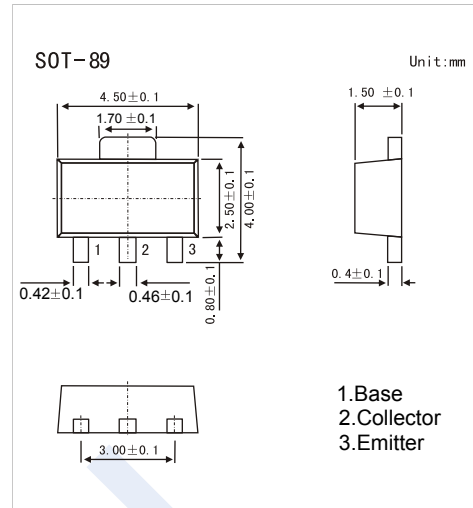


## PNP Transistors

### 2SB1188-HF



#### Features

- Low  $V_{CE(sat)}$ .  
 $V_{CE(sat)} = -0.5V$  (Typ.)  
 $(I_C/I_B = -2A / -0.2A)$
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish

#### Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector-base Voltage	$V_{CBO}$	-40	V
Collector-emitter Voltage	$V_{CEO}$	-32	V
Emitter-base Voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-2	A
	$I_{CP}^*$	-3	A
Collector power dissipation	$P_C$	0.5	W
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$

\*  $PW=100ms$

#### Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$BV_{CBO}$	$I_C = -50 \mu A$	-40			V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = -1mA$	-32			V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = -50 \mu A$	-5			V
Collector cutoff current	$I_{CBO}$	$V_{CB} = -20V$			-1	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = -4V$			-1	$\mu A$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -2A, I_B = -0.2A$		-0.5	-0.8	V
DC current transfer ratio	$h_{FE}$	$V_{CE} = -3V, I_C = -0.5A$	82		390	
Output Capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1MHz$		50		pF
Transition frequency	$f_T$	$V_{CE} = -5V, I_E = 0.5A, f = 30MHz$		100		MHz

#### $h_{FE}$ Classification

Type	2SB1188-P-HF	2SB1188-Q-HF	2SB1188-R-HF
Range	82-180	120-270	180-390
Marking	BCP* <sub>F</sub>	BCQ* <sub>F</sub>	BCR* <sub>F</sub>

## PNP Transistors 2SB1188-HF

### ■ Typical Characteristics

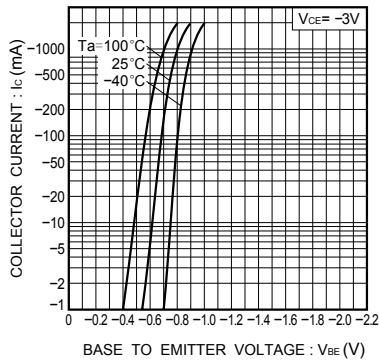


Fig.1 Grounded emitter propagation characteristics

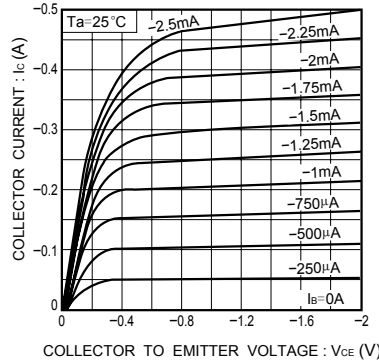


Fig.2 Grounded emitter output characteristics

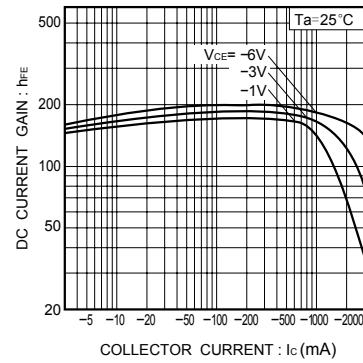


Fig.3 DC current gain vs. collector current (I)

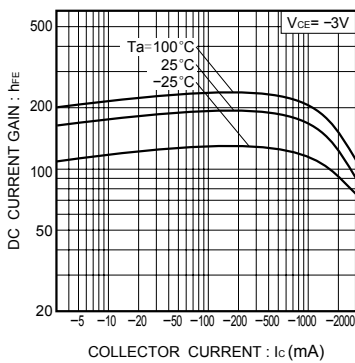


Fig.4 DC current gain vs. collector current (II)

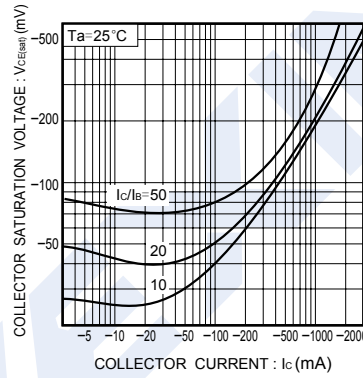


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

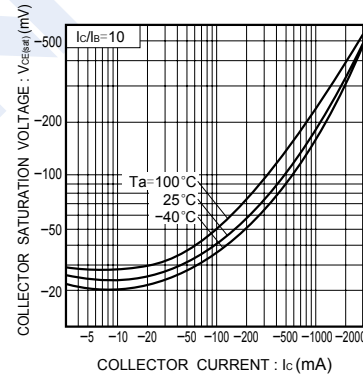


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

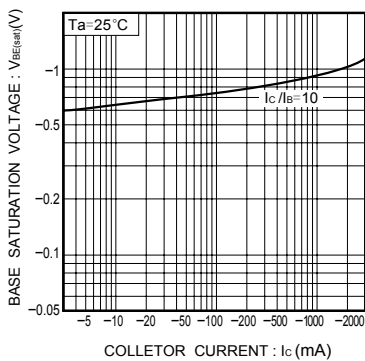


Fig.7 Base-emitter saturation voltage vs. collector current

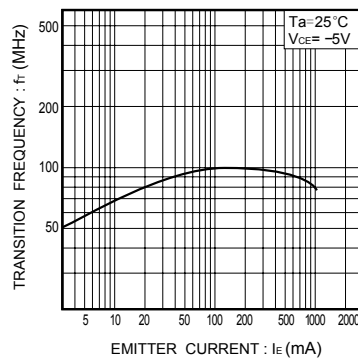


Fig.8 Gain bandwidth product vs. emitter current

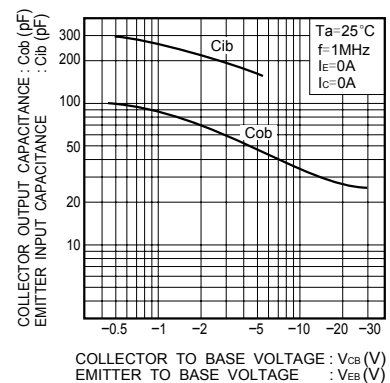


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

## PNP Transistors

### 2SB1188-HF

#### ■ Typical Characteristics

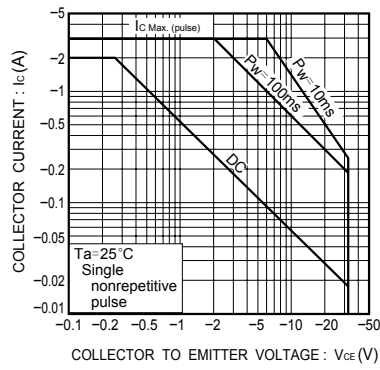


Fig.10 Safe operation area