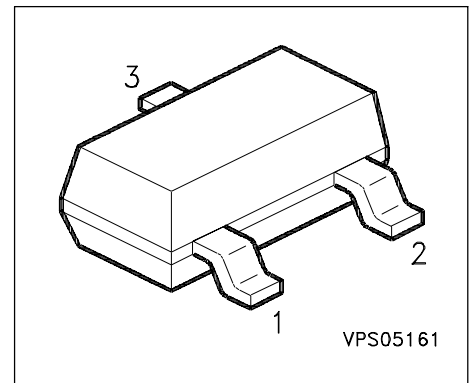
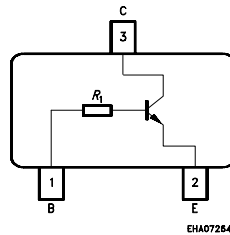


## NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ( $R_1=4.7k\Omega$ )



Type	Marking	Ordering Code	Pin Configuration			Package
			1 = B	2 = E	3 = C	
BCR 519	XKs	UPON INQUIRY	1 = B	2 = E	3 = C	SOT-23

### Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	$V_{CEO}$	50	V
Collector-base voltage	$V_{CBO}$	50	
Emitter-base voltage	$V_{EBO}$	5	
Input on Voltage	$V_{i(on)}$	30	
DC collector current	$I_C$	500	mA
Total power dissipation, $T_S = 79\text{ }^\circ\text{C}$	$P_{tot}$	330	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	- 65 ... + 150	

### Thermal Resistance

Junction ambient <sup>1)</sup>	$R_{thJA}$	$\leq 325$	K/W
Junction - soldering point	$R_{thJS}$	$\leq 215$	

1) Package mounted on pcb 40mm x 40mm x 1.5mm / 6cm<sup>2</sup> Cu

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

### DC Characteristics

Collector-emitter breakdown voltage $I_C = 100 \mu\text{A}, I_B = 0$	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_B = 0$	$V_{(BR)CBO}$	50	-	-	
Base-emitter breakdown voltage $I_E = 10 \mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	5	-	-	
Collector cutoff current $V_{CB} = 40 \text{ V}, I_E = 0$	$I_{CBO}$	-	-	100	nA
DC current gain $I_C = 50 \text{ mA}, V_{CE} = 5 \text{ V}$	$h_{FE}$	120	-	630	-
Collector-emitter saturation voltage 1) $I_C = 50 \text{ mA}, I_B = 2.5 \text{ mA}$	$V_{CEsat}$	-	-	0.3	mV
Input off voltage $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$	$V_{i(off)}$	0.4	-	0.8	V
Input on Voltage $I_C = 10 \text{ mA}, V_{CE} = 0.3 \text{ V}$	$V_{i(on)}$	0.5	-	1.5	
Input resistor	$R_1$	3.2	4.7	6.2	k $\Omega$

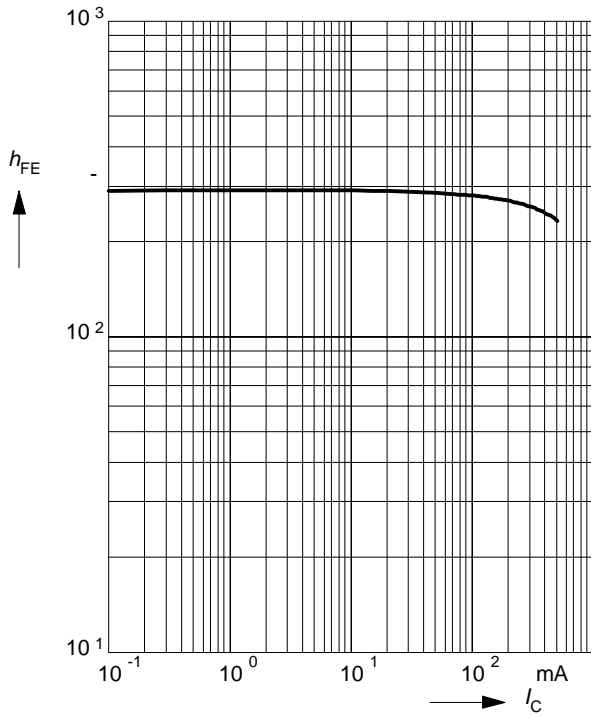
### AC Characteristics

Transition frequency $I_C = 50 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	$f_T$	-	100	-	MHz
--	-------	---	-----	---	-----

1) Pulse test:  $t < 300 \mu\text{s}$ ;  $D < 2\%$

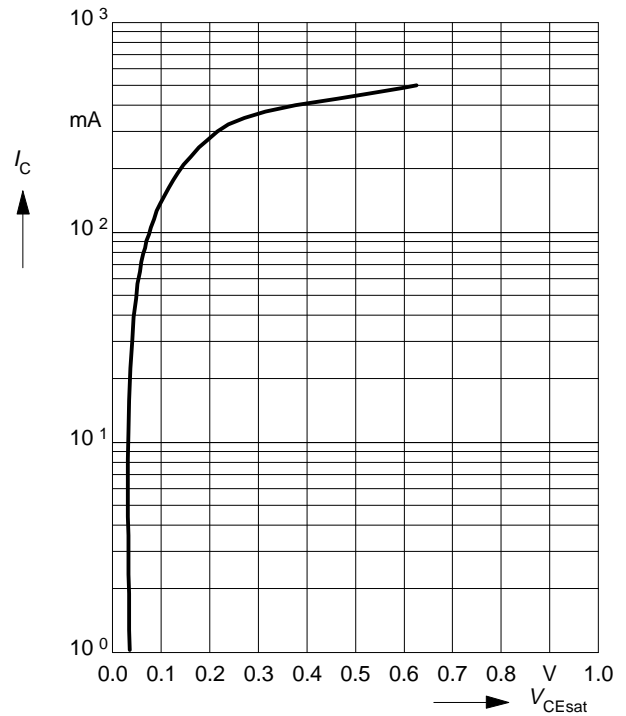
### DC Current Gain $h_{FE} = f(I_C)$

$V_{CE} = 5V$  (common emitter configuration)



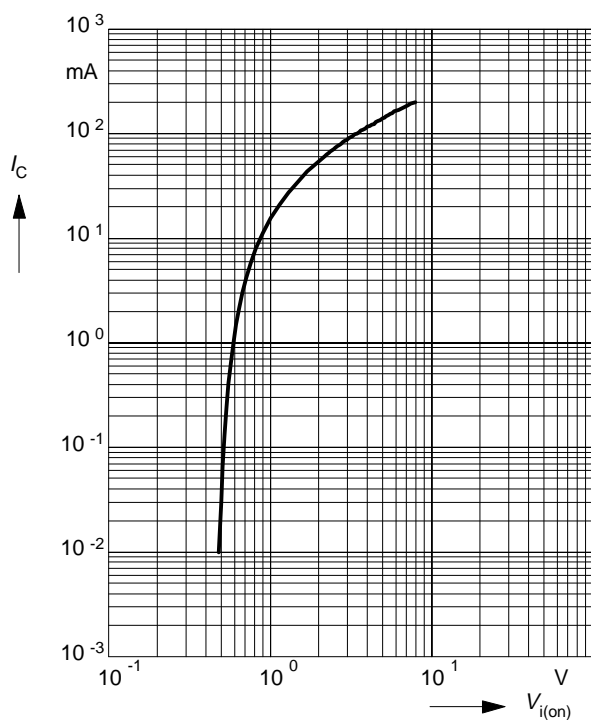
### Collector-Emitter Saturation Voltage

$V_{CEsat} = f(I_C), h_{FE} = 20$



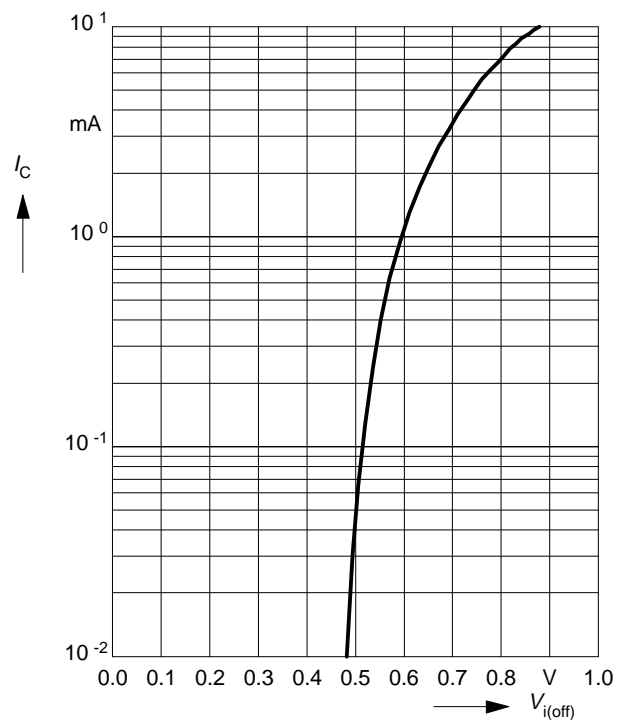
### Input on Voltage $V_{i(on)} = f(I_C)$

$V_{CE} = 0.3V$  (common emitter configuration)



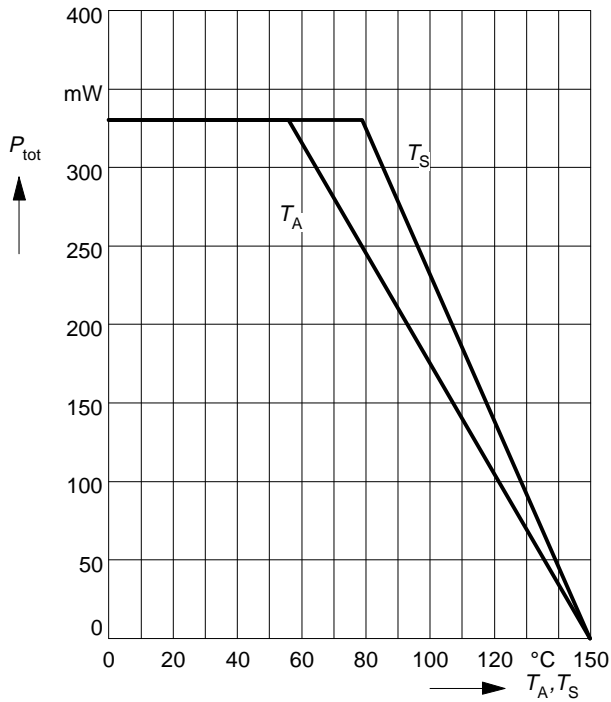
### Input off voltage $V_{i(off)} = f(I_C)$

$V_{CE} = 5V$  (common emitter configuration)

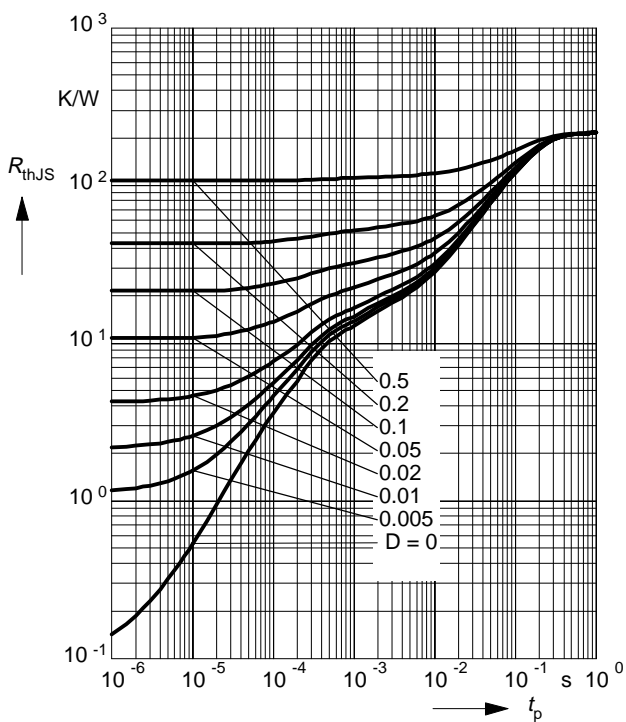


**Total power dissipation  $P_{tot} = f(T_A^*; T_S)$**

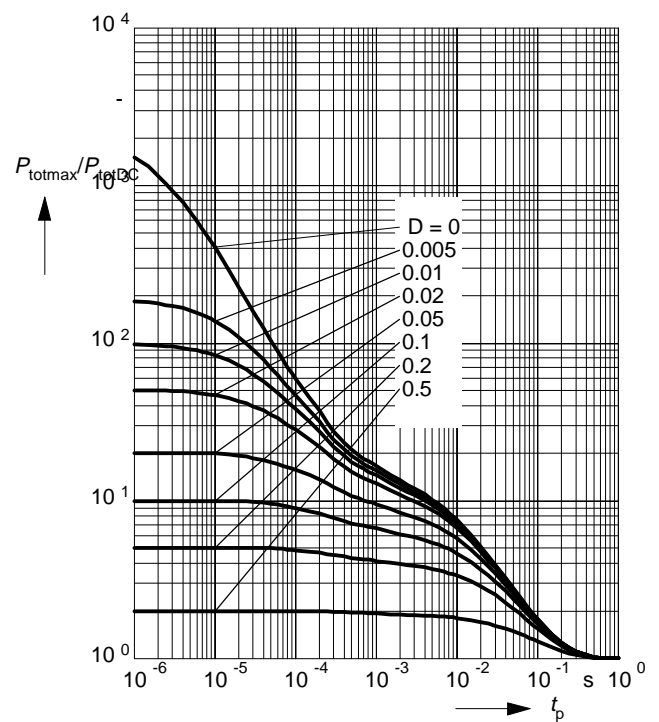
\* Package mounted on epoxy



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



**Permissible Pulse Load  $P_{totmax} / P_{totDC} = f(t_p)$**





LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

[LittleDiode.com](http://LittleDiode.com)

Looking forward to providing you with the best possible service.