National Semiconductor

LM3466

PRELIMINARY
June 1, 2011

Smart Linear LED Driver for Multi-Channel LED Systems

General Description

The LM3466 integrates a linear LED driver for lighting systems which consist of multiple LED strings powered by a constant current power supply. The current provided by the supply is equalized in a pre-set ratio to each active LED string (an active LED string refers to a fully turn-on LED string) disregarding the number of string connected to the supply, even the forward voltage of each LED string is different. If any LED string opens during operation, the LED current of all remaining active LED strings can equalize the current of the supply automatically. As a result, the overall brightness of the lighting system is maintained even if some LED strings open during operation.

The lighting system using the LM3466 is simple to design owing to a proprietary control scheme. To minimize the component count, the LM3466 integrates a 70V, 1.5A N-channel MOSFET. To add one more LED string to the system, only a resistor, a capacitor and an LM3466 are required. Other supervisory features of the LM3466 include under-voltage lockout, current limit, fault reporting, and thermal shutdown protection.

The LM3466 consists of only linear circuitry so that the EMI of the application circuit is not deteriorated. The LM3466 is available in the PSOP-8 exposed DAP packages.

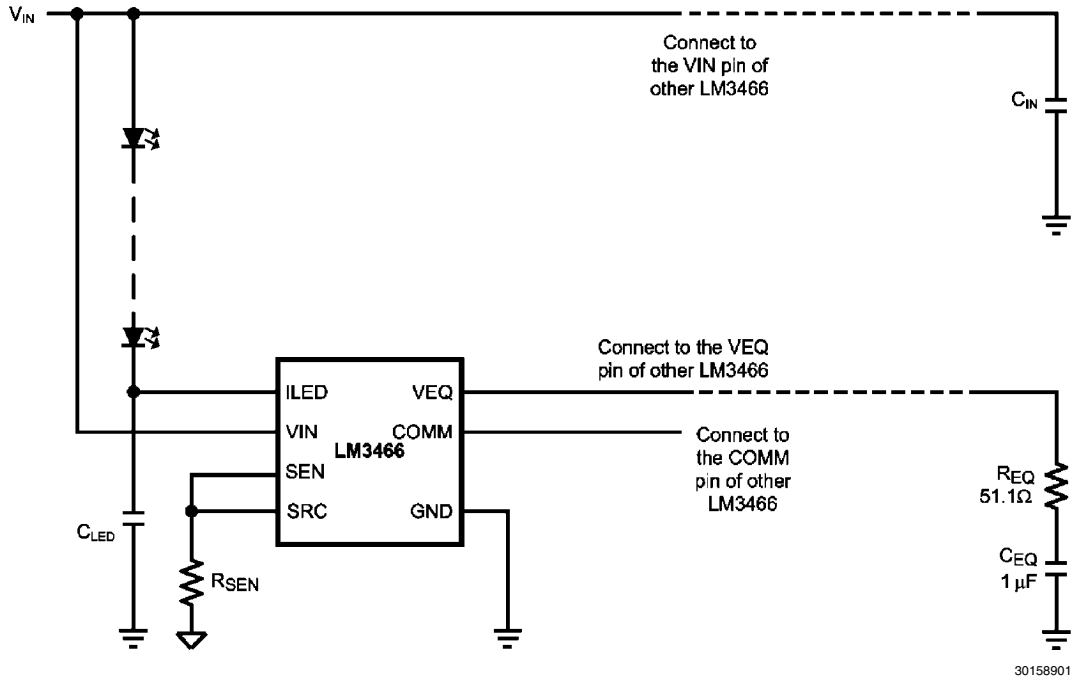
Features

- Easy to design and use for lighting systems consists of multiple LED strings
- Works with a Constant Current power supply. No communication to/from the constant current power supply is required
- Automatically equalizes the current of every active LED string, even the forward voltage of each string is different
- Total luminance output of the system is nearly not affected if some LED strings open during operation
- Wide input voltage range from 6V to 70V
- Integrated 70V 1.5A MOSFET with 2A current limit
- Operating with minimum voltage overhead to maximize power efficiency
- Fault status output
- Thermal Shutdown
- Linear circuitry does not introduce EMI problem
- Thermal enhanced PSOP-8 with exposed DAP packages

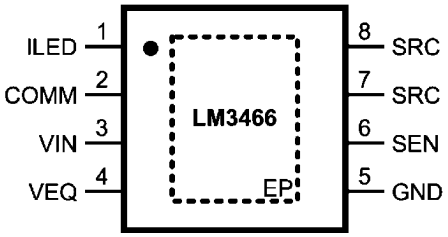
Applications

- Streetlights
- Solid State Lighting systems

Typical Application



Connection Diagram



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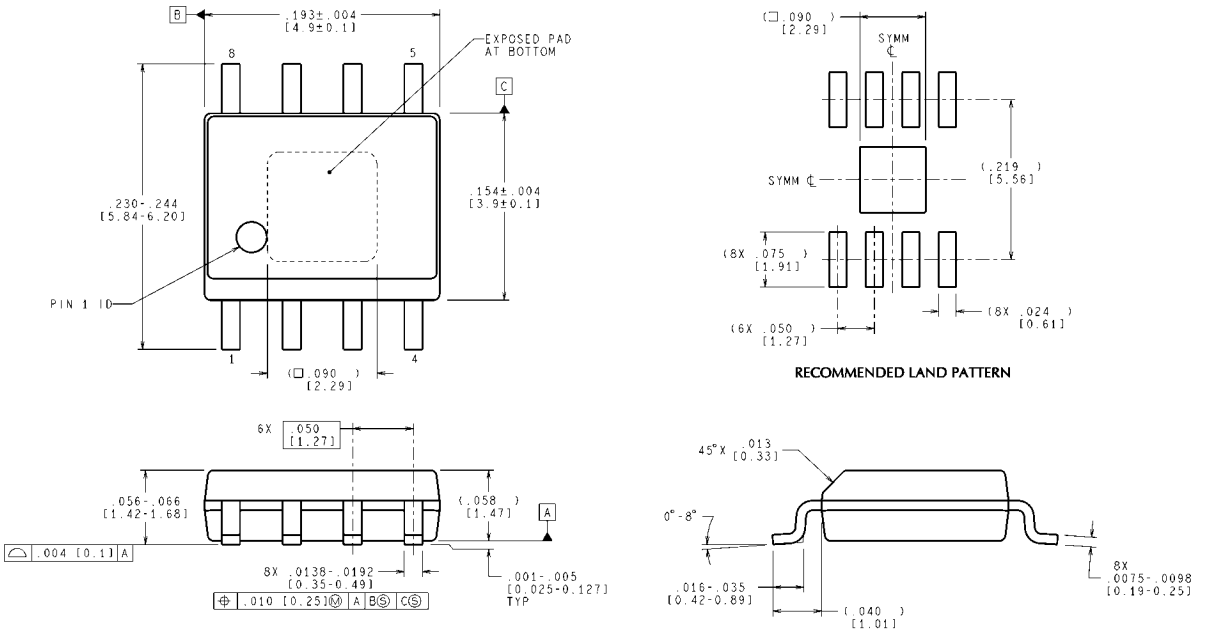
Ordering Information

Order Number	Spec.	Package Type	NSC Package Drawing	Supplied As
LM3466MR	NOPB	ePSOP-8	MRA08A	95 Units in Anti-Static Rails
LM3466MRX				2500 units on Tape and Reel

Pin Descriptions

Pin	Name	Description	Application Information
1	ILED	Current regulator input	Internally connect to the drain of the power MOSFET. Connect this pin to the cathode of an LED string. Connect a capacitor to ground to minimize noise if a connecting cable to the LED string is long.
2	COMM	Open-drain Status Output	Indicate the status of the LM3466 including startup, LED string active/ inactive, Thermal Shut Down.
3	VIN	Input Voltage Supply	Connect to voltage supply from 6V to 70V. Connect to a 10 nF capacitor for decoupling.
4	VEQ	Control voltage	Connect to the VEQ pin of other LM3466 with a 51Ω resistor in series with a 1 µF capacitor to ground.
5	GND	Ground	Connect to ground.
6	SEN	Current sense input	Sense the voltage of an external current sensing resistor.
7,8	SRC	Source of power MOSFET	Internally connect to the source of the power MOSFET. Connect this pin to an external current sensing resistor.
DAP	DAP	Exposed Pad	Thermal connection pad. Connect to a ground plane.

Physical Dimensions inches (millimeters) unless otherwise noted



CONTROLLING DIMENSION IS INCH
VALUES IN [ ] ARE MILLIMETERS
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MRA08A (Rev D)

8-Lead Plastic ePSOP Package
NS Package Number MRA08A

Notes

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