L99LD02

Automotive-grade dual-phase 80 V boost controller

Reduce system filtering capacitance and inductance requirements with stackable multi-phase solution for high power LED module applications

Lighting in Automotive and, in general, In-Vehicle Power Management applications have experienced a tremendous evolution in recent years. The advent of LEDs in automotive has made it possible to enhance light output, energy efficiency, reliability and car branding.

Primarily designed for usage in automotive LED lighting applications, the highly integrated L99LD02 product provides an optimized supply voltage for Multi-Channel LED Buck Drivers (L99LD20) and, in general, for High-Power Systems.

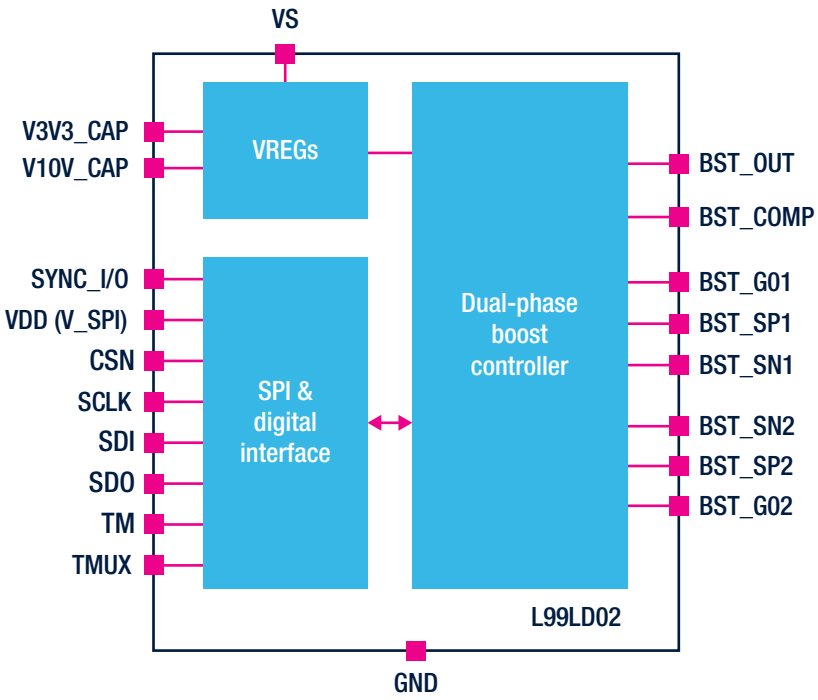
KEY FEATURES & BENEFITS

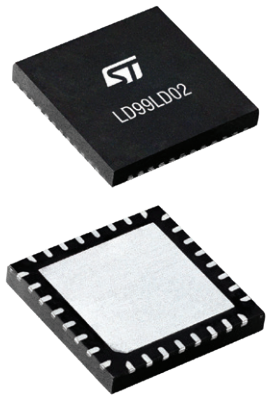
- System cost saving & performances:
  - High power modules with scalable number of scalable boost phases (up to 4) - adjustable clock distribution, phase shift, error amplifier gain and slope compensation
  - 10 V gate driver supporting standard level MOSFETs
  - Programmable dithering oscillator, supporting EMC improvements at module level
- Functionality:
  - IC Supply from boost output, supporting cold cranking
  - Fully configurable through SPI & through OTP for Stand Alone operation
  - Programmable boost output voltage up to 80 V
  - Full system level protections - input overcurrent, output overvoltage, open feedback, overtemperature, switching MOSFET open, power unbalancing between phases
- Safety:
  - Watchdog supervising SPI bus communication
  - On board OTP - to preserve operation in Limp Home mode
- General:
  - QFN32L 5x5, with exposed pad & wettable flanks

KEY APPLICATIONS

- LED Module applications

Housed in a small 5x5 QFN footprint, ST's L99LD02 is a two-phase, constant frequency, current mode boost controller driving N-channel power MOSFETs.
With a configurable operating frequency between 100 and 470 kHz, this AEC-Q100-qualified device features an internal 10 V LDO for the gate drivers, soft-start and device supply option from boost output.
Moreover, it integrates on-board OTP to preserve operation in Limp Home mode (supporting ASIL B regulations) and to ensure full configurability in Stand Alone operation.
The boost controllers of more devices can be stacked to operate in multi-phase for high power applications. The devices synchronization in multi-phase configuration is supported by SYNC I/O pin, providing the phase shifted clock signal and taking care of the current balancing between the different phases.
The device offers a high level of flexibility, without any change of the external components, thanks to its programmability through the ST SPI interface. This robust interface supports generic platform approaches, requiring a software configuration of several parameters, and offers a detailed diagnostic of both device and system related parameters.





Ordering information

Order code	Package	Packing
L99LD02Q505TR	QFN32L 5x5	Tape & Reel