

DESCRIPTION

The MT7285 is a constant current white LED driver designed for wide input voltage range from 4.2V to 40V system rail. The MT7285 can be configured as Buck, Boost and Buck-Boost topology. The MT7285 drives up to 20W with AC12V/DC12V input voltage. Current mode and fixed frequency operation provides fast transient response and eases loop stabilization. With a current sense amplifier threshold of 205mV, the LED current is programmable with one external current sense resistor and the power loss is minimized. The 450kHz operating frequency minimizes external inductor, input and output capacitor.

The MT7285 supports both PWM and analog dimming by a single control pin. Fault condition protection includes over voltage protection (OVP), cycle-by-cycle peak current limiting and thermal shutdown.

The MT7285 is available in ESOP8 packages.

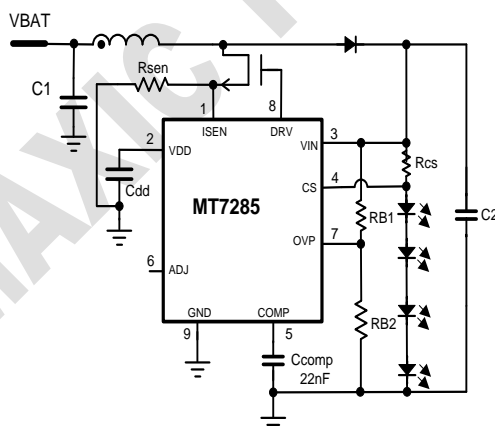
FEATURES

- 4.2V to 40V input/output voltage range
- High efficiency up to 95%
- Cycle by Cycle Over Current Protection
- External MOSFET driver
- Support Boost ,Buck-Boost ,Buck topology
- LED temperature protection
- Stable with Low ESR Ceramic Capacitor
- OTP and OVP protection
- External setting over voltage protection
- Fixed switching frequency: 450kHz
- Frequency jittering for reduced EMI
- Low feedback voltage: 205mV
- Adjustable soft-start
- Support one pin analog dimming and up to 10kHz PWM dimming
- Available in ESOP8 package

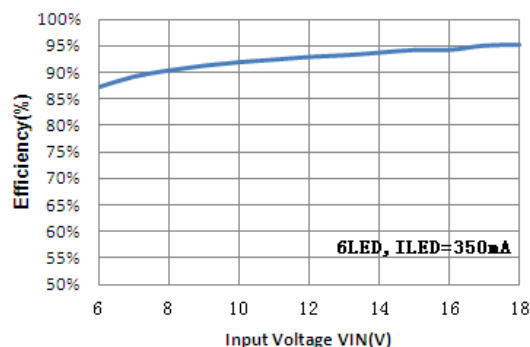
APPLICATION

- Automotive and Marine Lighting
- High Power LED Driver
- Torch Driver
- Low Voltage LED Lighting (Landscape, Desk, Room, MR16 lighting)
- LED backlighting

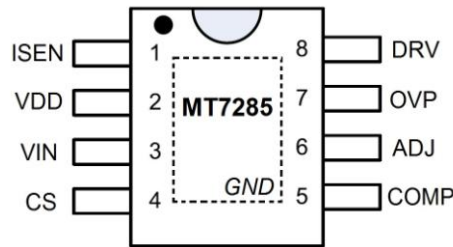
TYPICAL APPLICATION (STEP-UP/BOOST APPLICATION)



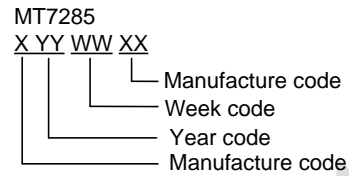
Efficiency VS. Input Voltage



PIN CONFIGURATIONS



Chip Mark



Pin description

Name	Pin No.	Description
ISEN	1	OCP detect pin.
VDD	2	5V Reference Output. Bypass VDD to GND with a 1 μ F or greater ceramic capacitor.
VIN	3	Supply voltage. Bypass VIN to GND with 10u ceramic capacitor. MT7285 operates from a 4.2V to 40V unregulated input.
CS	4	LED current sense pin, the voltage between VIN and CS is 205mV.
COMP	5	Compensation Pin. Connect a 22nF ceramic capacitor (C_{COMP}) from COMP to GND. This capacitor stabilizes the loop, controls soft-start time.
ADJ	6	Brightness and On/Off Control Pin. A voltage greater than 0.4V will turn on the chip. When ADJ pin voltage varying from 0.8V to 1.6V, the LED current will change from 0% to 100% of the maximum current. Any voltage above 1.6V will clamp to 100% maximum current. To use PWM dimming, apply a 200Hz to 10kHz square wave signal with amplitude greater than 1.6 V to this pin. Hold ADJ below 200mV for 3.5ms to shut down the IC ..
OVP	7	Over voltage protection Pin. OVP happening in Boost or Buck-Boost converter turns off the chip after OVP pin voltage higher than 1.2V, OVP comparator have internal 100mV hysteresis.
DRV	8	The gate Driver for external MOS
GND	9	Ground