DESCRIPTION

The PT16753 is buck topology switching regulator with constant current output for high-power LEDs driving purpose. It integrates a 50V high side N-channel MOSFET switch for step down conversion. The output current control loop operating in average current mode and the switch current is controlled cycle-by-cycle with an adaptive on-time structure.

Output current is user-defined by an external current sense resistor and output voltage depends on numbers of total series LEDs in a single string. This ensures the optimal system efficiency.

LED dimming is accomplished by a direct logic input pulse width modulation (PWM) signal at the EN pin. The device has thermal pad on the bottom side for enhanced thermal dissipation.

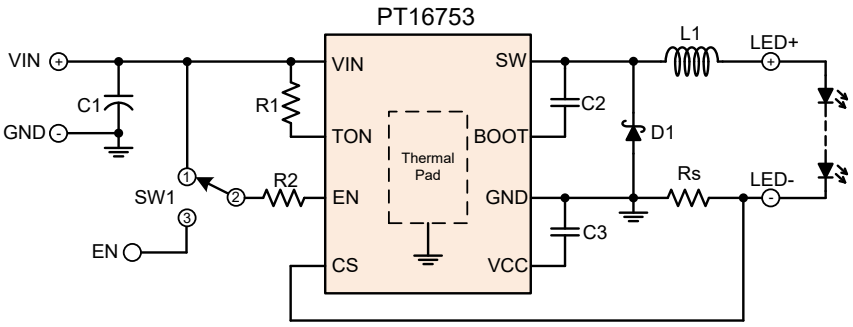
APPLICATIONS

- Daytime running lights
- Front and rear fog lights
- Turn signal lights
- Decoration spot light
- Dimmable interior lights

FEATURES

- AEC-Q100 Grade 1, operating temperature range T_A = -40°C ~ 125°C
- 6 to 48 V supply voltage
- Asynchronous rectifier buck regulator with average output current mode control
- 2.5 Amps continue output current on a 2-layer PC board
- 3 Amps maximum output current in T_A=25°C on a 4-layer PC board with additional heatsink
- Cycle-by-cycle current limit
- Integrated high side MOSFET switch
- PWM dimming controlled by logic level signal
- Internal loop compensation
- Under voltage lockout (UVLO) and thermal shutdown protection
- Low power shutdown (1μA typical)
- Robust protection against:
  - Adjacent pin-to-pin short
  - Pin-to-GND short
  - LED open/short faults
- Spread-Spectrum switching frequency reduces EMI conduction emission.
- Operation switching frequency from 200KHz to 2MHz
- HSOP 8 pins package with exposed thermal pad

TYPICAL APPLICATION

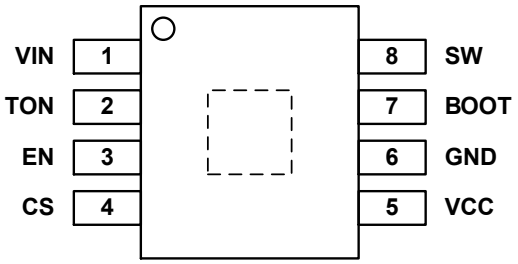


ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT16753-HS	8 Pins, HSOP	PT16753-HS

PIN CONFIGURATION

PT16753, HSOP-8



PIN DESCRIPTION

PIN Name	I/O	Description	PIN NO.
VIN	-	Supply voltage input	1
TON	I	Connects a resistor to VIN to determinate the on-time of buck converter. The on-time will shorten when VIN increasing, to maintain the a stable switching frequency	2
EN	I	Enable or PWM dimming signal input, trigger by logic level or VIN directly with a ballast resistor	3
CS	I	LED current sense input	4
VCC	O	Internal LDO regulator output; connects a 0.1μF bypass capacitor to GND for stabilization.	5
GND	-	Ground	6
BOOT	O	Gate driver bootstrap supply input for high side N-MOSFET switch	7
SW	O	High side N-MOSFET switch output	8
Thermal PAD	-	Exposed pad on the bottom side of package, connect to GND with thermal VIA for enhanced heat dissipation.	-