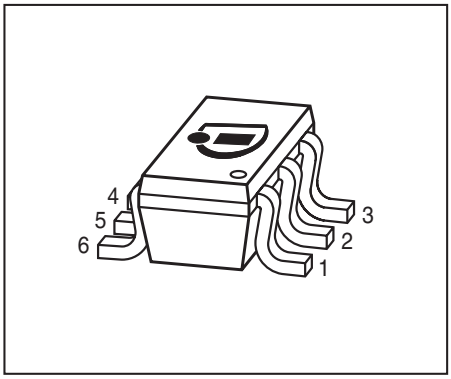
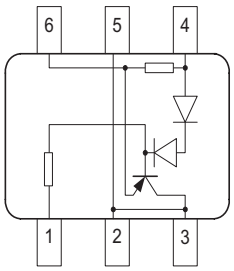
LED Driver



- 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
- Pb-free (RoHS compliant) package [1)]
- Qualified according AEC Q101



Type	Marking	Pin Configuration				Package
BCR402U	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 V, V_{out} = 8.6 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 °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

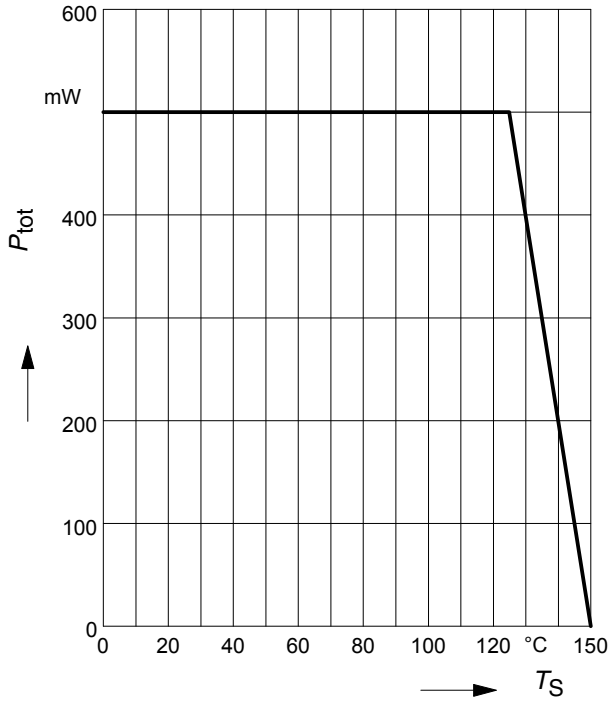
[1] Pb-containing package may be available upon special request

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

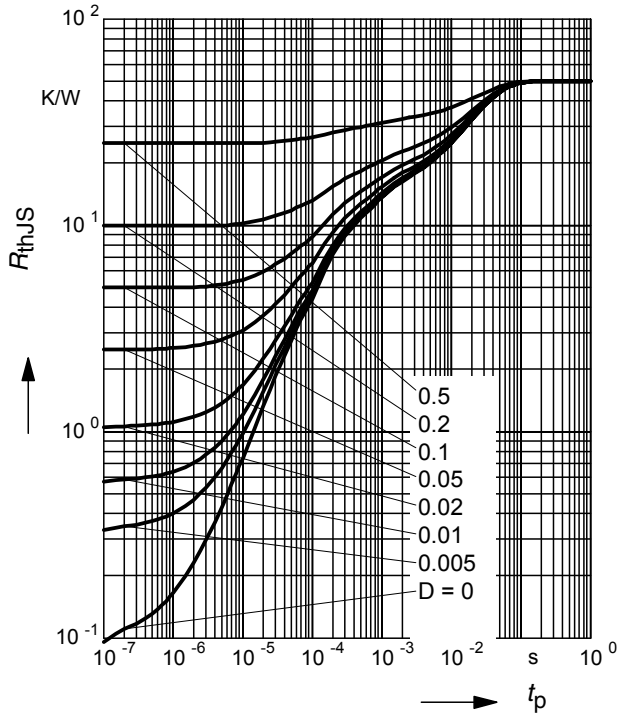
Electrical Characteristics at T_A=25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{BR(CEO)}$	40	-	-	V
Supply current V_S = 10 V	I_S	340	420	500	µA
DC current gain I_C = 50 mA, V_{CE} = 1 V	h_{FE}	100	220	470	-
Internal resistor I_{Rint} = 20 mA	R_{int}	37	44	53	Ω
Output current V_S = 10 V, V_{out} = 8.6 V	I_{out}	18	20	22	mA
Voltage drop (V_S - V_E) I_{out} = 20 mA	V_{drop}	0.8	0.85	0.9	V
DC Characteristics with stabilized LED load					
Lowest sufficient battery voltage overhead I_{out} > 18mA	V_{Smin}	-	1.4	-	V
Output current change versus T_A V_S = 10 V	$\Delta I_{out}/I_{out}$	-	-0.2	-	%/K
Output current change versus V_S V_S = 10 V	$\Delta I_{out}/I_{out}$	-	1	-	%/V

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

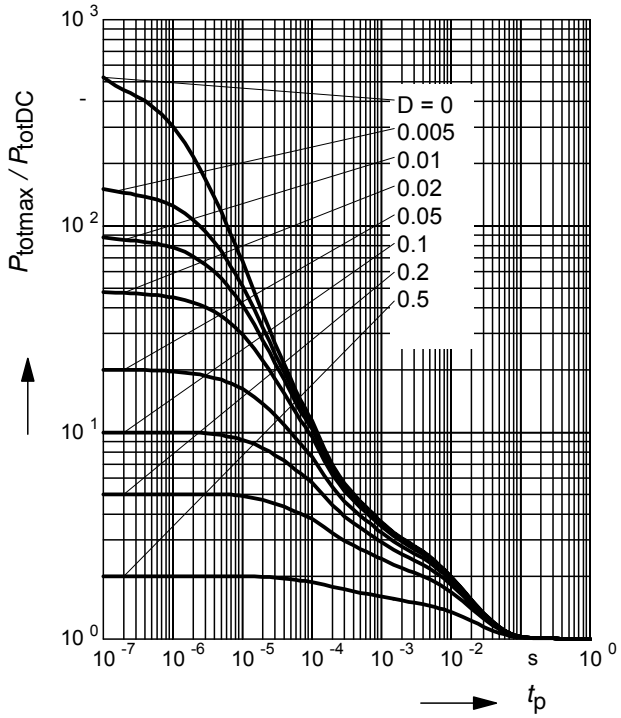


Permissible Pulse Load $R_{thJS} = f(t_p)$



Permissible Pulse Load

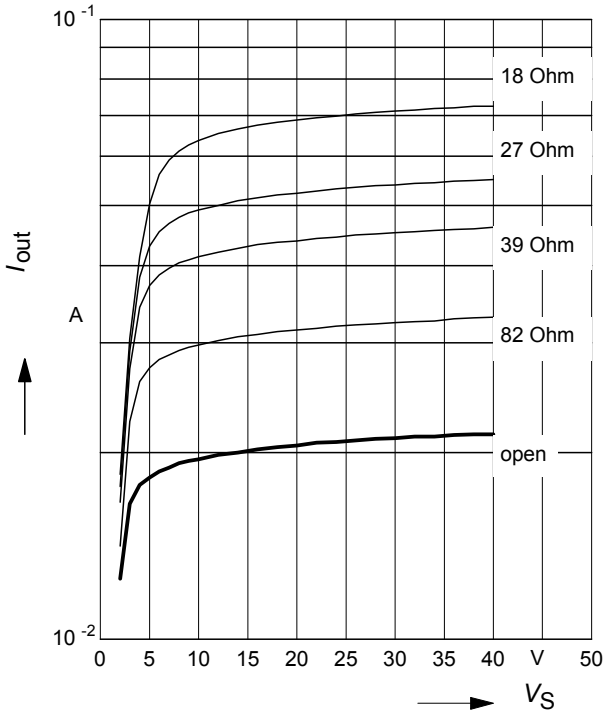
$P_{totmax} / P_{totDC} = f(t_p)$



Output current versus supply voltage

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

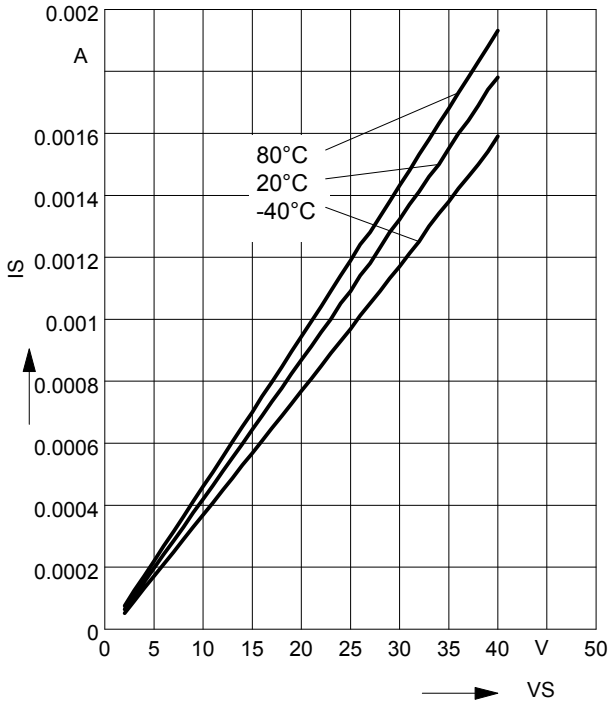
$V_S - V_{out} = 1.4$ V



Supply current versus supply voltage

$I_S = f(V_S)$

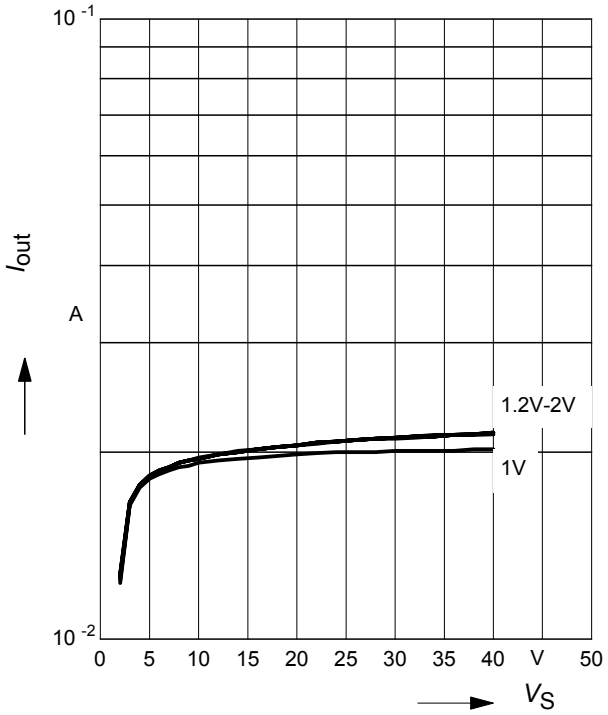
T_A = Parameter



Output current versus supply voltage

$I_{out} = f(V_S)$, $T_A = 20$°C

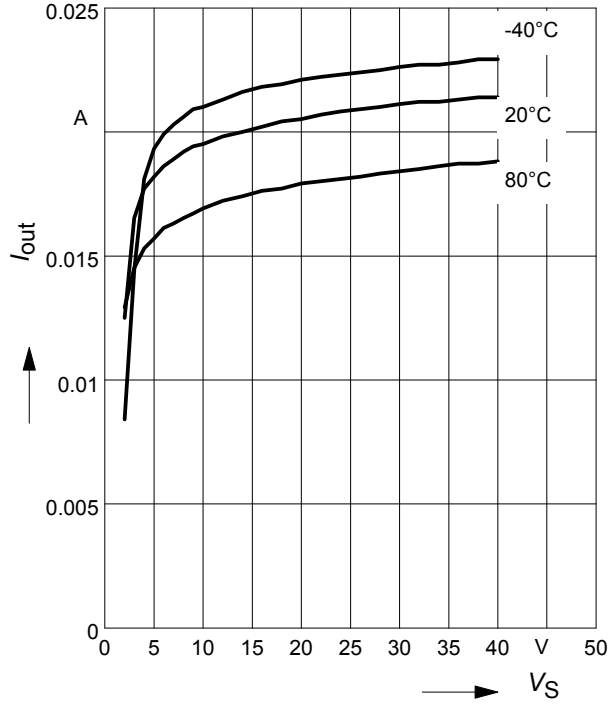
$V_S - V_{out}$ as Parameter



Output current versus supply voltage

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

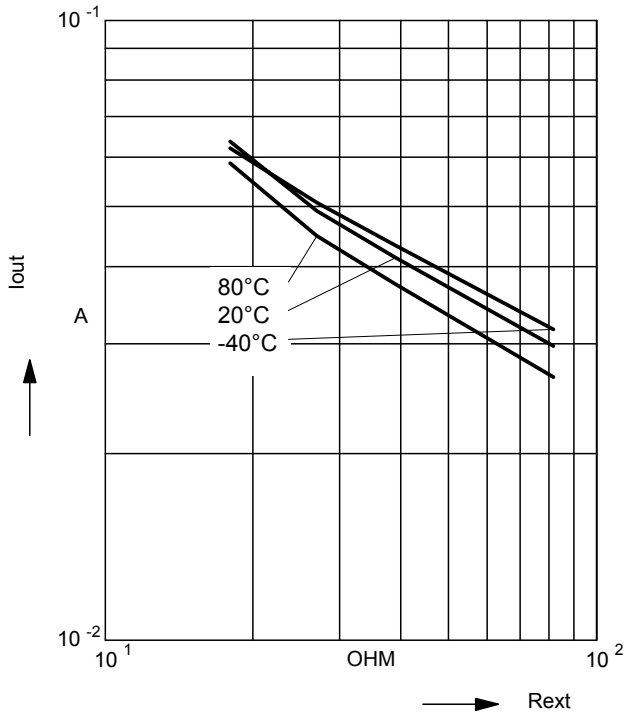
T_A = Parameter



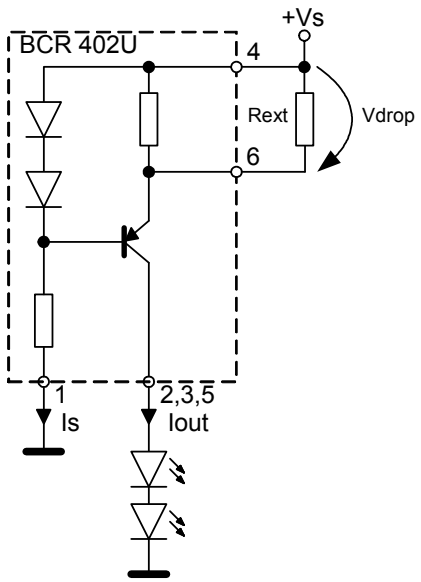
Output current versus external resistor

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

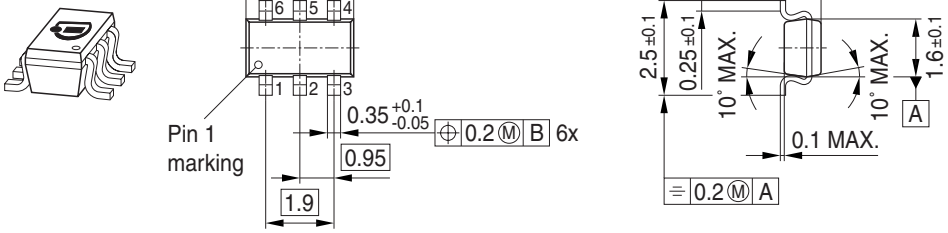
T_A = Parameter



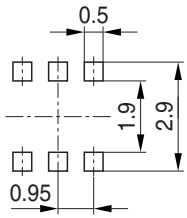
Application Circuit



Package Outline

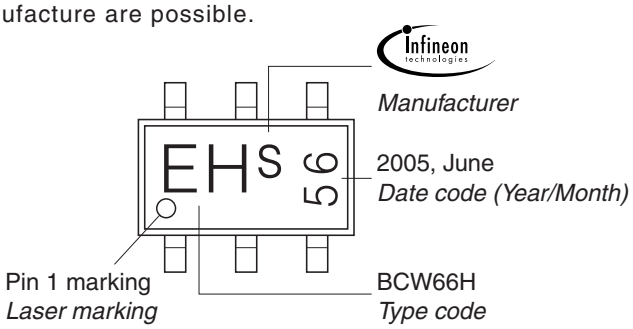


Foot Print



Marking Layout (Example)

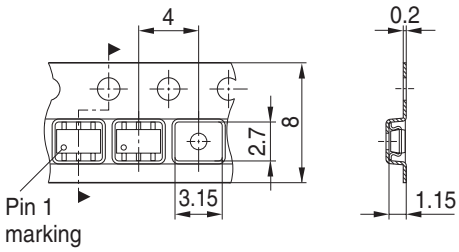
Small variations in positioning of
Date code, Type code and Manufacture are possible.



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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