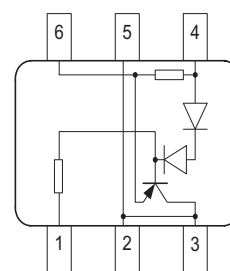
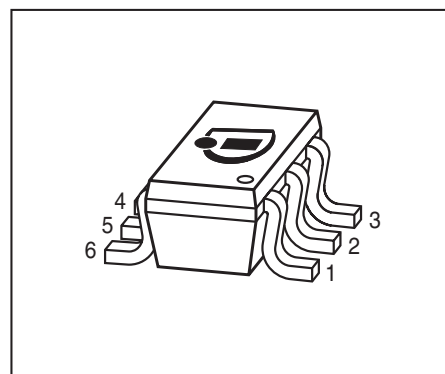


LED Driver

Preliminary data

- Supplies stable bias current even at low battery voltage
- Ideal for stabilizing bias current of LEDs
- Negative temperature coefficient protects LEDs against thermal overload
- Suitable for 12V automotive applications, optimized for 8 V operation
- Pb-free (RoHS compliant) package ¹⁾
- Qualified according AEC Q101



Type	Marking	Pin Configuration				Package
BCR402UE6182	L2s	1 = GND	2;3;5 = I_{out}	4 = V_S	6 = R_{ext}	SC74

Maximum Ratings

Parameter	Symbol	Value	Unit
Source voltage	V_S	40	V
Output current $V_S = 10\text{ V}$, $V_{out} = 8.6\text{ V}$	I_{out}	65	mA
Output voltage	V_{out}	38	V
Reverse voltage between all terminals	V_R	0.5	
Total power dissipation, $T_S = 125\text{ °C}$	P_{tot}	500	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ²⁾	R_{thJS}	50	K/W

¹⁾Pb-containing package may be available upon special request

²⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

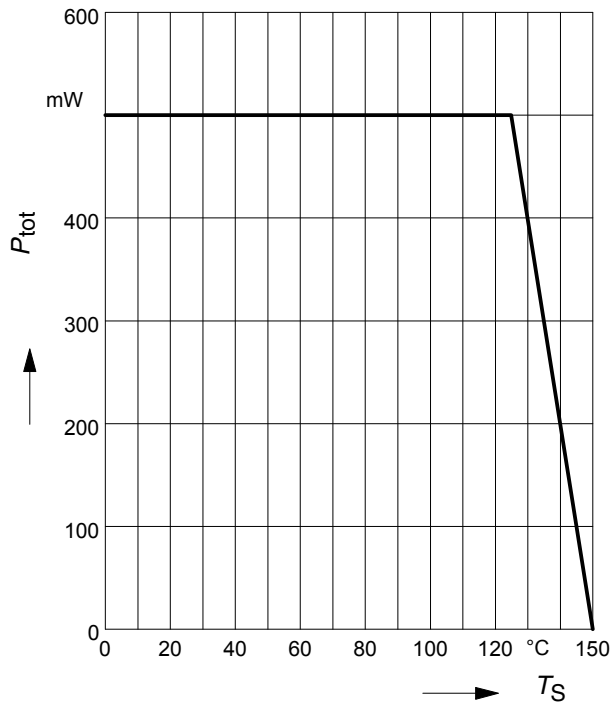
Electrical Characteristics at $T_A=25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Collector-emitter breakdown voltage $I_C = 1\text{ mA}$, $I_B = 0$	$V_{BR(CEO)}$	40	-	-	V
Supply current $V_S = 10\text{ V}$	I_S	340	520	620	μA
DC current gain $I_C = 50\text{ mA}$, $V_{CE} = 1\text{ V}$	h_{FE}	200	330	470	-
Internal resistor $I_{Rint} = 20\text{ mA}$	R_{int}	37	44	53	Ω
Output current $V_S = 10\text{ V}$, $V_{out} = 8.6\text{ V}$	I_{out}	18	20	23	mA
Voltage drop ($V_S - V_E$) $I_{out} = 20\text{ mA}$	V_{drop}	0.81	0.86	0.91	V

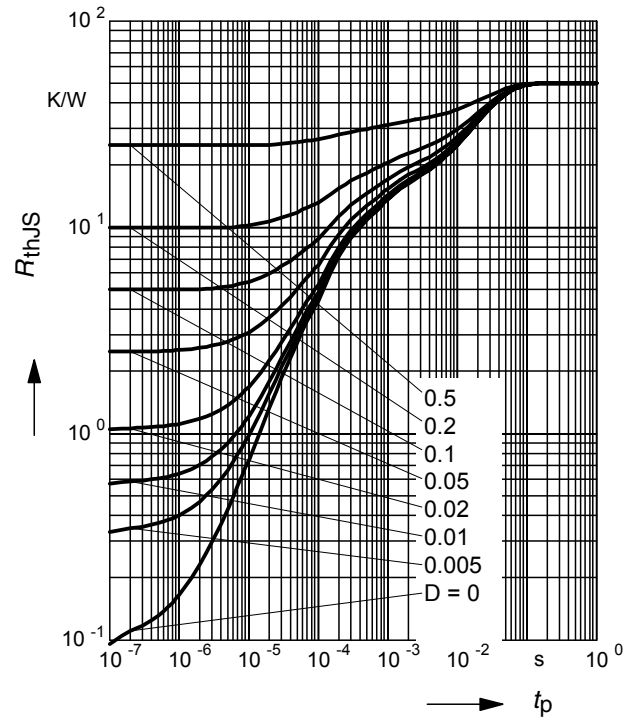
DC Characteristics with stabilized LED load

Lowest sufficient battery voltage overhead $I_{out} > 18\text{ mA}$	V_{Smin}	-	1.4	-	V
Output current change versus T_A $V_S = 10\text{ V}$	$\Delta I_{out}/I_{out}$	-	-0.2	-	%/K
Output current change versus V_S $V_S = 10\text{ V}$	$\Delta I_{out}/I_{out}$	-	1	-	%/V

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

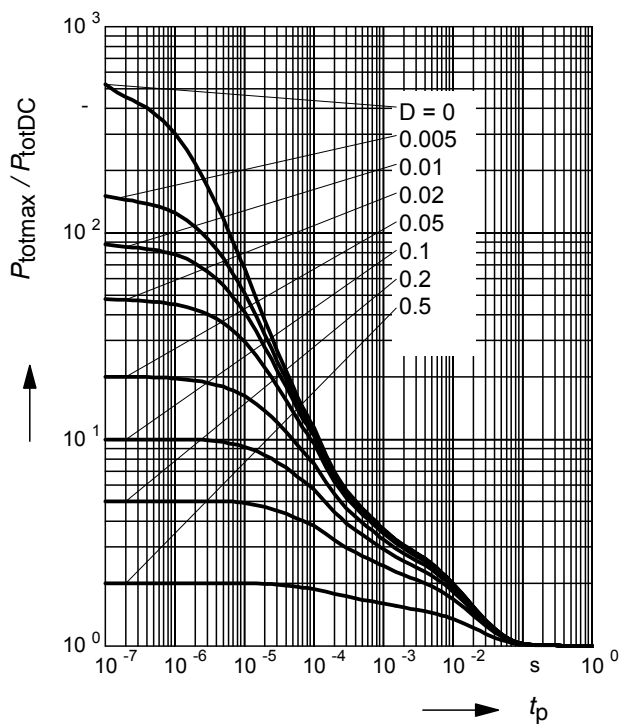


Permissible Pulse Load $R_{\text{thJS}} = f(t_p)$



Permissible Pulse Load

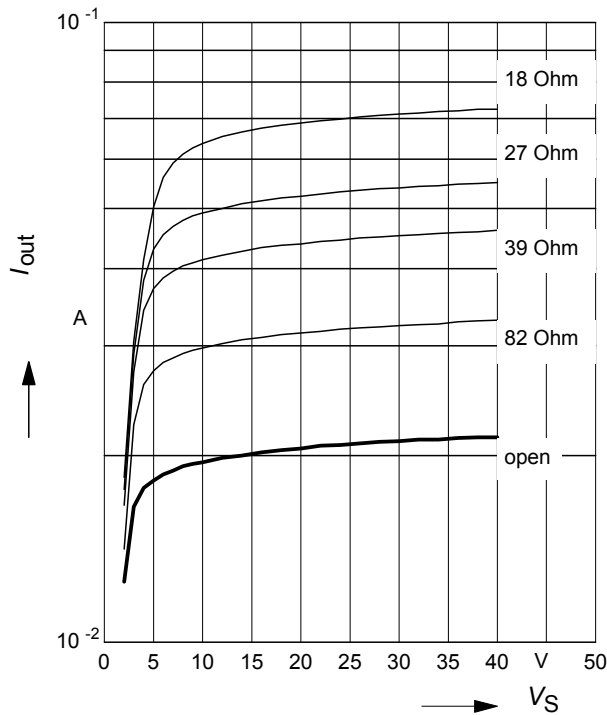
$P_{\text{totmax}} / P_{\text{totDC}} = f(t_p)$



Output current versus supply voltage

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

$$V_S - V_{out} = 1.4 \text{ V}$$



Supply current versus supply voltage

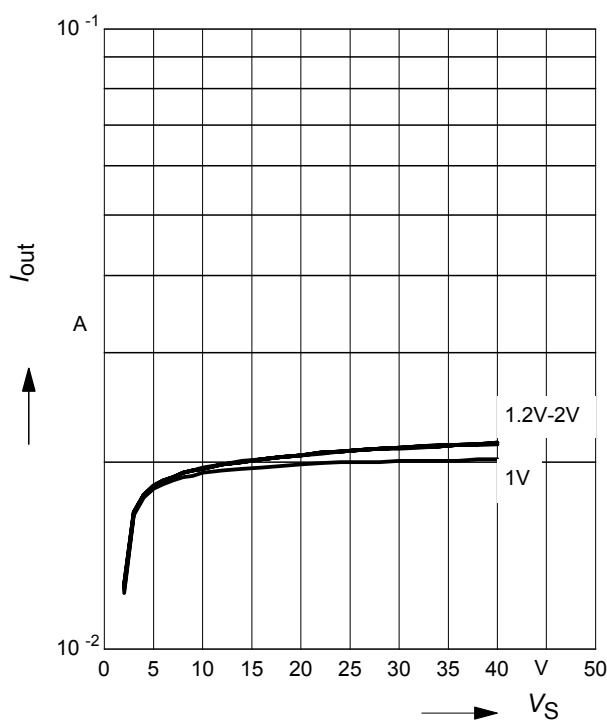
$$I_S = f(V_S)$$

$$T_A = \text{Parameter}$$

Output current versus supply voltage

$$I_{out} = f(V_S), T_A = 20^\circ\text{C}$$

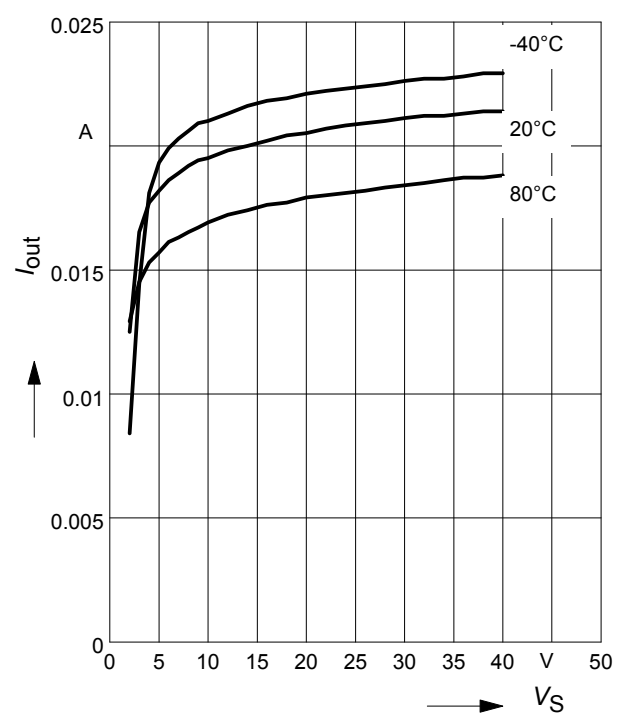
$$V_S - V_{out} \text{ as Parameter}$$



Output current versus supply voltage

$$I_{out} = f(V_S), V_S - V_{out} = 1.4 \text{ V}$$

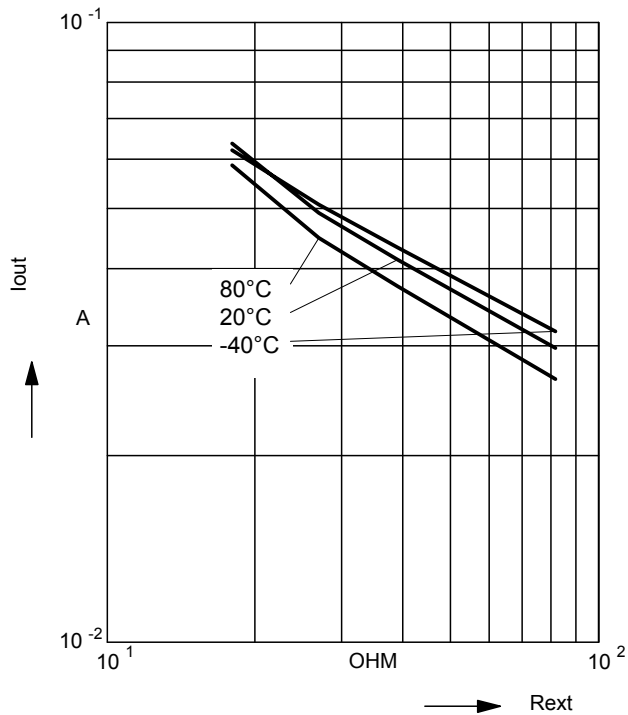
$$T_A = \text{Parameter}$$



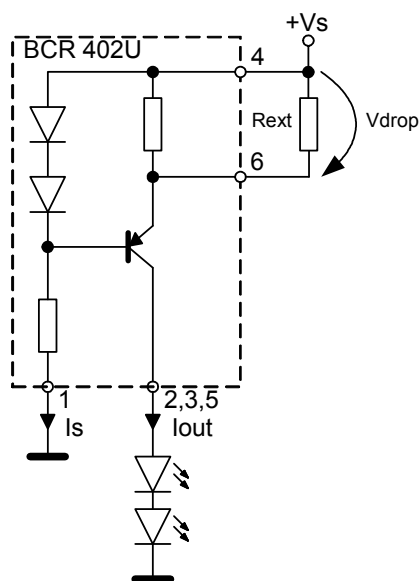
Output current versus external resistor

$$I_{out} = (R_{ext}), V_S = 10V, V_S - V_{out} = 1.4V$$

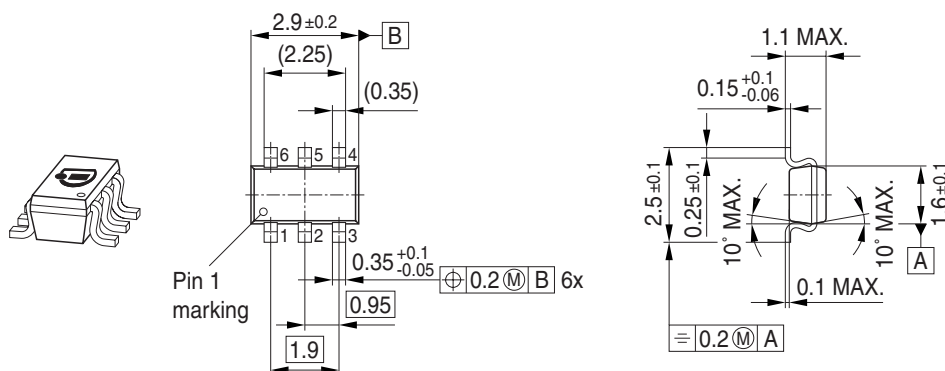
T_A = Parameter



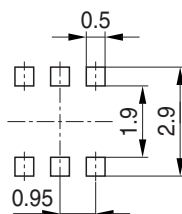
Application Circuit



Package Outline

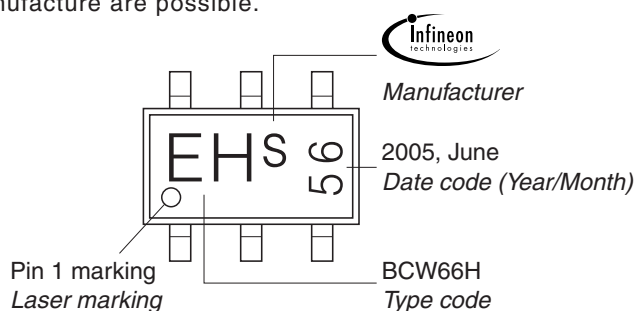


Foot Print



Marking Layout (Example)

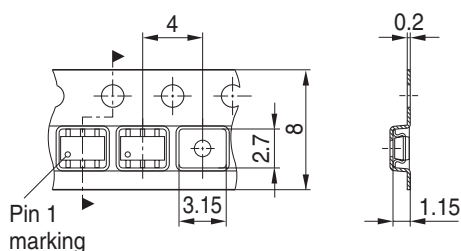
Small variations in positioning of Date code, Type code and Manufacture are possible.



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.



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