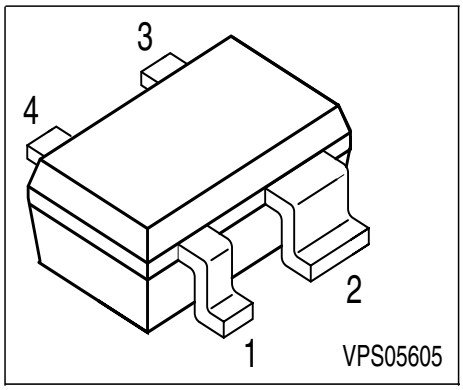
Active Bias Controller

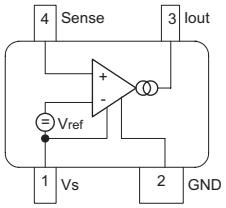


Characteristics

- Supplies stable bias current from 1.8V operating voltage on
- Low voltage drop:
  110mV for 10mA collector currrent

Application notes

- Stabilizing bias current of NPN transistors and FET's from 100µA to 20mA
- Ideal supplement for Sieget and other transistors



Type	Marking	Pin Configuration				Package
BCR410W	W8s	1= Vs	2=GND	3=Iout	4=Sense	SOT343

Maximum Ratings

Parameter	Symbol	Value	Unit
Supply voltage	V_S	18	V
Output current	I_{out}	0.5	mA
Total power dissipation, T_S = 110 °C	P_{tot}	100	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

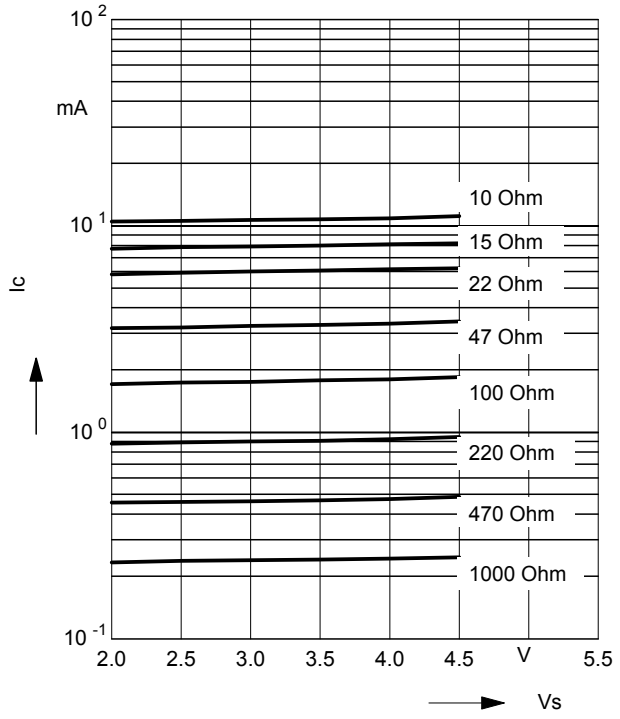
Junction - soldering point[1)]	R_{thJS}	≤ 470	K/W

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

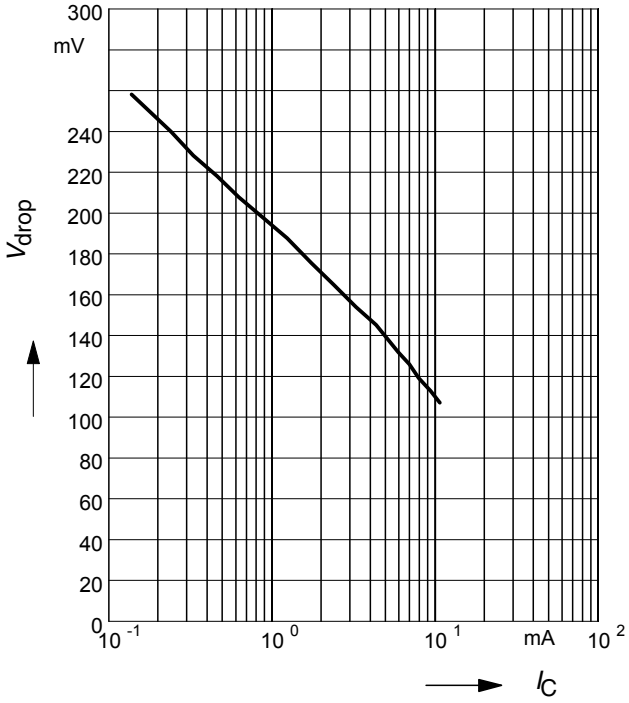
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Additional current consumption V_S = 3 V	I_0	-	200	400	µA
DC Characteristics with stabilized NPN-Transistors					
Lowest sufficient battery voltage	V_{Smin}	-	1.8	-	V
Voltage drop I_C = 10 mA	V_{drop}	-	110	-	mV
Change of I_C versus h_{FE} h_{FE} = 50	$\Delta I_C/I_C$	-	tbd	-	Δh_{FE} / h_{FE}
Change of I_C versus V_S V_S = 3 V	$\Delta I_C/I_C$	-	2	-	%/V
Change of I_C versus T_A	$\Delta I_C/I_C$	-	0.15	-	%/K

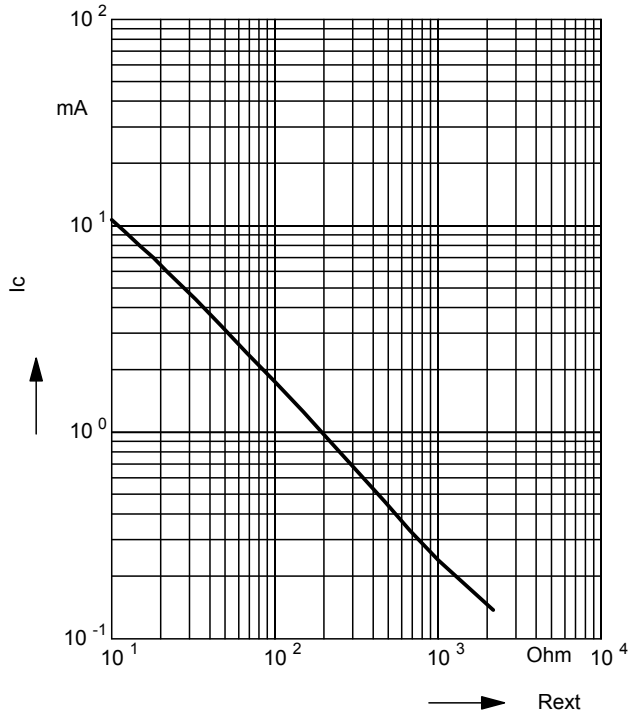
Collector Current $I_C = f(V_S)$
of stabilized NPN Transistor
Parameter $R_{ext.}$ (Ω)



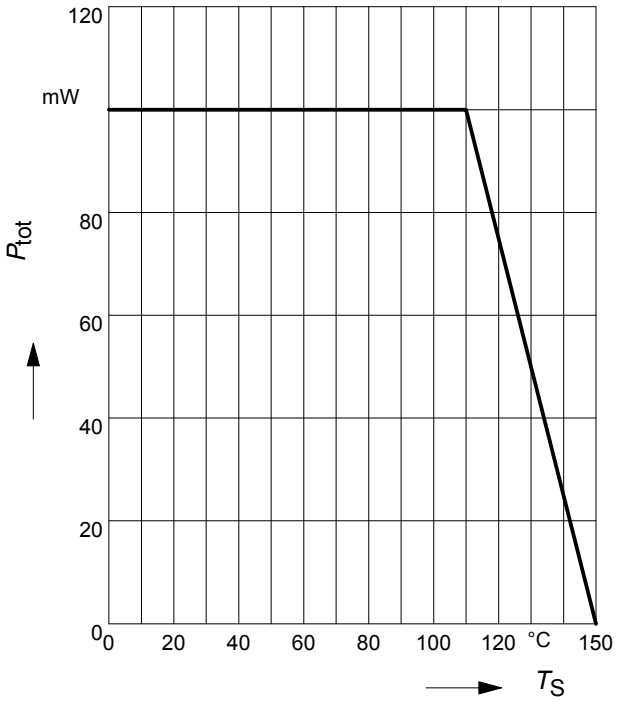
Voltage drop $V_{drop} = f(I_C)$



Collector current $I_C = f(R_{ext.})$
of stabilized NPN Transistor



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



Application Circuit: