



Current Regulators Simplify the Driving of LEDs

BCR420U and BCR421U constant current regulators provide a simple means of driving low-power LED strings. Target applications are those that benefit from the improved efficiency, flexibility and longer life offered by LEDs as an emerging lighting source.

Supporting adjustable currents from 10mA to 350mA allow for platform designs based on a single device to be used across multiple LED strip applications, considerably easing a manufacturer's overall qualification process. These LED drivers also enhance system reliability, as the monolithic integration of a transistor, diodes and resistors both simplify system design and reduce component count.

The 40V maximum input rating ensures sufficient headroom for transient supply voltages and allows for LED short failures on long strings. With its low-side driver configuration, BCR421U has the added feature of an enable function that can adjust the light output level using a PWM input signal.



The Diodes Advantage

BCR420U & BCR421U are Constant Current Regulators (CCR) for Driving Low- Power LED Strings by Using an NPN Emitter-Follower with an Emitter Resistor to Limit Current.

- **10mA to 350mA Current Range**
Adjustable CCR enables platform designs based on a single device to use across multiple LED strip applications – easing manufacturer's overall qualification process.
- **Increased Reliability**
Monolithically integrating a transistor, diodes and resistors both simplifies the system by reducing component count and increases overall reliability.
- **1.4 to 40V Supply Voltage**
Low -voltage overhead with sufficient headroom for overvoltage conditions such as LEDs failing short.
- **Negative Temperature Coefficient**
Self-protects and allows current sharing between parallel CCRs.
- **BCR421U with PWM**
Enables function that can adjust the light output level by PWM up to 10kHz.

Applications

Low Power LED Strings:

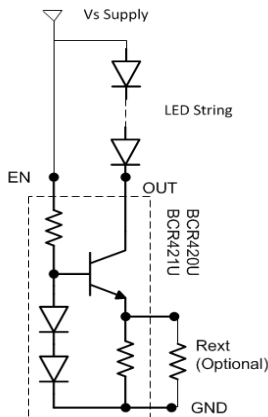
- Mood lighting
- Emergency lighting strips
- Advertising signage
- Retail refrigeration
- Vending machines
- Architectural lighting strips



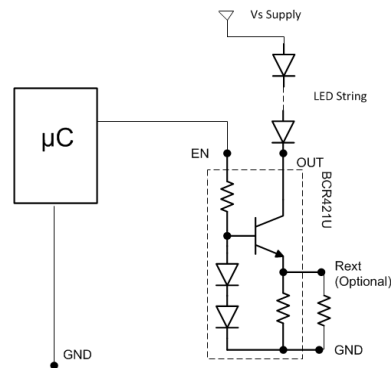
BCR42xU Family

Orderable Part Number	Configuration	PWM from μC	Input Voltage	Fixed Current	Adjustable Current	Package
BCR420UW6-7	NPN Low-side	No	1.4 to 40V	10mA	10 to 350mA	SOT26 (SC74)
BCR421UW6-7	NPN Low-side	Yes	1.4 to 40V	10mA	10 to 350mA	SOT26 (SC74)

Examples of Application Circuits



Low-side control of an LED string with adjustable current by varying the external resistor (optional).



Dimming of the LED string to adjust the light output; this is PWM controlled from a microcontroller by toggling the enable pin on the BCR421U.

Cross Reference

In SOT26 (SC74) package these are pin-compatible and exact equivalents to:

Part	Diodes Inc. Orderable Part Number	Infineon Orderable Part Number	Infineon Orderable Part Number (*)	Package
BCR420U	BCR420UW6-7	BCR420UE6327HTSA1	BCR320UE6327HTSA1	SOT26 (SC74)
BCR421U	BCR421UW6-7	BCR421UE6327HTSA1	BCR321UE6327HTSA1	SOT26 (SC74)

*BCR320U & 321U are low voltage versions of the BCR420U & 421U.