



Product brief

BCR431U

Linear low-voltage drop LED driver IC for more LEDs or longer strips

BCR431U is a linear LED driver IC in a small SOT23-6 package regulating the LED current in standalone operation without any external power transistor. It is suitable for driving currents up to 37 mA and the IC supply voltage ranges from 6 V up to 42 V. The LED current level can be adjusted by connecting a high-ohmic resistor R_{set} to pin RS.

The minimal voltage drop at the integrated LED driver stage is 200 mV max. at 37 mA improving the overall system efficiency and providing extra voltage headroom to compensate for tolerances of LED forward voltage and supply voltage.

The driving current is always under control, no matter at which temperature, thanks to a smart temperature controlling circuit reducing the LED current when junction temperature of BCR431U is very high.



Key features

- › Supply voltage from 6 to 42 V
- › Controls up to 37 mA LED current
- › Typ. 105 mV saturation voltage at 15 mA
- › Smart temperature control
- › LED current precision $\pm 10\%$ over the whole current range
- › High ESD robustness
- › LED current can be adjusted by R_{set} functionality

Key benefits

- › Flexible for 12 V / 24 V / 36 V designs
- › Low-voltage drop enables voltage headroom
 - for more LEDs and better efficiency
 - for longer LED strips and less feeding points
 - for more flexibility in power supplies used
- › High precision for low power LEDs
- › Thermal protection in critical temperature ranges
- › Protection against surge events

Applications

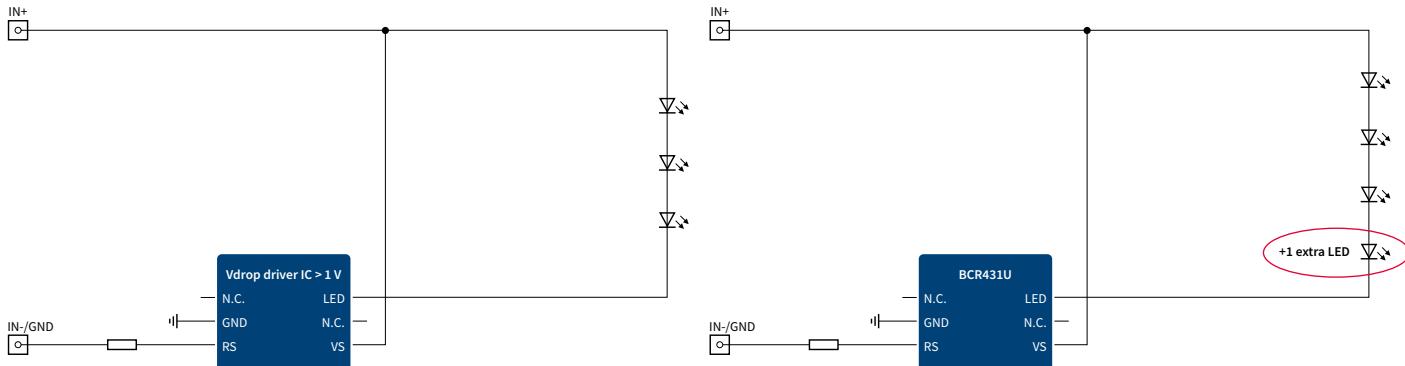
- › LED strips and modules
- › Architectural lighting
- › LED displays and channel letters
- › Emergency lighting
- › Retail lighting
- › White good lighting

BCR431U

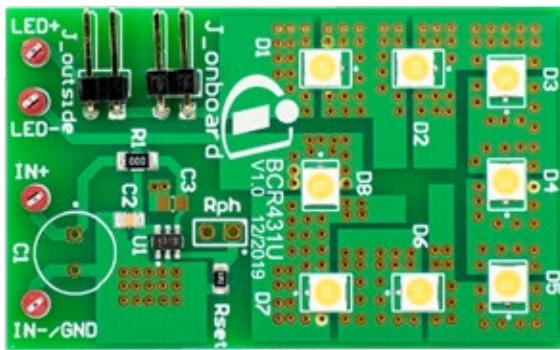
Linear low-voltage drop LED driver IC for more LEDs or longer strips

Typical application diagrams - 24 V, 5.6 V LEDs used

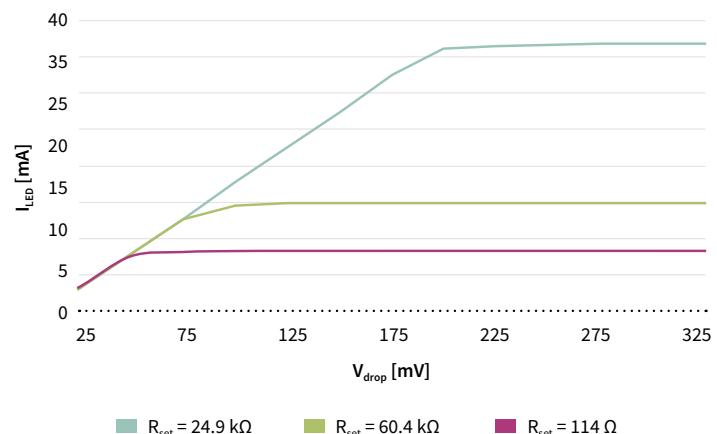
Same example applies for 7 LEDs of 2.9 V / 8 LEDs respectively



Demo board



LED current versus voltage drop



Ordering information

Product	Package	Description	OPN
BCR431U	SOT-23-6	Linear LED driver IC with low voltage drop	BCR431UXTSA1
DEMO_BCR431U_LVDROP	Board	Demo board BCR431U with 8 LEDs, 15 mA current	DEMOBCR431ULVDROPTOBO1

Published by
Infineon Technologies Austria AG
9500 Villach, Austria

© 2020 Infineon Technologies AG.
All Rights Reserved.

Please note!

THIS DOCUMENT IS FOR INFORMATION PURPOSES ONLY AND ANY INFORMATION GIVEN HEREIN SHALL IN NO EVENT BE REGARDED AS A WARRANTY, GUARANTEE OR DESCRIPTION OF ANY FUNCTIONALITY, CONDITIONS AND/OR QUALITY OF OUR PRODUCTS OR ANY SUITABILITY FOR A PARTICULAR PURPOSE. WITH REGARD TO THE TECHNICAL SPECIFICATIONS OF OUR PRODUCTS, WE KINDLY ASK YOU TO REFER TO THE RELEVANT PRODUCT DATA SHEETS PROVIDED BY US. OUR CUSTOMERS AND THEIR TECHNICAL DEPARTMENTS ARE REQUIRED TO EVALUATE THE SUITABILITY OF OUR PRODUCTS FOR THE INTENDED APPLICATION.

WE RESERVE THE RIGHT TO CHANGE THIS DOCUMENT AND/OR THE INFORMATION GIVEN HEREIN AT ANY TIME.

Additional information

For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings

Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.