



Product brief

LITIX™ Power TLD6098-2ES

Multi-topology dual-channel configurable DC-DC boost controller

TLD6098-2ES is a dual-channel multi-topology DC-DC controller designed for LED applications with built-in protection features to implement a compact LED driver.

The output currents generated by the two channels are independent and regulated by a peak current control loop. An internal slope compensation is used to avoid sub-harmonic oscillation at high duty cycle (e.g. higher than 50%).

The current accuracy is better than 3.5% (with no analog adjustment applied) over the operating temperature range. Rail-to-rail current sense amplifiers provide flexibility on the topology choice needed to supply the LED string with more than 20 white LEDs (up to 70 V at output).

The switching frequency can be adjusted from 100 kHz to 500 kHz using an external resistor. A synchronization with an external clock is also possible. The device incorporates even a spread spectrum modulator to achieve easy fulfilment of electromagnetic emission standards.

Each channel of TLD6098-2ES can drive an external PMOS for dimming and protection. For this purpose, each channel of TLD6098-2ES incorporates even a PWM generator controlled by an analog voltage on DC/PWM1,2 pin. The generated PWM signal has the duty cycle adjustable from 0 to 100% with 10 bits of resolution and the frequency range programmable from 150 Hz to 750 Hz.

A digital PWM signal can also be used on the same DC/PWM1,2 pin.

Key benefits

- › Reduced EMI emissions
- › Reliable protection with high-side load disconnection using a PMOS
- › 2.2 MHz option for small size DC-DC

Target applications

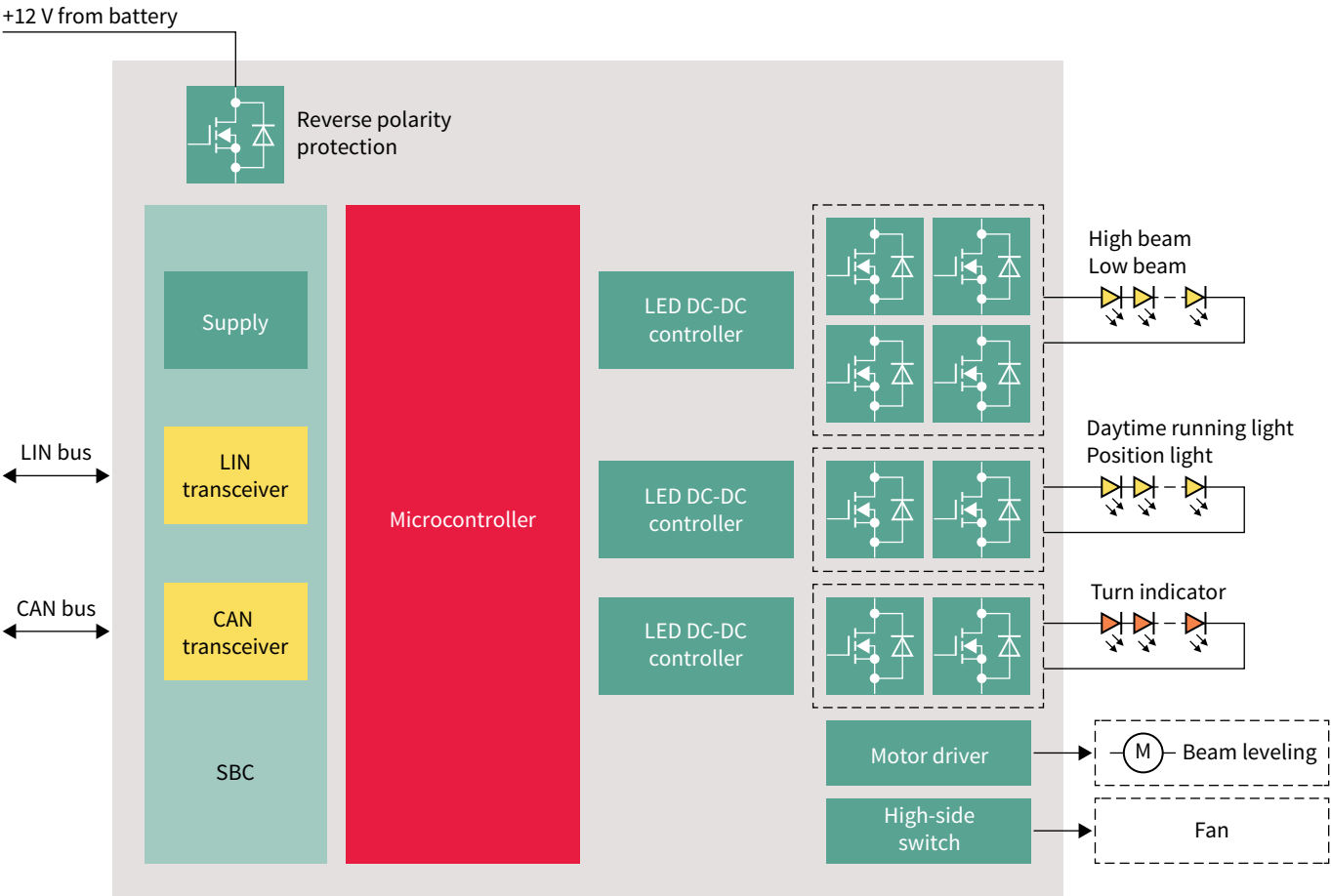
- › Automotive exterior and interior lighting
- › General illumination
- › General-purpose constant output current /voltage applications

Key features

- › Dual channel device
- › Wide input voltage (up to 58 V) and output voltage range (up to 70 V)
- › Switching frequency range from 100 kHz to 500 kHz and synchronization at 2.2 MHz with an external clock source
- › EMC optimized device
- › Analog adjust input
- › Overvoltage, short to ground, overcurrent, open feedback and overtemperature diagnostic output
- › PMOS gate driver for dimming and protection with enhanced dimming features
- › LED current accuracy $\pm 3.5\%$



Application diagram: Full LED headlamps



Technical information

Parameters	TLD6098-1EP
I_Q	5 mA
Open load detection	Yes
Operating temperature (min...max)	-40...+150°C
PWM	Yes
Short circuit protection	Yes
Tolerance	3.5%
Topology	Multitopology DC-DC controller
V_S (min-max)	4.5-60 V
f_{SW} (min-max)	100-2200 kHz



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