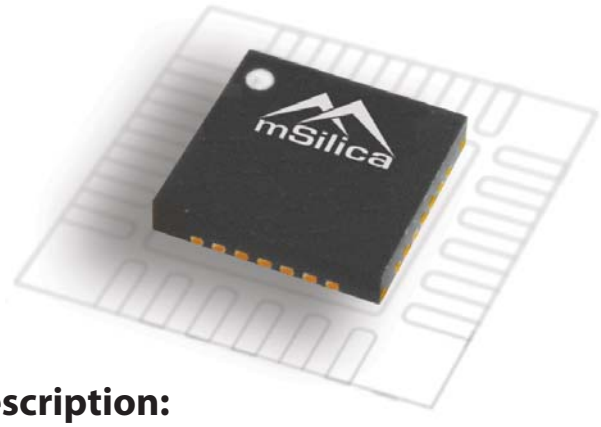
MSL1061/64 Series

Six-String LED Drivers with Integrated 50V Switch, ±1% Current Balance and Control, Internal Digital Compensation and I²C Interface



Features:

- Drives Six Strings of up to 12 LED's per String (72 LEDs maximum)
- Integrated 50V MOSFET, Step-up Regulator
- Better than ±1% String to String Current Balance Accuracy
- Up to 92% Efficiency
- Wide Input Supply Range of 4.5V to 36V
- Adjustable LED Current up to 25mA
- 500:1 DPWM Dimming Range Allows Ex-cellent Contrast
- Serial I²C/SMBUS Compatible Interface
- 4 user-Programmable Slave ID's Allows Easy Configuration of RGGB LEDs for MSL1061, 1 Fixed Slave ID for MSL1064
- GUI Software for Ease of Evaluation
- Low 600mV Feedback Voltage
- Individual String Open-circuit, Short circuit Detection, Reporting and Protection
- Current sinks can withstand full 50 V_{DC} Output
- Adjustable Over-voltage Protection
- Serially Programmable to Select Internal DPWM dimming or Analog dimming
- Driving >25mA LED's Using Multiple Driver Inputs
- Interface with ALS for Automatic Brightness Setting or NTC for Temperature Derating
- Dimming using PWM
- Sleep Mode

Description:

The MSL1061/MSL1064 are 6-string LED drivers with an I²C compatible serial interface. They incorporate a current mode boost regulator with 50V internal switch and require only a small inductor, output capacitor, and rectifier. The wide 4.5V to 36V input voltage range makes it suitable for many applications. 1MHz switching frequency allows small components while maintaining high efficiency. Each LED string powers up to 12 series LEDs, allowing a maximum of 72 LEDs. Both ICs regulate LED current up to 25mA (max) per string. The MSL1061/MSL1064 use a digital control loop that eliminates the need for external compensation components.

The MSL1061/MSL1064 provide a 500:1 dimming range. Dimming is achieved via an external or internal PWM signal with frequency up to 10 kHz or by controlling the LED current using the I²C serial interface. String current can be controlled with an ambient light sensor (ALS) and/or a negative temperature coefficient (NTC) thermistor based temperature sensor to modulate the string output intensity. This allows consistent light output over widely varying environmental conditions extending LED Lifetimes.

The MSL1061 operates from one of four I²C slave addresses selected from a single input pin, i.e. ADO, whereas the MSL1064 has one fixed I²C slave address. The MSL1064 is offered in a 5x5mm2 24-pin TQFN package, whereas the MSL1061 comes in a 5x5mm2 28-pin package operating over the –40°C to 85°C temperature range.

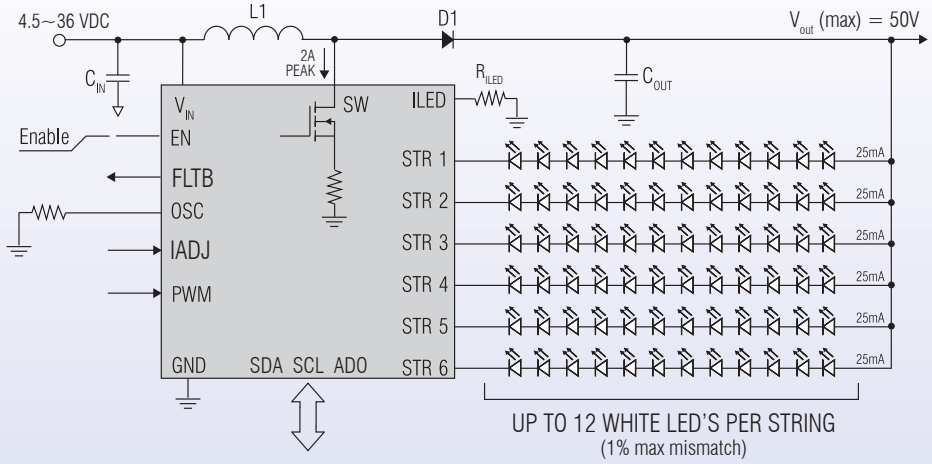
Ordering Information:

PART #	Pin / Package	Description
MSL1061	5x5 mm² TQFN-28	6-Ch, LED Driver
MSL1064	5x5 mm² TQFN-24	6-Ch, LED Driver

Applications:

- LED Backlit Notebook PC Displays
- R, G, B LED Arrays
- Signage Arrays
- General Lighting
- PC Monitors
- Portable DVD players
- Automotive Lighting
- Industrial Display

Typical Circuit:



REV: 080123

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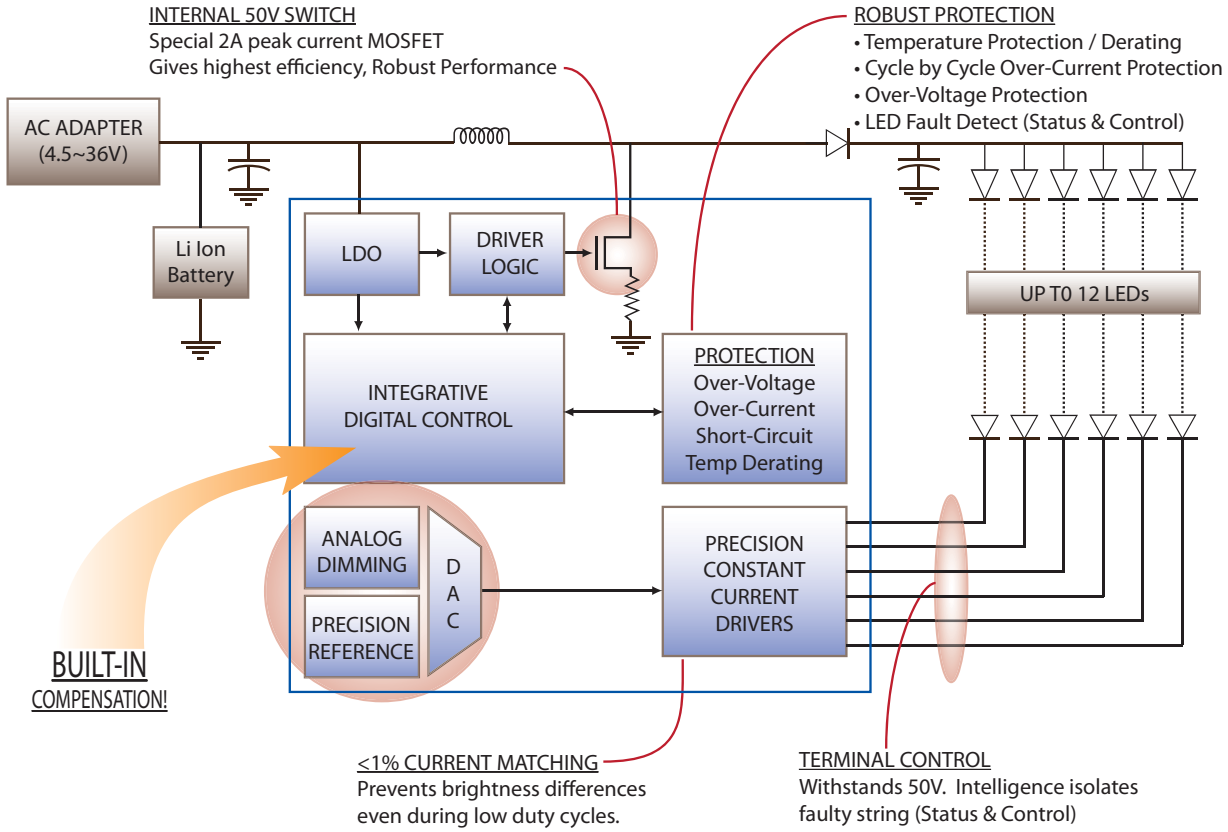
Block Diagram:



TYPICAL OPERATING CHARACTERISTICS:

(V_{IN}=12V, V_{EN}=V_{IN} LEDs=10 series x 6 parallel, R_{ILED}=100k, T_A = +25°C)