WLED Driver for Notebook Display

FEATURES

- 5V to 25V wide input voltage range
- 1.2MHz switch frequency with dithering
- Integrated 1.5A 40V MOSFET
- Six-channel current sink adjustable from 15mA to
- 25mA
- ±1.5% current accuracy between strings
- 100:1 PWM dimming range
- Boost output voltage auto-adjust to maximum
- forward voltage LED string
- Small external components
- Cycle by cycle current limiting
- Built in soft start
- Open/Short lamp self protection
- Current auto-adjust when open lamp detected
- Drive for input/output isolation PFET
- 16 pin 3×3 QFN pakage

APPLICATION

- Notebook LCD display Backlight
- General middle-sized LCD backlight

GENERAL DESCRIPTION

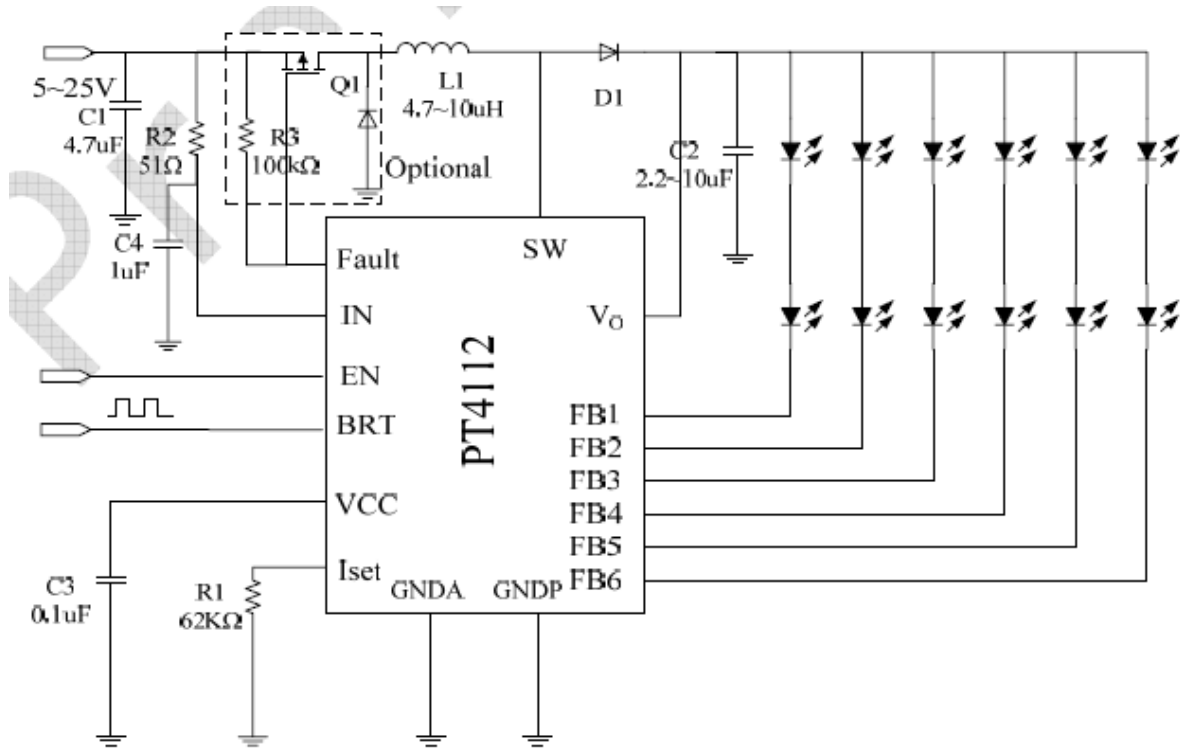The PT4112 is a step-up converter with current sources capable of driving six parallel strings of up to 10 series-connected WLEDs. Each string is terminated with ballast that achieves ±1.5% current regulation accuracy, ensuring even brightness for all WLEDs. The PT4112 generates an output voltage to drive up to totally 60 WLEDs from a 5V to 25V input source; in addition, the output voltage is automatically adjusted to WLED forward voltage to achieve good efficiency.

The PT4112 supports pulse width modulation (PWM) brightness dimming. A PWM signal input on the BRT pin could directly turn LED lights on/off. By freezing the circuit state during dimming off stage, the AC ripple on output ceramic capacitors is minimized across a wide duty cycle range; therefore reduce the potential audible noise.

The PT4112 has multiple features to protect itself from fault conditions including built-in open lamp over voltage protection, cycle-by-cycle current limit, over temperature shutdown, input under voltage lock out and integrated soft-start. Additionally, PT4112 provides a driver output for an external PFET connected between the input and inductor. The PFET will be turned off by PT4112 to disconnect the battery from the WLEDs when severe error happens thus any leakage current of the battery is prevented.

TYPICAL APPLICATION

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TYPICAL APPLICATIONS