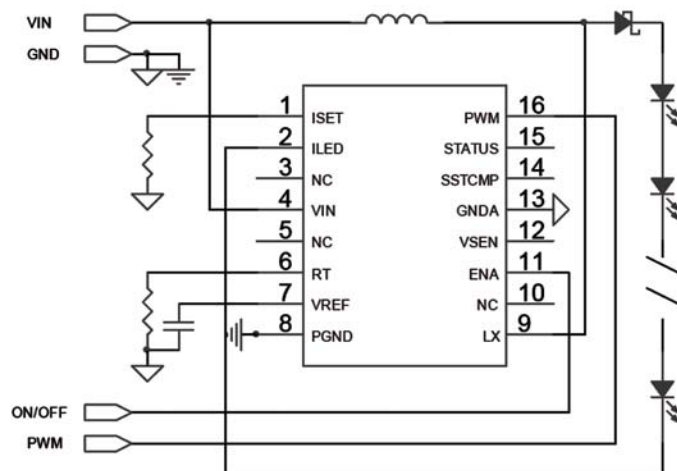
OZ9960 is a high efficiency DC/DC boost converter controller that drives a string of LEDs connected in a serial configuration. It is ideal for small and mid-size LCD backlight applications.

OZ9960 supports a wide input range and constant, user-defined operating frequency for a single string LED application. It receives an external Pulse Width Modulation (PWM) signal for dimming control.

APPLICATIONS

- Notebook/Netbook Computer
- GPS
- PND

APPLICATION DIAGRAM



OZ9979

FEATURES

- High efficiency DC/DC boost converter controller
- Drives up to 6 strings in parallel
- Enhanced dimming resolution
- Supports 6 equal-delay PWM dimming signals
- Integrated power MOSFET
- Integrated LED current balance control circuit
- Supports external, internal PWM and analog dimming
- PWM dimming frequency synchronized with external signal
- MOSFET over-current protection
- Over-voltage protection
- LED short circuit detection
- Output short circuit/open diode protection
- Thermal protection
- Soft start function

GENERAL DESCRIPTION

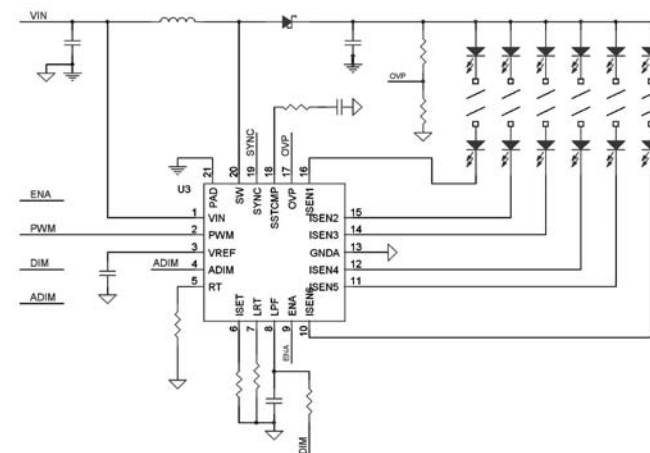
OZ9979 is a high efficiency, DC/DC controller that drives up to six strings of LEDs connected in parallel configuration; with multiple LEDs in each string connected in series. It is targeted for notebook backlight applications.

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

APPLICATIONS

- Notebook Computer

APPLICATION DIAGRAM



OZ9989

FEATURES

- High frequency DC/DC power converter controller
- Drives up to 3 strings in parallel
- Integrated power MOSFET
- Integrated LED current balance control circuit
- Fixed 1.3MHz switching frequency
- External PWM dimming
- MOSFET over-current protection
- Over-current protection for each string
- Output short circuit detection
- Open diode, over-voltage and thermal protection
- Soft start function

GENERAL DESCRIPTION

OZ9989 is a high efficiency, DC/DC controller with an integrated power MOSFET that drives up to three strings of LEDs connected in parallel configuration; with multiple LEDs in each string connected in series. It is targeted for netbook backlight applications.

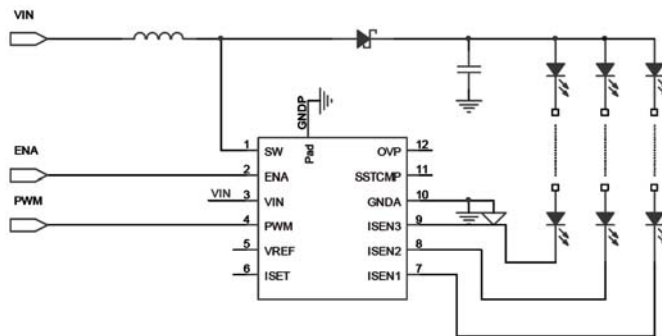
The IC provides three (3) LED current sense inputs in an “OR” configuration for improved backlight reliability. This allows the backlight to remain functioning in the event that any string (s) is damaged during normal operation.

OZ9989 uses an external Pulse Width Modulation (PWM) signal for the dimming control function.

APPLICATIONS

- Netbook Computer
- PND

APPLICATION DIAGRAM



OZ9993

FEATURES

- High frequency DC/DC boost converter controller
- Supports a single cell Lilon battery
- Fixed 900kHz switching frequency
- Integrated power MOSFET with over-current protection
- Open diode, over-voltage, and output short circuit protection
- Thermal protection
- Soft start function

GENERAL DESCRIPTION

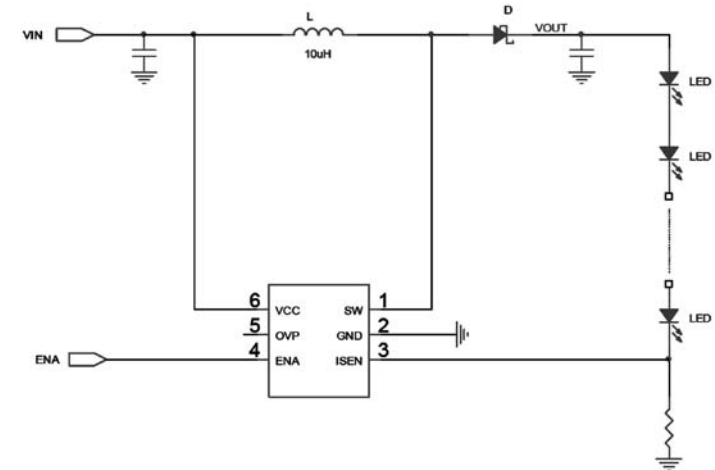
OZ9993 is a high efficiency, DC/DC controller with an integrated power MOSFET that drives one string of LEDs. It provides the user with a low cost solution that requires minimum components for the boost regulator and is suitable for applications requiring a single cell Lithium Ion battery.

A soft start feature is provided to minimize in-rush current during start-up.

APPLICATIONS

- Netbook
- PND
- Camcorder

APPLICATION DIAGRAM



OZ9902

FEATURES

- Dual Channel DC/DC converter
- Constant current or voltage output
- Drives one string of high power LEDs per channel
- 180 degrees phase-shift between the two driver outputs
- Independent PWM dimming control for each channel
- Analog dimming
- Constant operation frequency
- Operation frequency synchronization
- Power MOSFET over-current protection
- Over-voltage protection
- Output to return and Output to ground short-circuit protection
- Output over load protection
- Limited Current Condition (LCC) protection
- Thermal protection
- LED fault status output

GENERAL DESCRIPTION

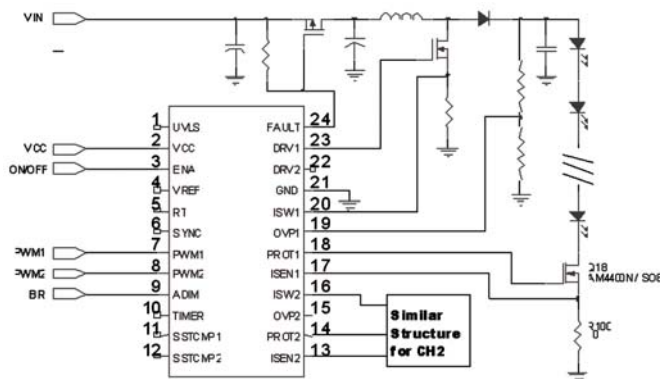
OZ9902 is a dual, high power LED driver designed to build LED backlight for large-size LCD TV applications. It integrates two independently-controlled LED drivers to achieve optimum efficiency. The drive outputs are phase-shifted by 180 degrees to minimize current ripple in high power applications.

OZ9902 supports independent Pulse Width Modulation (PWM) dimming control for each channel and common analog dimming control for both channels. It provides system design flexibility for LCD TV with local dimming or 3D display mode.

APPLICATIONS

- LCD Monitor
- LCD TV

APPLICATION DIAGRAM



Patents pending.

OZ9906

FEATURES

- Switch-mode DC/DC controller to balance LED current
- High current output drive for 6 LED strings
- Spread spectrum feature on operating frequency
- High efficiency LED current regulation
- Supports analog and external PWM dimming
- User-defined phase-shift PWM dimming function with 2 to 6 phase options
- PWM dimming frequency synchronization
- MOSFET over-current protection
- LED short circuit protection
- User-defined short circuit protection threshold
- LED fault status output

GENERAL DESCRIPTION

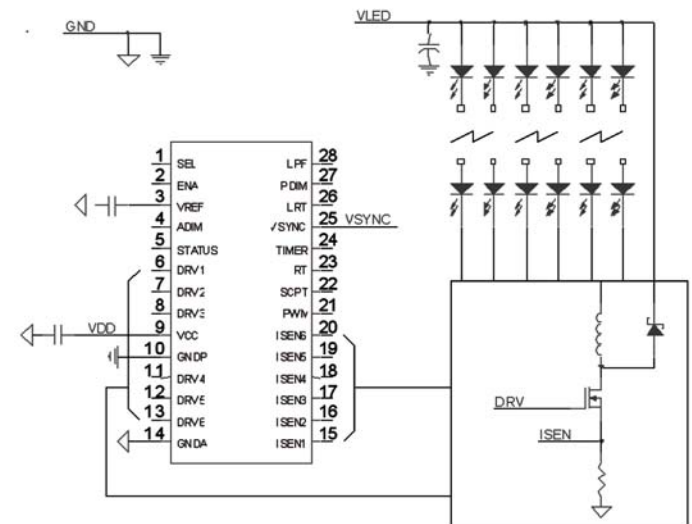
The OZ9906 is a high efficiency switch-mode DC/DC controller that drives up to 6 LED strings connected in parallel. It is targeted for large-size monitor and TV applications.

OZ9906 provides six (6) LED current sense inputs. The IC provides individual LED current regulation for each LED string. This allows the backlight to remain functioning in the event that any string(s) is damaged during normal operation.

APPLICATIONS

- LCD Monitor
- LCD TV

APPLICATION DIAGRAM



U.S. Patent #7,847,783; and more patents pending.

OZ9908

FEATURES

- Supports 8 strings of 355mA LEDs
- Supports master-slave synchronous operation
- Boost converter switching at 180 degree phase-shift between master and slave ICs
- Supports analog dimming
- Individual PWM dimming for each LED string
- Supports over-voltage and over-current protections in application
- Supports LED open/short circuit protection
- LED fault status output

GENERAL DESCRIPTION

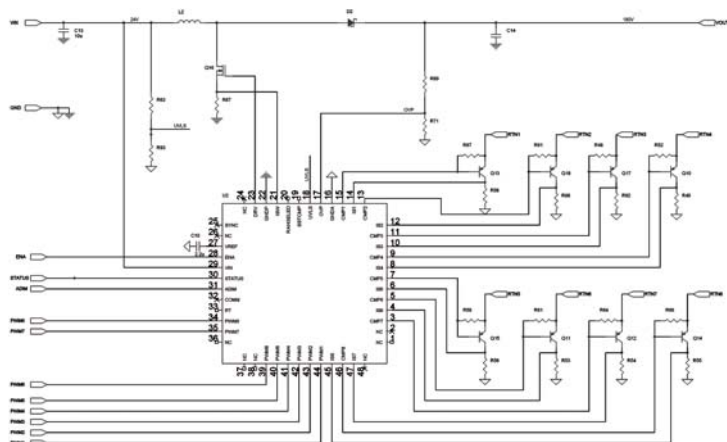
The OZ9908 is a LED driver controller designed for large-screen LCD backlit by LEDs. It provides an integrated eight channel LED current regulation control circuit. Using external balance transistors for each channel, the IC is capable of driving a current up to 350mA per LED channel.

OZ9908 provides individual Pulse Width Modulation (PWM) dimming for its respective LED string. The IC is suitable for LCD TV applications where area-lighting technology using local dimming control is applied.

APPLICATIONS

- LCD Monitor
- LCD TV

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

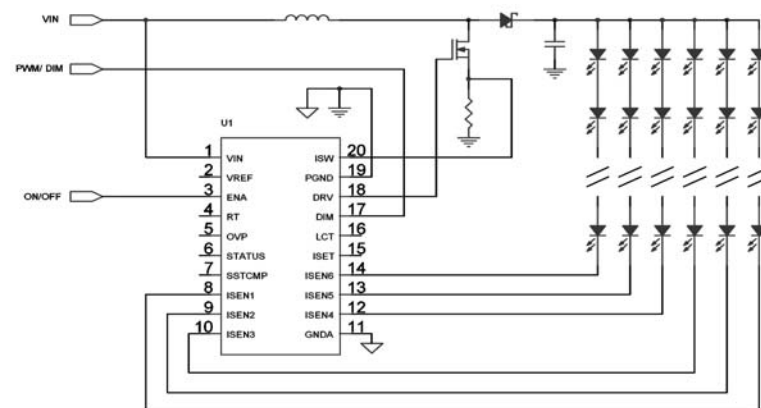
The OZ9961 is a LED controller that drives up to six (6) strings of LEDs in parallel configuration, with multiple LEDs per string connected in series. It provides six (6) LED current sense inputs in an "OR" configuration to improve backlight reliability. This allows the backlight to remain functioning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



OZ9967

FEATURES

- High frequency DC/DC boost converter controller
- Drives 6 LED strings in parallel
- Integrated LED current balance control circuit
- Up to 1MHz switching frequency
- External PWM or internal LPWM dimming control
- LED short circuit protection
- Over-current and over-voltage protection
- Soft start function

GENERAL DESCRIPTION

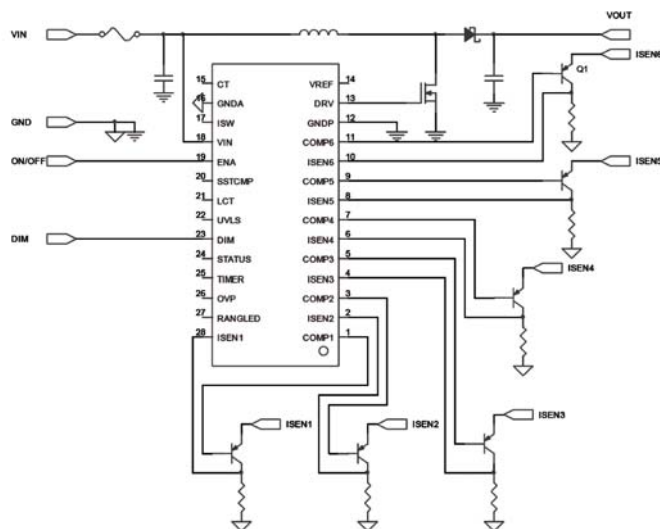
The OZ9967 is an LED controller that drives up to six (6) strings of LEDs in parallel configuration, with multiple LEDs per string connected in series. It provides six (6) LED current sense inputs in an “OR” configuration to improve backlight reliability. This allows the backlight to remain functioning in the event that any string (s) is damaged during normal operation.

OZ9967 supports external Pulse Width Modulation (PWM) or internal Low frequency PWM (LPWM) dimming control. Plus, it provides an integrated circuit to balance the current flow through each LED string. The balance transistors are external to accommodate different power dissipation resulting from the forward voltage difference among the LED strings.

APPLICATIONS

- LCD Monitor
- LCD TV

APPLICATION DIAGRAM



U.S. Patent #7,847,783; and more patents pending.

OZ9997

FEATURES

- High power DC/DC boost converter controller
- Drives up to 8 LED strings in parallel
- External PWM dimming control
- Integrated LED current balance control circuit
- User-defined string selection
- Multi-chip parallel operation for more than 8 LED strings
- MOSFET over-current protection
- LED short circuit and open string protection
- Thermal protection
- LED fault status output

GENERAL DESCRIPTION

The OZ9997 is a high efficiency, DC/DC controller that drives up to eight (8) strings of LEDs in parallel configuration, with multiple LEDs in each string connected in series.

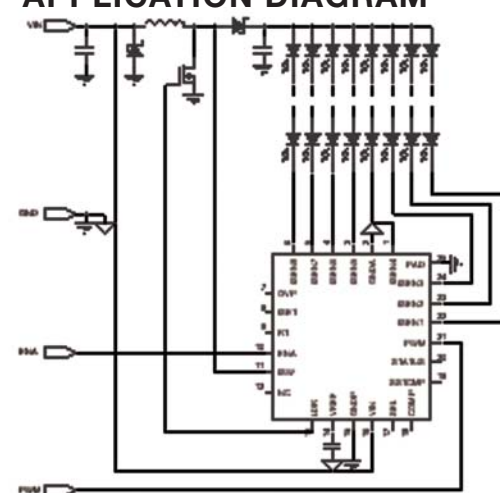
The IC provides eight (8) LED current sense inputs in an “OR” configuration to improve backlight reliability. This allows the backlight to remain functioning in the event that any string(s) is damaged during normal operation.

OZ9997 supports external Pulse Width Modulation (PWM) dimming control, and provides an integrated circuit to balance the current flow through each LED string.

APPLICATIONS

- LCD Monitor

APPLICATION DIAGRAM



U.S. Patent #7,498,793; 7,847,783; and more patents pending.

OZ9998/98A

FEATURES

- **OZ9998:** Up to 60mA per ISEN channel
- **OZ9998A:** 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
- LED fault status output

GENERAL DESCRIPTION

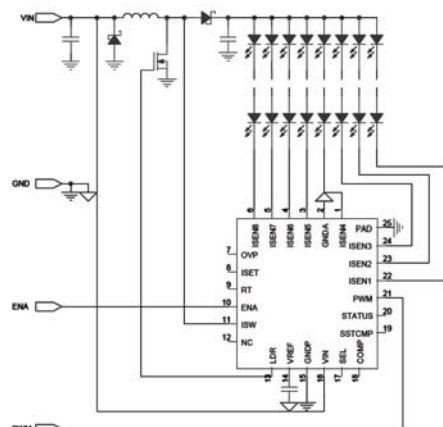
OZ9998/98A are high efficiency, DC/DC controllers that drive up to eight (8) strings of LEDs connected in parallel configuration, with multiple LEDs in each string connected in series. They provide eight (8) LED current sense inputs in an “OR” configuration to improve backlight reliability. This allows the backlight to remain functioning in the event that any string (s) is damaged during normal operation.

OZ9998/98A support external Pulse Width Modulation (PWM) dimming control. Plus, each provides an integrated circuit to balance the current flow through each LED string.

APPLICATIONS

- LCD Monitor
- LCD TV

APPLICATION DIAGRAM



U.S. Patent #7,498,793; 7,847,783; and more patents pending.

OZ9998B

FEATURES

- High power DC/DC boost converter controller
- Drives up to 4 strings in parallel, up to 160mA per string
- Integrated LED current balance control circuit
- External PWM dimming control
- Time-shift PWM phase dimming control for low audible noise
- MOSFET over-current protection
- LED short circuit and open string protection
- Thermal protection
- LED fault status output

GENERAL DESCRIPTION

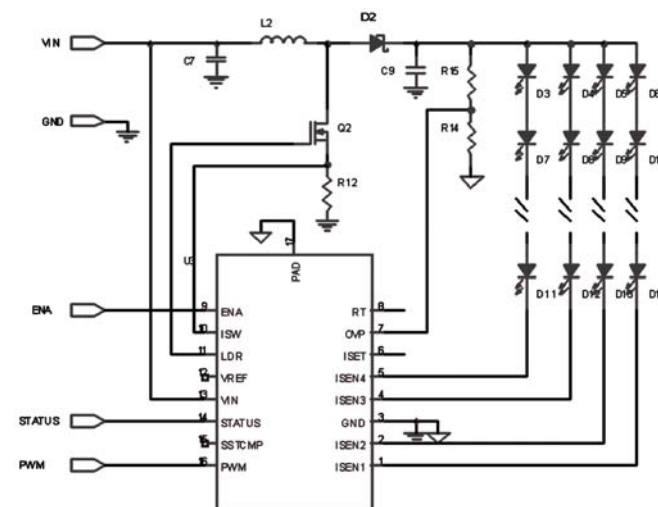
OZ9998B is a high efficiency DC/DC controller that drives up to eight strings connected in parallel configuration with multiple LEDs in each string connected in series. It provides four (4) LED current sense inputs in an “OR” configuration to improve backlight reliability. This allows the backlight to remain functioning in the event that a string(s) is damaged during normal operation.

OZ9998B supports external Pulse Width Modulation (PWM) dimming control.

APPLICATIONS

- LCD Monitor
- LCD TV

APPLICATION DIAGRAM



U.S. Patent #7,498,793; 7,847,783; and more patents pending.

OZ9902B

FEATURES

- Constant current or voltage output
- Drives one string of high power LEDs
- Direct PWM dimming control
- Analog dimming
- Constant operation frequency
- Power MOSFET over-current protection
- Over-voltage protection
- Output to return and Output to ground short circuit protection
- Output over load protection
- Thermal protection
- LED fault status output

GENERAL DESCRIPTION

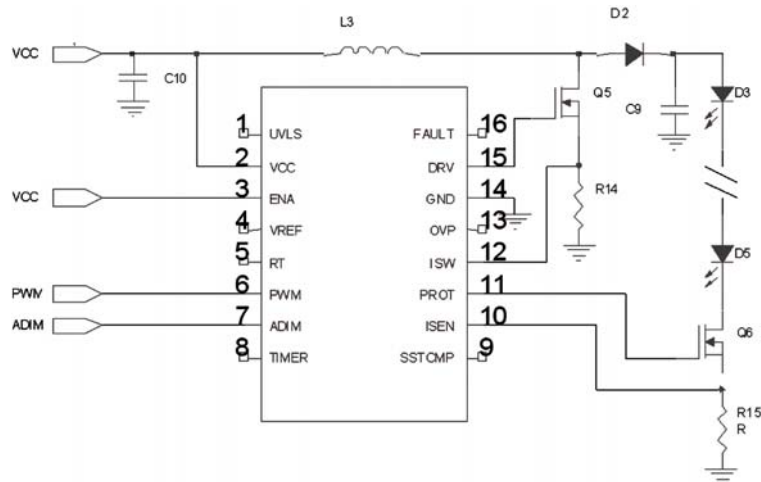
OZ9902B is a single channel high power LED driver designed for LED backlight applications used in large-size LCD TVs.

The controller supports direct Pulse Width Modulation (PWM) dimming control and common analog dimming control for LED string forward current.

APPLICATIONS

- LCD TV

APPLICATION DIAGRAM



OZ9904

FEATURES

- Supports 4 strings
- Up to 355mA LED current per string
- Supports external and internal PWM dimming control
- Supports analog dimming
- Over-voltage and over-current protections in applications
- Supports LED open/short circuit protections in applications
- LED fault status output

GENERAL DESCRIPTION

The OZ9904 is a LED driver controller optimized for large screen LED backlit LCD TV applications. It provides an integrated four-channel LED current control circuit. In application, it controls external balance transistors to maintain the current balance among LED strings.

OZ9904 supports both internal and external Pulse Width Modulation (PWM) dimming methods for brightness control of LCDs for various system applications. The internal PWM dimming signal can also be synchronized with the vertical sync signal of the LCD display.

The IC further supports an analog dimming control function, which adjusts the LED current amplitude of all the four ISEN channels simultaneously.

APPLICATIONS

- LCD TV

APPLICATION DIAGRAM

