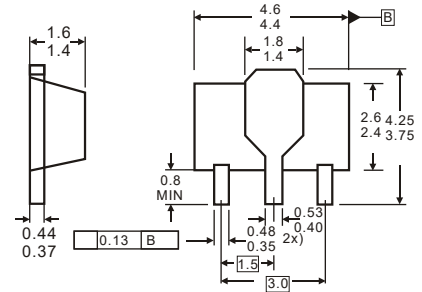


1. BASE
2. COLLECTOR
3. EMITTER

SOT-89



Dimensions in inches and (millimeters)

Features

- ✧ High breakdown voltage
- ✧ Complements to 2SD1767

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-80	V
V_{CEO}	Collector-Emitter Voltage	-80	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-0.7	A
P_C	Collector Power Dissipation	0.5	W
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	$V_{(BR)CBO}$	$I_C=-50\mu\text{A}, I_E=0$	-80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-2\text{mA}, I_B=0$	-80			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}	$V_{CB}=-50\text{V}, I_E=0$			-0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0$			-0.5	μA
DC current gain	h_{FE}	$V_{CE}=-3\text{V}, I_C=-100\text{mA}$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$			-0.4	V
Transition frequency	f_T	$V_{CE}=-10\text{V}, I_C=-50\text{mA}, f=100\text{MHz}$		100		MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$			20	pF

CLASSIFICATION OF h_{FE}

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	BDP	BDQ	BDR

Typical Characteristics

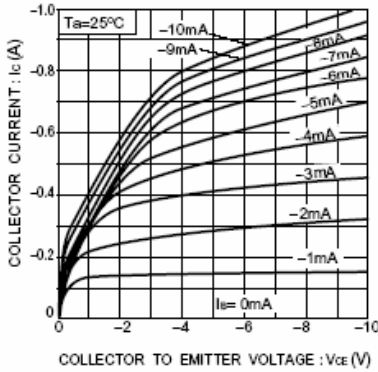


Fig.1 Ground emitter output characteristics

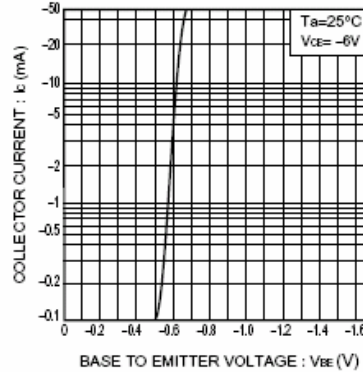


Fig.2 Ground emitter propagation characteristics

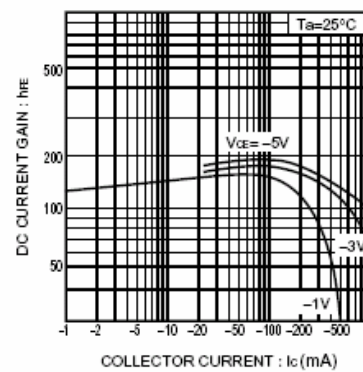


Fig.3 DC current gain vs. collector current

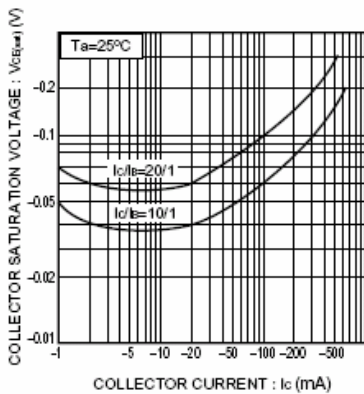


Fig.4 Collector-emitter saturation voltage vs. collector current

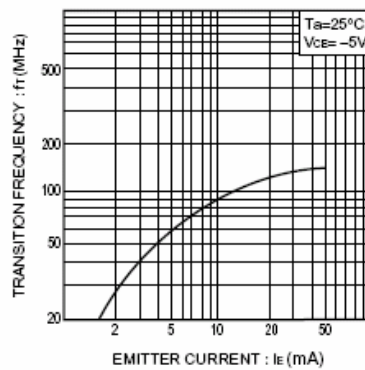


Fig.5 Gain bandwidth product vs. emitter current

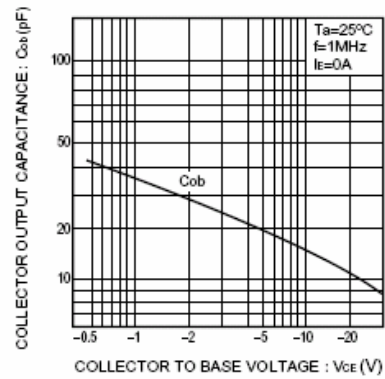


Fig.6 Collector output capacitance vs. collector-base voltage

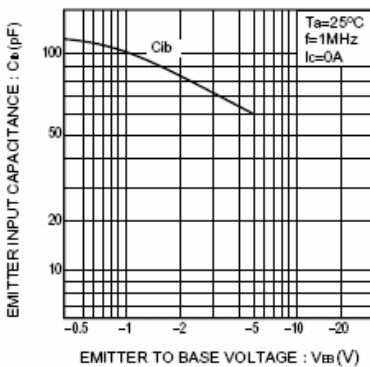


Fig.7 Emitter input capacitance vs. emitter-base voltage

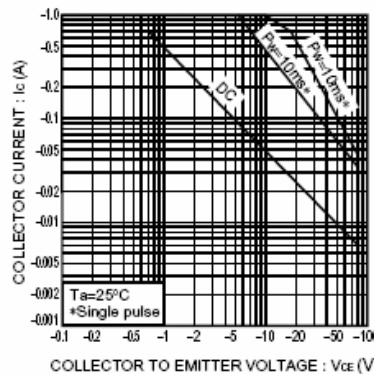


Fig.8 Safe operating area (2SB1189)

Package	Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
SOT -89	1000pcs	7inch	10,000pcs	203×203×195	40,000pcs	438×438×220