

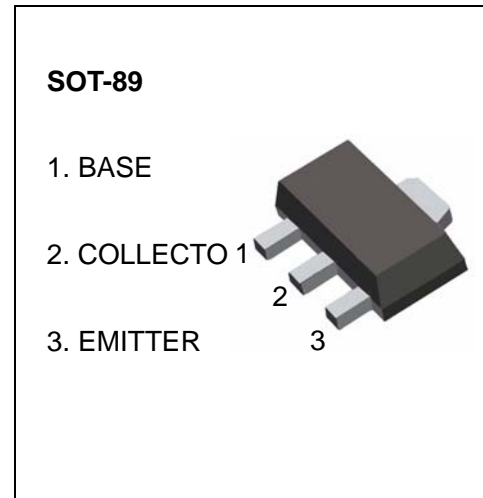
# TRANSISTOR(PNP)

## FEATURES

- Low  $V_{CE(sat)}$ .
- Complements the 2SD1766

### MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	-40	V
$V_{CEO}$	Collector-Emitter Voltage	-32	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current -Continuous	-2	A
$P_C$	Collector Power Dissipation	500	mW
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^{\circ}\text{C}$



### ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-50\mu\text{A}$ , $I_E=0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}$ , $I_B=0$	-32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-50\mu\text{A}$ , $I_C=0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-20\text{V}$ , $I_E=0$			-1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-4\text{V}$ , $I_C=0$			-1	$\mu\text{A}$
DC current gain *	$h_{FE}$	$V_{CE}=-3\text{V}$ , $I_C=-0.5\text{A}$	82		390	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C=-2\text{A}$ , $I_B=-0.2\text{A}$			-0.8	V
Transition frequency	$f_T$	$V_{CE}=-5\text{V}$ , $I_C=-0.5\text{A}$ , $f=30\text{MHz}$		100		MHz
Output capacitance	$C_{ob}$	$V_{CB}=-10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$		50		pF

\* Measured using pulse current.

### CLASSIFICATION OF $h_{FE}$

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	BCP	BCQ	BCR

# Typical Characteristics

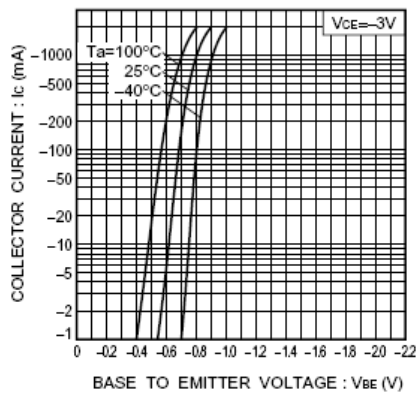


Fig.1 Grounded emitter propagation characteristics

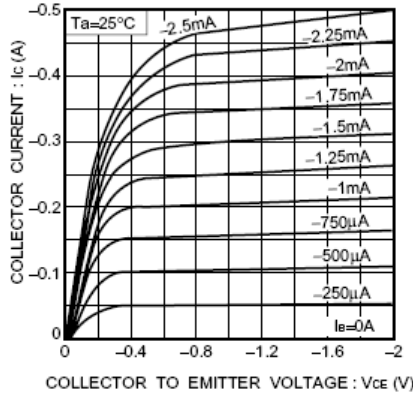


Fig.2 Grounded emitter output characteristics

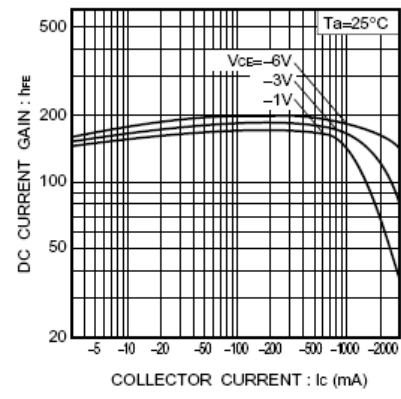


Fig.3 DC current gain vs. collector current ( I )

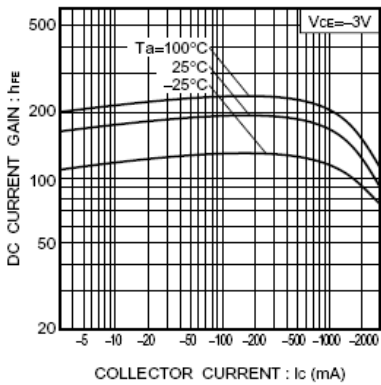


Fig.4 DC current gain vs. collector current ( II )

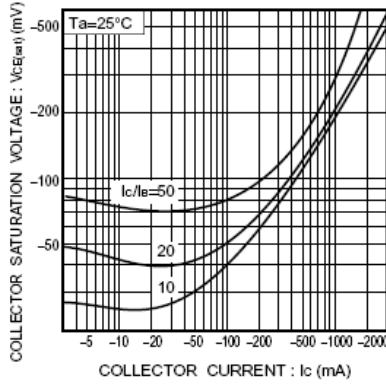


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

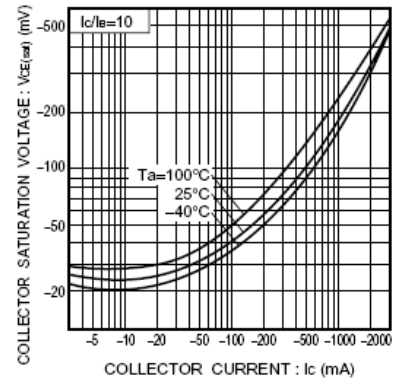


Fig.6 Collector-emitter saturation voltage vs. collector current ( II )

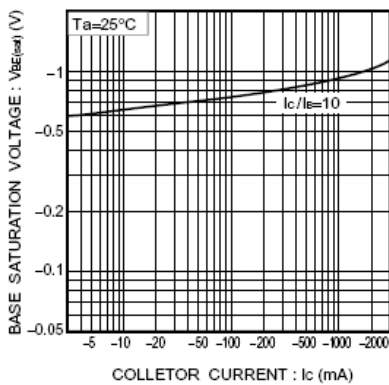


Fig.7 Base-emitter saturation voltage vs. collector current

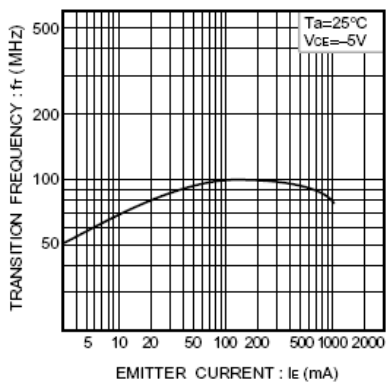


Fig.8 Gain bandwidth product vs. emitter current

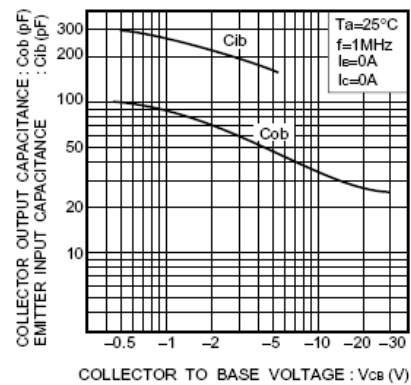


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

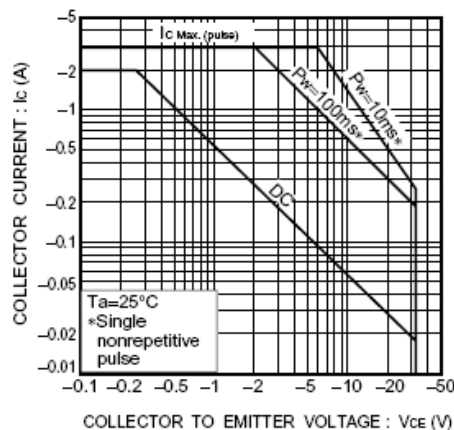


Fig.10 Safe operation area (2SB1188)