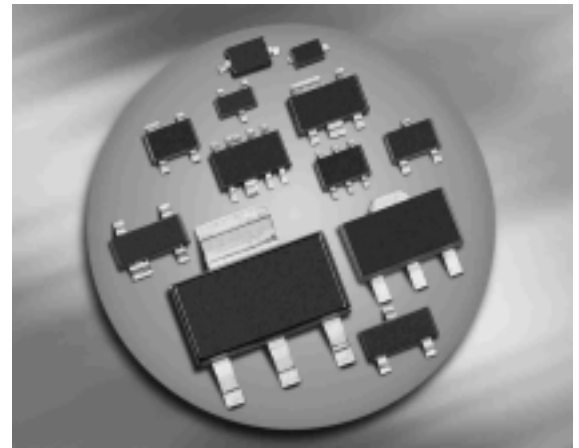
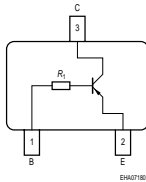


PNP Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ($R_1 = 22\text{ k}\Omega$)
- Pb-free (RoHS compliant) package ¹⁾
- Qualified according AEC Q101


BCR189F


Type	Marking	Pin Configuration						Package
		1=B	2=E	3=C	-	-	-	
BCR189F	W2s	1=B	2=E	3=C	-	-	-	TSFP-3

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	50	V
Collector-base voltage	V_{CBO}	50	
Input forward voltage	$V_{i(fwd)}$	60	
Input reverse voltage	$V_{i(rev)}$	5	
Collector current	I_C	100	mA
Total power dissipation BCR189F, $T_S \leq 128^\circ\text{C}$	P_{tot}	250	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ²⁾ , BCR189F	R_{thJS}	≤ 90	K/W

¹Pb-containing package may be available upon special request

²For 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.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 100\ \mu\text{A}, I_B = 0$	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10\ \mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	50	-	-	
Collector-base cutoff current $V_{CB} = 40\ \text{V}, I_E = 0$	I_{CBO}	-	-	100	nA
Emitter-base cutoff current $V_{EB} = 5\ \text{V}, I_C = 0$	I_{EBO}	-	-	-	-
DC current gain ¹⁾ $I_C = 5\ \text{mA}, V_{CE} = 5\ \text{V}$	h_{FE}	120	-	630	
Collector-emitter saturation voltage ¹⁾ $I_C = 10\ \text{mA}, I_B = 0.5\ \text{mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100\ \mu\text{A}, V_{CE} = 5\ \text{V}$	$V_{i(off)}$	0.4	-	0.8	
Input on voltage $I_C = 2\ \text{mA}, V_{CE} = 0.3\ \text{V}$	$V_{i(on)}$	0.5	-	1.1	
Input resistor	R_1	15	22	29	k Ω

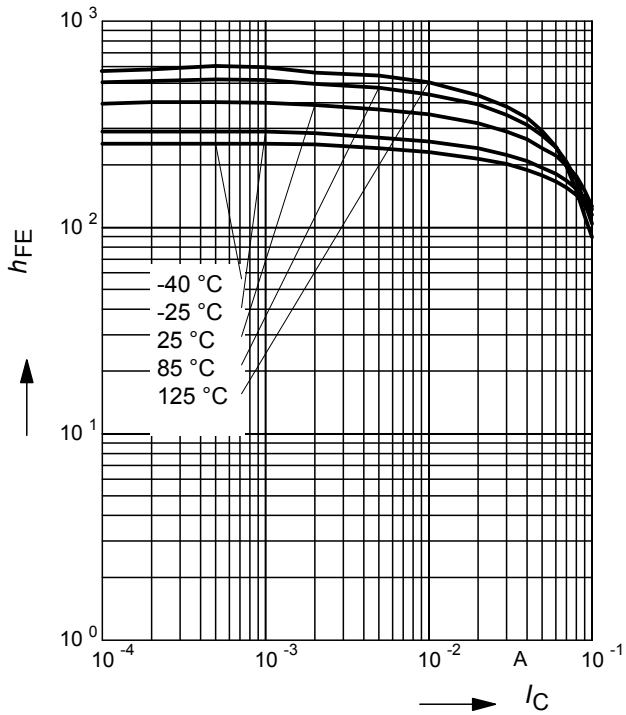
AC Characteristics

Transition frequency $I_C = 10\ \text{mA}, V_{CE} = 5\ \text{V}, f = 100\ \text{MHz}$	f_T	-	200	-	MHz
Collector-base capacitance $V_{CB} = 10\ \text{V}, f = 1\ \text{MHz}$	C_{cb}	-	3	-	pF

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

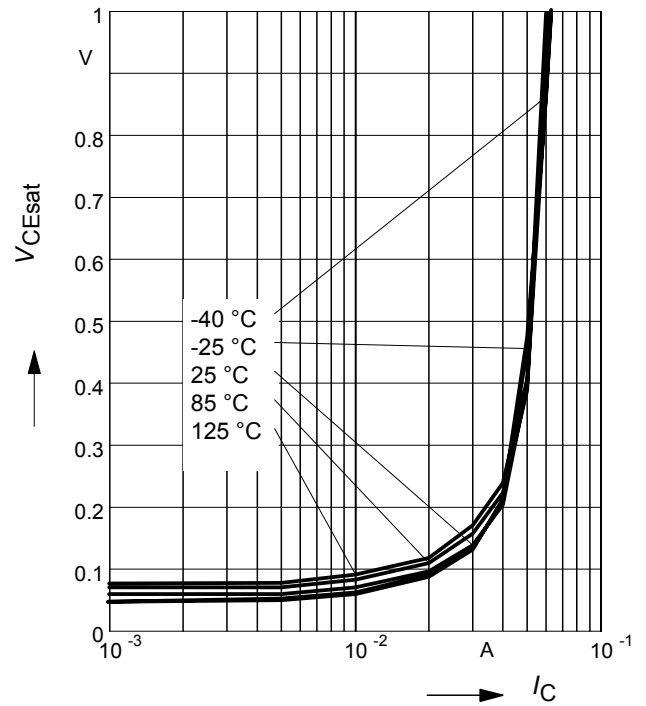
DC current gain $h_{FE} = f(I_C)$

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



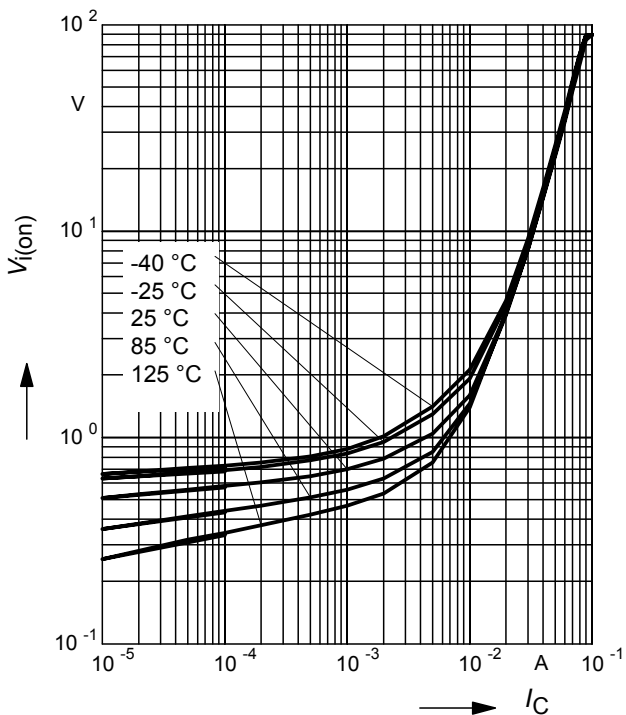
Collector-emitter saturation voltage

$V_{CEsat} = f(I_C), I_C/I_B = 20$



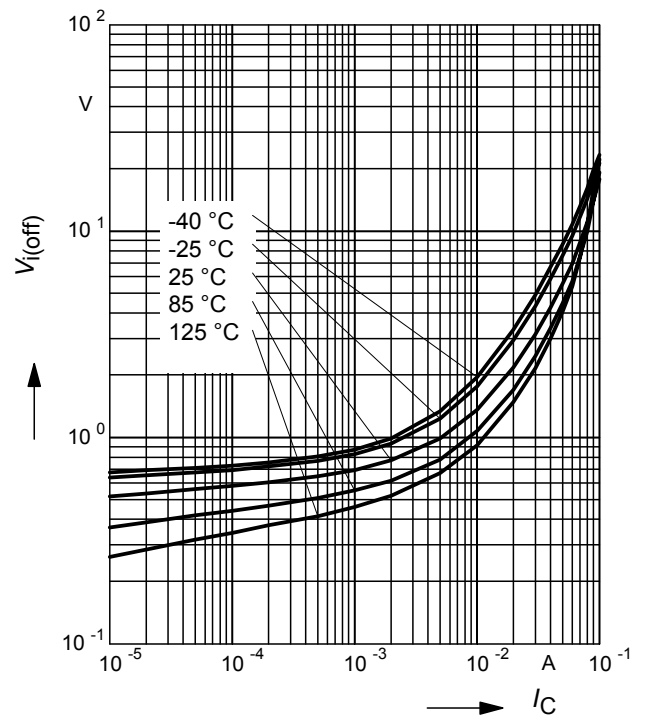
Input on Voltage $V_{i(on)} = f(I_C)$

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



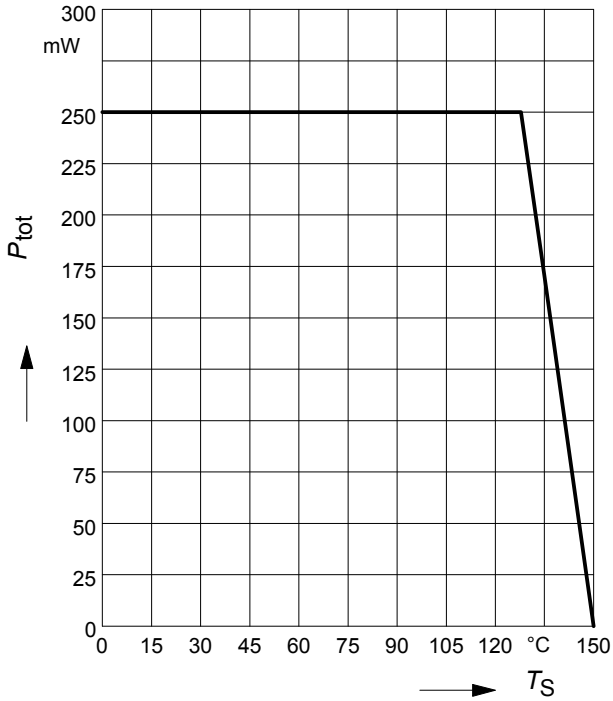
Input off voltage $V_{i(off)} = f(I_C)$

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



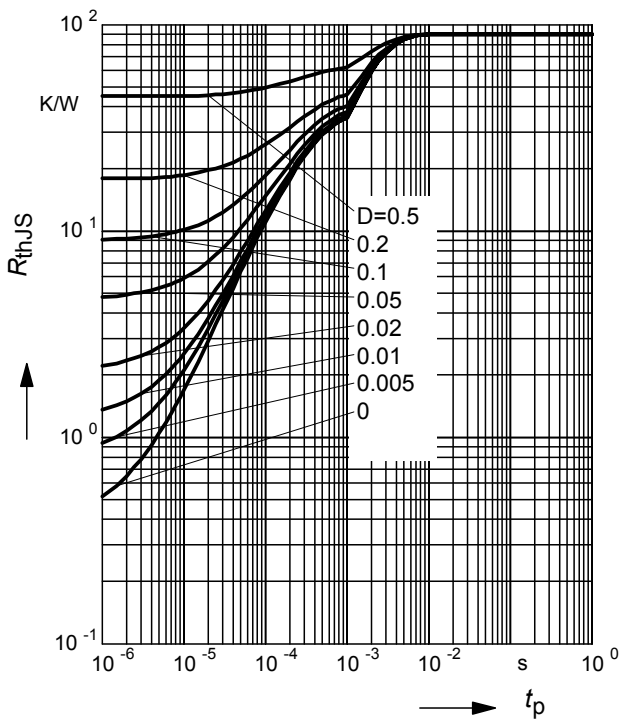
Total power dissipation $P_{tot} = f(T_S)$

BCR189F



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

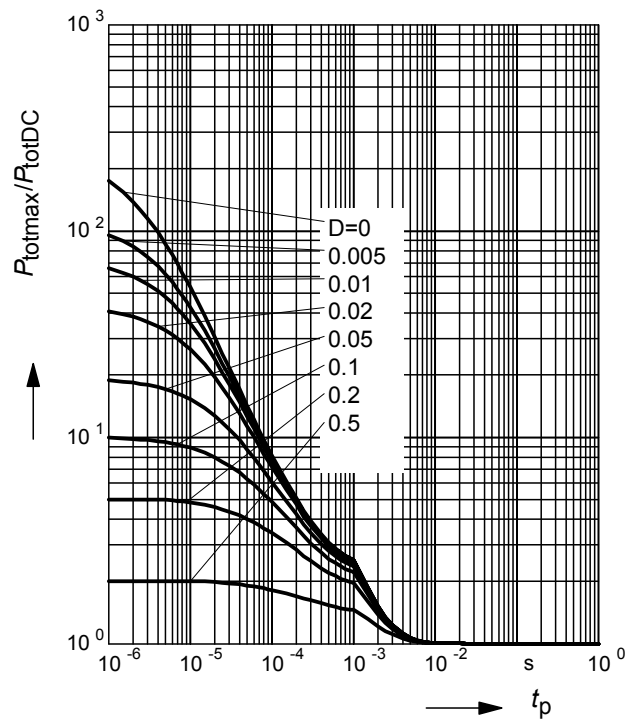
BCR189F



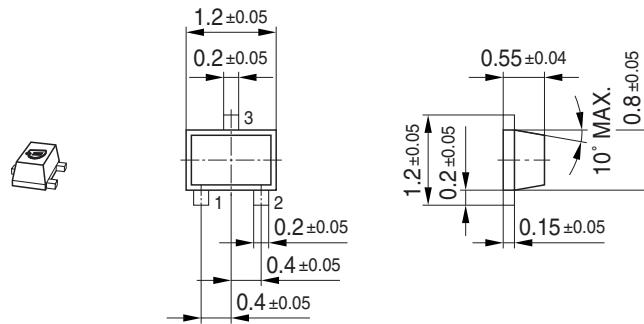
Permissible Pulse Load

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

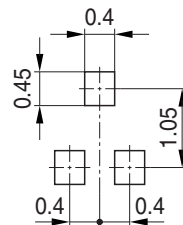
BCR189F



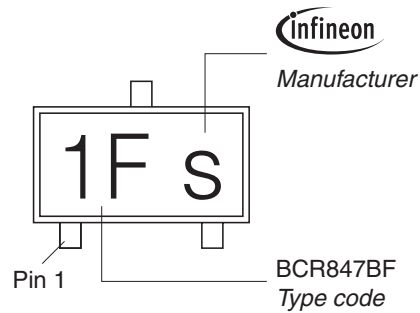
Package Outline



Foot Print

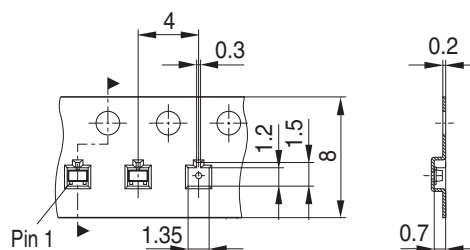


Marking Layout (Example)



Standard Packing

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



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