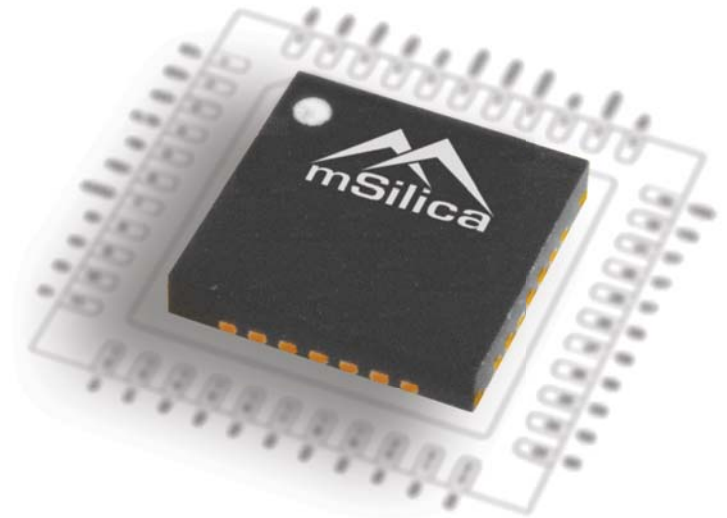




MSL2100 Series

8-String R, G, B LED Drivers
with E2PROM, I2C Interface
& Adaptive Power Control



Features:

- Supports adaptive 2-D Dimming for advanced LCD TVs and PC monitors
- Drives 8 parallel High-Power LED Strings
- FLEXISTRING™ technology to assign any string to any color LED
- Up to 1A LED string current with external N-Channel MOSFETs
- Video frame rate synchronization and multiplier helps eliminate motion blur and save power during blanking periods
- Programmable phase delays improve contrast ratio
- $\pm 1\%$ current accuracy and current balance
- Individual LED String brightness and phase control
- Adaptive SourcePower™ correction for adjusting DC-DC output voltage
- Open-circuit and short-circuit fault condition detection.
- Supports area dimming for highest dynamic range LCD TV
- FastMode-Plus I²C/SMBus interface with up to 16 user programmable addresses.
- PWM phasing and in-rush current control to reduce EMI
- Field programmable Non-Volatile registers for customization and aging compensation
- User programmable temperature control of LED current.
- Sleep mode

Ordering Information:

PART #	Pin / Package	Temp Range
MSL2100	6x6 QFN-48	-40°C to 85°C

Description:

The MSL2100 is an 8-parallel string high-power LED drivers. The MSL2100 uses a 1MHz I²C compatible serial interface for brightness control and fault monitoring. Each channel has a $\pm 1\%$ (max) accurate constant control current sink capable of driving an external N-Channel MOSFET.

The MSL2100 has 3 DC/DC converter control outputs allowing one MSL2100 to control 3 separate power sources driving 3 color LED strings. Each channel can be used for any color LED. The LED current can be modulated for each LED string using an 8-bit individual PWM control. Additionally, a 6-bit Global Brightness control through register setting or PWM pin allows finer control of brightness. 6-bit DAC on each channel allow 64-step analog control of the output current.

The MSL2100 provides signals to adaptively control DC-DC converters that provide input power to LED strings. Adaptive SourcePower™ control provides optimum voltage headroom minimizing power losses. In LCD TV and TFT monitor panels, MSL2100 allows synchronization to video signals using a DLL multiplier to control brightness at a frequency multiple of the video refresh rate. This also allows the backlight to be off during the video blanking period saving power and reducing heat. Phasing circuitry phase shifts PWM on-times to reduce transient loads on the LED power source improving efficiency and visual quality.

The MSL2100 features fault monitoring of open string, short-circuit and overtemperature conditions through the I²C/SMBus. MSL2100 supports both individual device I²C read/write and broadcast write commands. The serial interface uses two pins to select 16 addresses allowing multiple MSL2100s to operate on the same serial interface.

The MSL2100 includes non-volatile memory to maintain settings even when turned-off allowing it to begin full operation within 5ms of turn-on. This also provides for LED aging correction.



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Typical Circuit:

