



Current Regulators Simplify the Driving of LEDs

The BCR420U and BCR421U constant current regulators provide a simple means of driving low current LED strips and panels in commercial and industrial lighting sectors. Particularly suiting those applications that benefit from the improved efficiency, flexibility and longer life offered by LEDs as an emerging lighting source.

With a low-profile DFN2020 package, these regulators are designed for 12V and 24V LED edge lighting strips giving an increased light output efficiency as they only require 1.4V supply allowing more LEDs in the string. 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 qualification and supply chain.

These LED drivers also enhance system reliability, as the monolithic integration of a transistor, diodes and resistors both simplify system design and reduces component count.



The Diodes Advantage

BCR420UFD and BCR421UFD are 10 to 350mA constant current regulators in the low-profile DFN2020 package for LED edge lighting applications.

- **DFN2020 < 0.6mm Height**
Low-profile height for thinner applications such as side emitting LED strips.
- **10 to 350mA Settable Current**
Simplify LED driving as current is preset to 10mA with $\pm 10\%$ regulation and the flexibility to adjust up to 200mA (BCR420U) and 350mA (BCR421U).
- **1.4 to 40V Supply Voltage**
Increased light output efficiency as only 1.4V supply required, allowing more LEDs in the string. While 40V gives sufficient headroom for voltage spikes and LED short failures, whilst preserving the LED brightness and longevity.
- **Negative Temperature Coefficient**
Reduces the current with rising temp. which helps to increase the LED lifespan. Also, enables current sharing for parallel operation for > 100mA LED current.
- **PWM <1% Duty Cycle at 25kHz**
LED brightness can be accurately PWM controlled allowing low light dimming.

Applications

Targeted at 12V and 24V linear LED strips and panels in:

- Advertising Signage
- Emergency Lighting Strips
- Refrigeration & Vending Machines
- Building Light Strips
- Architectural & Decorative
- General Lighting



BCR4xxU Series

Part Number & Q-part	Configuration	Input Voltage	Fixed Current	Adjustable Current	PWM from MCU*	Package
BCR401UW6/Q	PNP High-side	1.4 to 40V	10mA	10 to 100mA	No*	SOT26 (SC74)
BCR402UW6/Q	PNP High-side	1.4 to 40V	20mA	20 to 100mA	No*	SOT26 (SC74)
BCR405UW6/Q	PNP High-side	1.4 to 40V	50mA	50 to 100mA	No*	SOT26 (SC74)
BCR420UW6/Q	NPN Low-side	1.4 to 40V	10mA	10 to 200mA	No*	SOT26 (SC74)
BCR421UW6/Q	NPN Low-side	1.4 to 40V	10mA	10 to 350mA	Yes*	SOT26 (SC74)
BCR420UFD/Q	NPN Low-side	1.4 to 40V	10mA	10 to 200mA	No*	U-DFN2020-6
BCR421UFD/Q	NPN Low-side	1.4 to 40V	10mA	10 to 350mA	Yes*	U-DFN2020-6

* All BCR4xx can be PWM dimmed. BCR421U can be directly PWM switched via the enable pin.

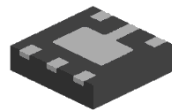
Q All BCR4xx are AEC-Q101 qualified and automotive compliant (suffix Q) are available with PPAP.

SOT26 (SC-74)



Industry standard pinout and footprint.

U-DFN2020-6



Thinner package of 0.6mm height for low-profile edge lighting (side emitting).

Cross Reference

Pin-to-pin compatible in the SOT26 equivalent to Infineon SC74 and Nexperia TSOP6 (SOT457)

Part	Diodes Inc. Orderable (OPN)	Infineon Orderable (OPN)	Nexperia (NXP) Orderable (OPN)
Package	SOT26 (SC74)	SC74	TSOP6 (SOT457)
BCR401U	BCR401UW6-7	BCR401UE6327HTSA1	NCR401UX
BCR402U	BCR402UW6-7	BCR402UE6327HTSA1	NCR402UX / NCR402UH
BCR405U	BCR405UW6-7	BCR405UE6327HTSA1	NCR405UX
BCR420U	BCR420UW6-7	BCR420UE6327HTSA1	None
BCR421U	BCR421UW6-7	BCR421UE6327HTSA1	None