



MPQ7200

42V, 1.2A Buck-boost or 3A Buck Synchronous LED Driver AEC-Q100 Qualified

PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE

DESCRIPTION

The MPQ7200 is a high-frequency, constant current buck-boost LED driver with integrated power MOSFETs. It offers a very compact solution to achieve a 1.2A continuous output current with excellent load and line regulation over a wide input supply range. The MPQ7200 can also be configured to buck mode to provide up to 3A constant load current.

Constant frequency hysteretic control mode provides extremely fast transient response without the loop compensation. The switching frequency is up to 2.3MHz in buck mode to reduce the current ripple and improve EMI, and lower to 1.15MHz for optimized efficiency and thermal performance in buck-boost mode.

Full protection features include over-current protection (OCP), output over-voltage and under-voltage, thermal derating (TD) and thermal shutdown (TSD). The fault indicator outputs an active logic low signal once the fault condition occurs.

The MPQ7200 requires a minimal number of readily-available standard external components, and is available in a space-saving QFN-19 (3mmx4mm) package.

FEATURES

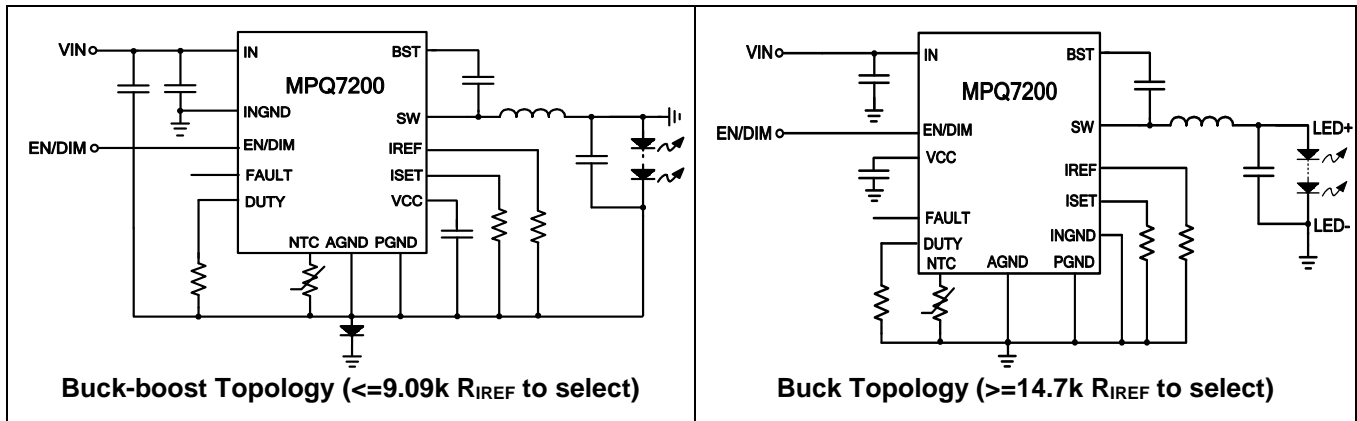
- Wide 6V-to-42V Operating Input Range
- 44mΩ/40mΩ Low $R_{DS(ON)}$ Internal Power MOSFETs
- High-Efficiency Synchronous Mode Operation
- Configurable 1.2A buck-boost or 3A buck
- Programmable LED current
- Default 2.3MHz Switching Frequency for Buck or 1.15MHz Switching Frequency for Buck-boost with Spread Spectrum
- PWM Dimming (Dimming Frequency from 100Hz to 2kHz)
- Internal 500Hz 2-step Dimming with Programmable Duty Cycle
- Fault Indication for LED Short (to GND & Battery), Open, Output Over-voltage and Thermal Shutdown
- Over-Current Protection (OCP) with Latch
- Programmable Thermal Derating via NTC Remote Temperature Sensing
- EMI Reduction Technique
- Available in a QFN-19 (3mmx4mm) Wettable Flank Package
- AEC-Q100 Grade 1

APPLICATIONS

- Automotive LED Lighting

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TYPICAL APPLICATION



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