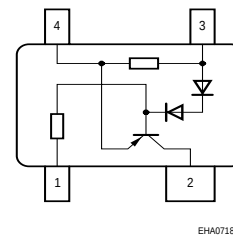
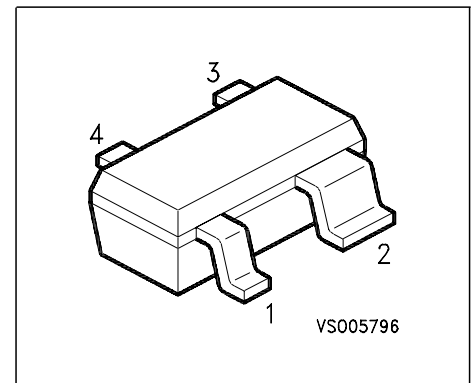


LED Driver

- Supplies stable bias current even at low battery voltage
- Low voltage drop of 0.75V
- Ideal for stabilizing bias current of LEDs
- Negative temperature coefficient protects LEDs against thermal overload



Type	Marking	Pin Configuration				Package
BCR401R	W5s	1 = GND	2 = I_{out}	3 = V_S	4 = R_{ext}	SOT143R

Maximum Ratings

Parameter	Symbol	Value	Unit
Source voltage	V_S	18	V
Output current	I_{out}	60	mA
Output voltage	V_{out}	16	V
Reverse voltage between all terminals	V_R	0.5	
Total power dissipation, $T_S = 87\text{ °C}$	P_{tot}	330	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}	190	K/W

¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

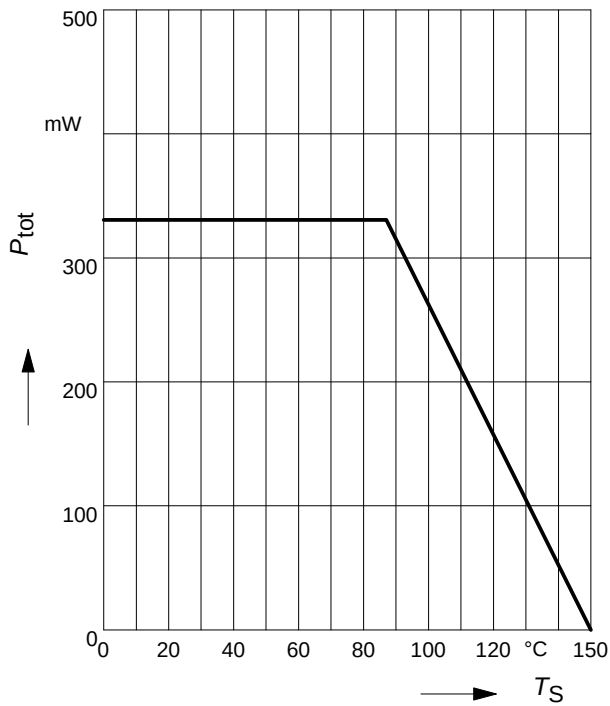
Electrical Characteristics at $T_A=25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Supply current $V_S = 10\text{ V}$	I_S	350	440	540	μA
Output current $V_S = 10\text{ V}$, $V_{\text{out}} = 7.6\text{ V}$	I_{out}	9	10	11	mA

DC Characteristics with stabilized LED load

Lowest sufficient battery voltage overhead $I_{\text{out}} > 8\text{mA}$	$V_{S\text{min}}$	-	1.2	-	V
Voltage drop ($V_S - V_{\text{CE}}$) $I_{\text{out}} = 20\text{ mA}$	V_{drop}	-	0.75	-	
Output current change versus T_A $V_S = 10\text{ V}$	$\Delta I_{\text{out}}/I_{\text{out}}$	-	-0.3	-	%/K
Output current change versus V_S $V_S = 10\text{ V}$	$\Delta I_{\text{out}}/I_{\text{out}}$	-	2	-	%/V

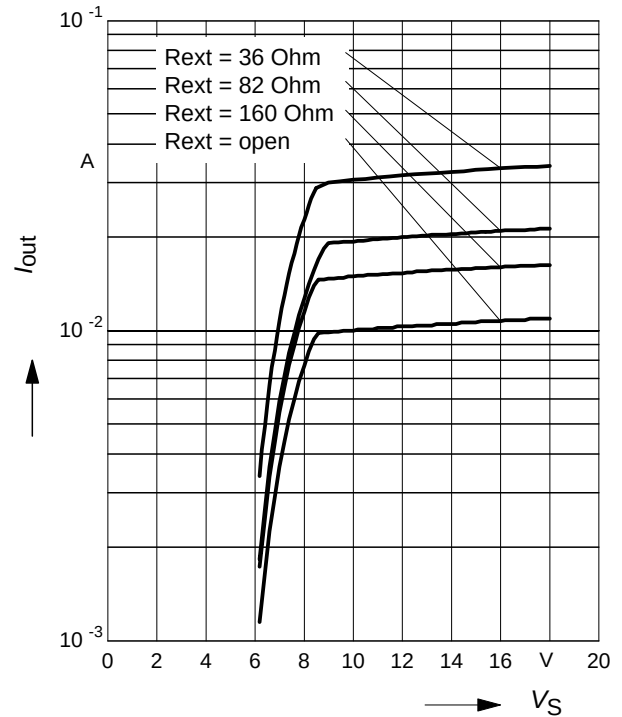
Total power dissipation $P_{\text{tot}} = f(T_S)$



Output current versus supply voltage

$$I_{\text{out}} = f(V_S); R_{\text{ext}} = \text{Parameter}$$

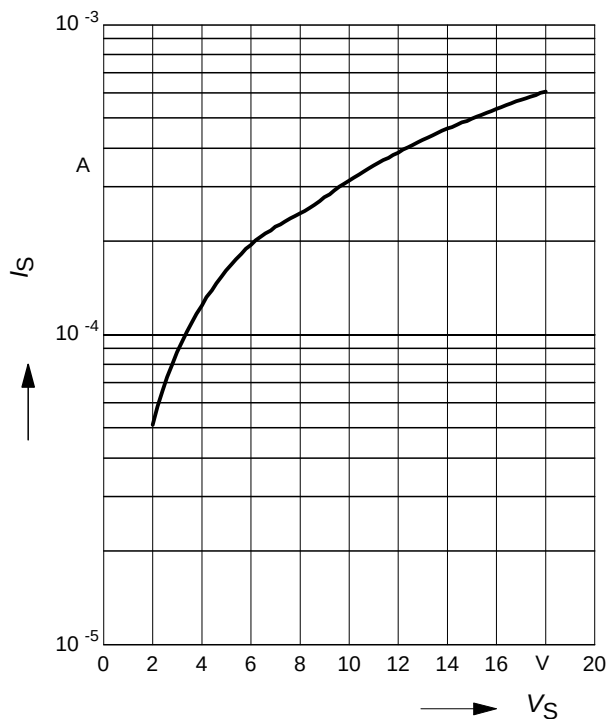
Load: two LEDs with $V_F = 3.8\text{V}$ in series



Supply current versus supply voltage

$$I_S = f(V_S)$$

Load: two LEDs with $V_F = 3.8\text{V}$ in series



Application Circuit:

