



8-Switch Matrix LED Dimmer Simplifies Complex LED Matrix Designs

MILPITAS, CA – December 9, 2015 – Linear Technology Corporation announces the [LT3965](#), a LED bypass switching device that enables independent dimming and diagnostics of eight individual LEDs or LED segments. The LT3965 works in conjunction with a LED driver circuit configured as a current source. It features eight individually controlled floating 17V/330mΩ NMOS switches. Using these internal power switches and an integrated I²C serial interface, individual LEDs within the string can be turned on or off, or they can be PWM dimmed to offer unique patterns within the LED matrix.

Typical applications include automotive matrix LED headlights, industrial lighting and large LED display lighting. The I²C serial interface enables digital programming with 256:1 dimming ratios with or without the 11-bit resolution fade transition between the dimming states. Each switch can control and monitor a single LED or a segment of up to 16V of series-connected LEDs. The LT3965's 8V to 60V input voltage range can accommodate a wide range of LED drivers commonly used in automotive and industrial applications. For larger LED matrix applications, multiple LT3965s (up to 16) can use a common I²C bus.

The LT3965's eight switches can be connected in parallel and/or in series to bypass current around one or more LEDs in a string. When multiple LT3965s are used, the I²C serial interface enables communication between the master microcontroller and one or more LT3965s configured as slaves. The LT3965 provides an internal clock generator and also supports an external clock source for PWM dimming. Additionally, each channel of the LT3965 offers both

open LED and shorted LED fault reporting and protection. It is offered in a 28-lead TSSOP thermally enhanced package, ensuring a compact solution footprint for matrix dimming applications.

The LT3965EFE is offered in a thermally enhanced 28-lead TSSOP package. An industrial temperature version, the LT3965IFE, is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature range. 1,000-piece pricing starts at \$3.95 each and both versions are available from stock. For more information, visit www.linear.com/product/LT3965. See the LT3965 video at www.linear.com/solutions/5973

Photo Caption: 8-Switch Matrix LED Dimmer


Summary of Features: LT3965

- Eight Independent 17V 330m Ω NMOS Switches
- Independent On/Off/Dimming Control for Each Switch
- I²C Serial Interface with Open LED & Shorted LED Fault Reporting
- Programmable I²C Address
- V_{DD} Range: 2.7V to 5.5V & V_{IN} Range: 8V to 60V
- Digital Programmable 256:1 PWM Dimming
- Fade Transition Between PWM Dimming States
- Optional Internal Clock Generator or External Clock Source for PWM Dimming
- Slew Rate Limited Switching for Noise Reduction
- Open LED Overvoltage Protection
- Programmable Open LED & Shorted LED Threshold
- 28-Lead Thermally Enhanced TSSOP Package

The USA list pricing shown is for budgetary use only. International prices may differ due to local duties, taxes, fees and exchange rates.

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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