



Product brief

BCR601

60 V linear LED controller IC with voltage feedback to primary side

The BCR601 is a perfect fit for LED driver applications by combining a small form factor with low cost. Through its high integration, BOM savings and ensuring long lifetime of LEDs, this controller has many advantages compared to discrete, and in various cases, to DC-DC buck IC solutions.

Linear current control

BCR601 is a linear LED controller IC regulating the LED current with an external driver transistor. BCR601 supports either NPN bipolar transistors or N-channel MOSFETs to cover a wide LED current and power range up to several amperes. The LED current is fully scalable by dimensioning an external current sense resistor.

Voltage feedback loop to primary side

BCR601 provides a voltage feedback to the primary side via an optocoupler to control the output voltage of the primary side converter, e.g. a flyback controller such as XDPL8218. The control loop minimizes the voltage overhead and power dissipation of the external driver transistor. This, and the adjustment of voltage overhead by external configuration according to application requirements, leads to efficient LED systems.

Ripple suppression

BCR601 suppresses the voltage ripple of the power supply by driving a constant LED current for flicker free light output.

Dimming options

The LED current can be dimmed by resistors as well as analog voltages connected to the multi function input output (MFIO) pin.

Hot-plug capability

The embedded hot-plug protection allows to plug in and plug out any LED load during operation without damaging the LEDs.

Overtemperature and overvoltage protection for reliable operation and safety of your LEDs

The overtemperature protection feature reduces the LED current by 30 percent of the nominal current if the junction temperature threshold is exceeded. Once the junction temperature drops below the temperature hysteresis, the nominal LED current is resumed. The adjustable overvoltage protection will provide feedback to the primary side by the optocoupler in case the supply voltage exceeds the threshold.

Key features

- > Supply voltage from 8 V to 60 V
- > Supports an optocoupler voltage feedback loop to primary side minimizing power losses
- > AC ripple suppression
- > Supports wide current range depending on external driver transistor
- > Gate driver current 10 mA
- > LED current can be adjusted by R_{set} functionality
- > Dimming at MFIO pin
 - Analog down to 3 percent
 - By resistors down to 3 percent
- > Hot-plug capable
- > LED current precision ± 3 percent
- > Overvoltage protection
- > Overtemperature protection

Typical applications

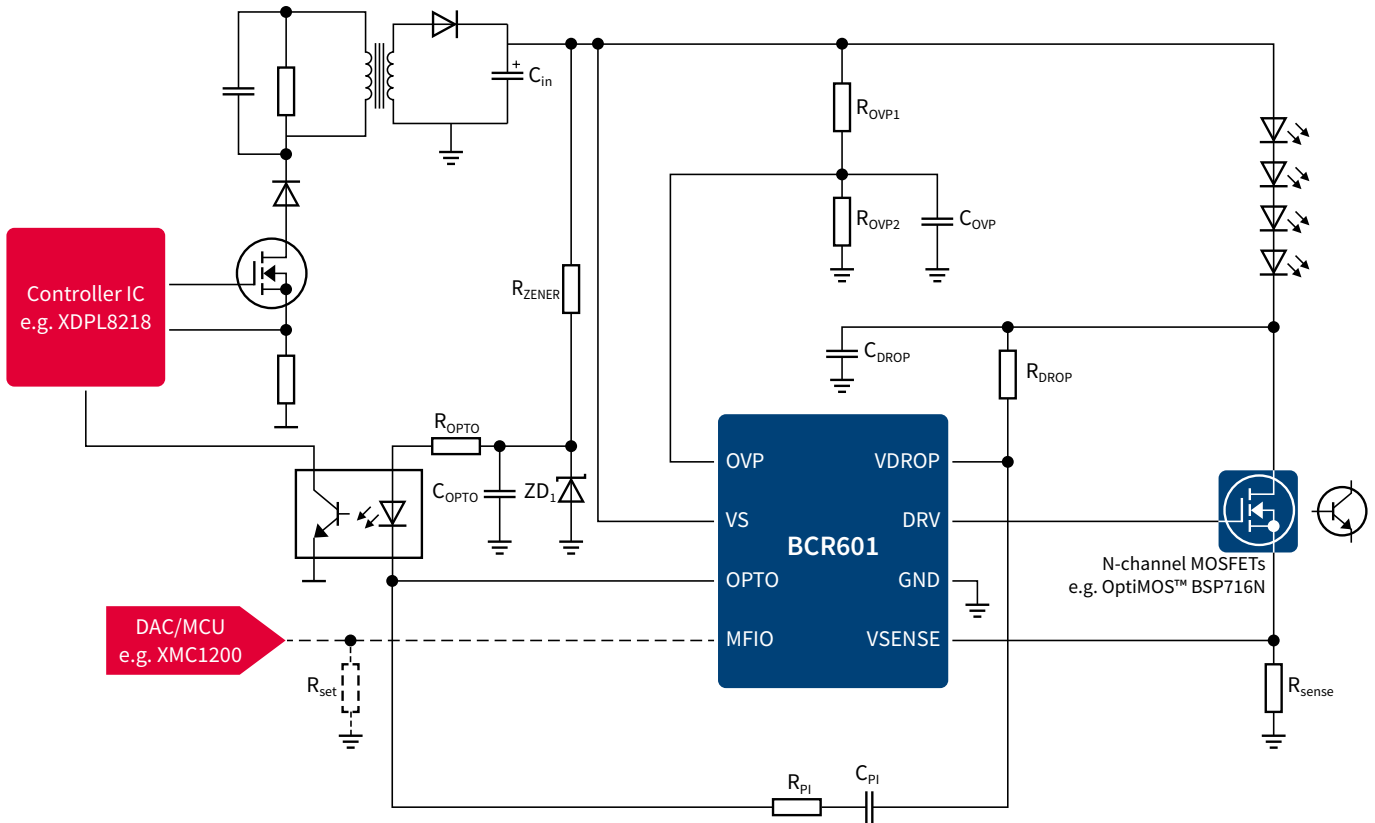
- > LED driver



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Typical application diagram



Order information

Type	Description	Order information
BCR601	60 V linear LED controller IC with voltage feedback to primary side	BCR601XUMA1
DEMO_BCR601_60V_IVCTRL	60 V demonstration board with BCR601, I _{out} 500 mA (configurable) and with BSP716N	DEMOBCR60160VIVCTRL

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