

## Low Cost LED Drivers for General Lighting

BCR 401, BCR 402, BCR 405



THE LED MARKET has experienced a very fast growth in recent years and the outlook is very promising. Major drivers for increasing acceptance for LED's are the long term reliability and low energy consumption.

LED's operate with constant current supply and are very sensitive to voltage variations. The light emission of the LED will change dramatically in case of current drop. In case of exceeding a certain current level the LED will be damaged or the light emission will degrade irreversibly.

With the linear mode LED drivers BCR 401, 402 and 405 Infineon Technologies offers an efficient as well as low cost solution for constant current supply for LED's in a range of 10 mA to 65 mA in stand alone operation.

### Applications

- LED displays
- 3rd Stop-Light
- LED illuminations, advertising

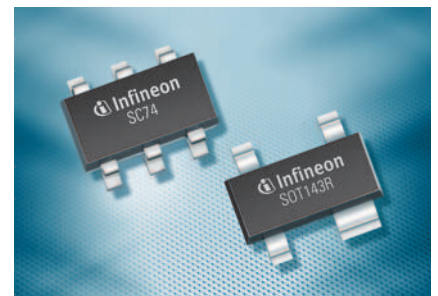
### Features

- Constant current 10 ... 65 mA
- Current range extendable to 700 mA by using external booster transistor (See Application Note AN101; see Figure 2)
- $V_{cc}$  up to 40 V
- ON / OFF feature
- Self protection due to negative temperature coefficient
- Suitable for PWM Control for LED dimming

### Benefits

- Efficient active current regulation, accuracy of  $I_{out}$  at  $\pm 1\%/V$  voltage variation
- Low cost solution
- Avoids inhomogeneous light emission in parallel branches due to statistical variation of LED forward voltage in different branches
- More LED's in one branch due to low voltage drop compared to resistor biasing

### SC74/SOT143R Package



	Package	$V_{cc, max}$ [V]	Current Range**		$V_{overhead}^*$ [V]	$P_{tot}$ [mW]	Lead Frame Material	$R_{thJS}$ [K/W]	Samples	
			$I_{d, typ}$ [mA]	$I_{d, max}$ [mA]						
	BCR 401R	SOT143R	18	10	60	1.2*	330	NiFe	190	Mass production
	BCR 402R	SOT143R	18	20	60	1.4*	330	NiFe	190	Mass production
<b>NEW</b>	BCR 401W	SOT343	18	10	60	1.4*	500	Cu	110	Samples available
<b>NEW</b>	BCR 402W	SOT343	18	20	60	1.4*	500	Cu	110	Samples available
<b>NEW</b>	BCR 401U	SC74	40	10	65	1.4*	500	Cu	65	Samples available
	BCR 402U	SC74	40	20	65	1.4*	500	Cu	65	Mass production
	BCR 405U	SC74	40	50	65	1.5*	500	Cu	65	Mass production

\* Required voltage overhead for LED driver

\*\* Current level can be adjusted by usage of external resistor (See Figure 1)

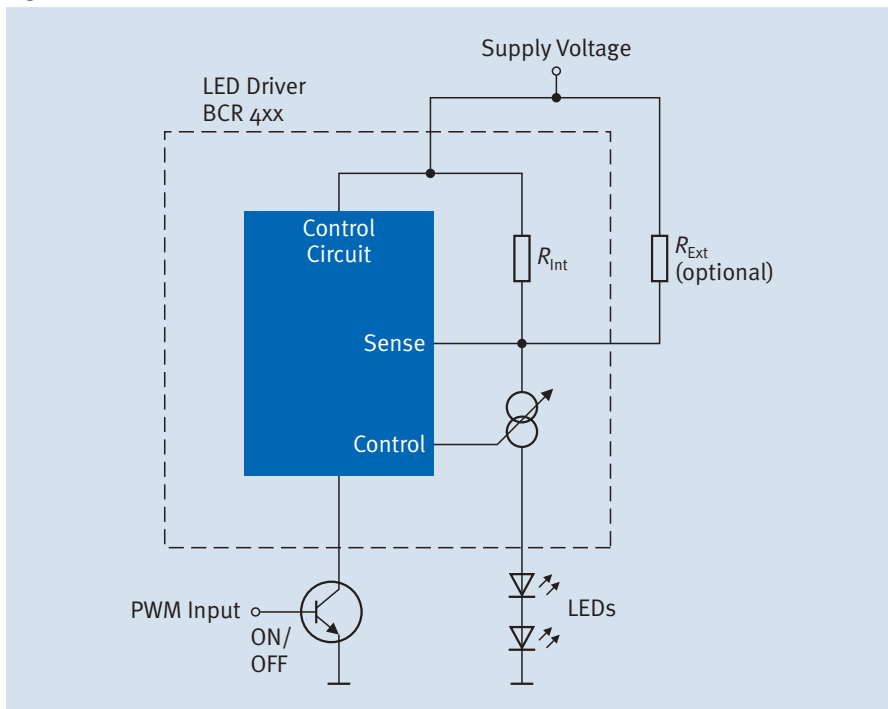
[www.infineon.com/smallsignaldiscretes](http://www.infineon.com/smallsignaldiscretes)

## Small Signal Discretes



Never stop thinking

Figure 1

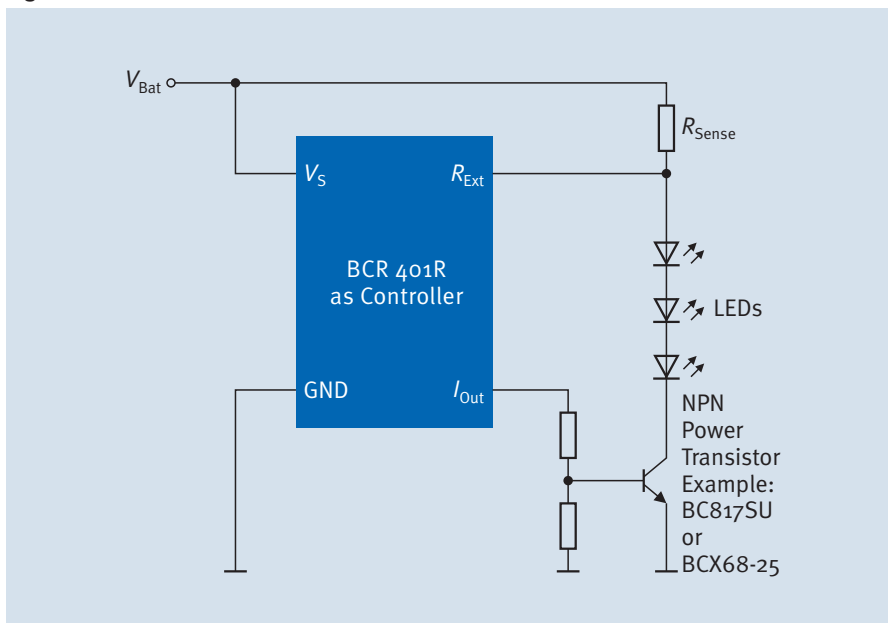


## LED Drivers for Currents 10 ... 65 mA

PWM input can be used for dimming function.

Current adjustable by using  $R_{Ext}$

Figure 2



## LED Controller with External Booster Transistor for Currents 65 ... 700 mA

Using BCR 401R and external NPN booster transistor, recommended transistors: BC817SU in SC74 package or BCX68-25 in SOT89 package

Please see Application Note AN101 for further information:  
[www.infineon.com/smallsignaldiscretesinsight](http://www.infineon.com/smallsignaldiscretesinsight)

More informations: [www.infineon.com/lowcostledriver](http://www.infineon.com/lowcostledriver)

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