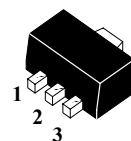


PNP EPITAXIAL PLANAR TRANSISTOR

 Lead(Pb)-Free

1. BASE
2. COLLECTOR
3. EMITTER



SOT-89

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

Parameter	Symbol	Value	Units
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current -Continuous	I_C	-1	A
Collector Power dissipation	P_C	500	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55-150	$^{\circ}\text{C}$

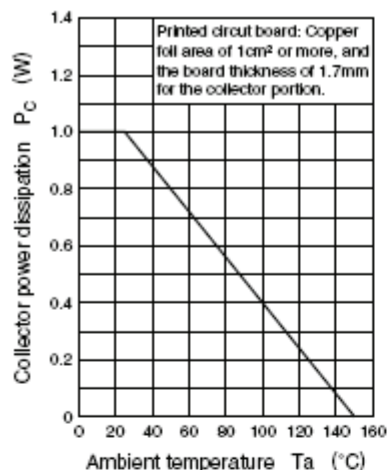
ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}$, $I_E=0$	-60	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-2\text{mA}$, $I_B=0$	-50	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}$, $I_C=0$	-5	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB}=-20\text{V}$, $I_E=0$	-	-	-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-4\text{V}$, $I_C=0$	-	-	-0.1	μA
DC current gain	h_{FE1}	$V_{CE}=-10\text{V}$, $I_C=-500\text{mA}$	85	-	340	
DC current gain	h_{FE2}	$V_{CE}=-5\text{V}$, $I_C=-1\text{A}$	50	-	-	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$	-	-0.2	-0.4	V
Collector-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$	-	-0.85	-1.2	V
Transition frequency	f_T	$V_{CE}=-10\text{V}$, $I_C=-50\text{mA}$, $f=200\text{MHz}$	-	200	-	MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}$, $I_E=0$, $f=1\text{MHz}$	-	20	30	pF

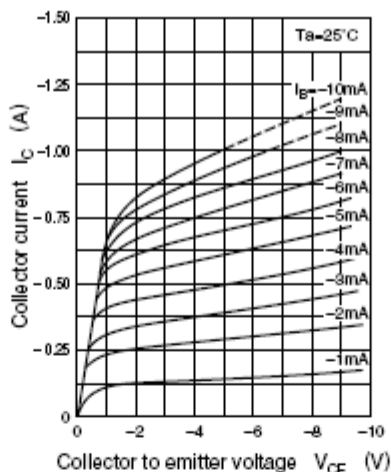
CLASSIFICATION OF h_{FE}

Rank	Q	R	S
Range	85-170	120-240	170-340
Marking	BQ	BR	BS

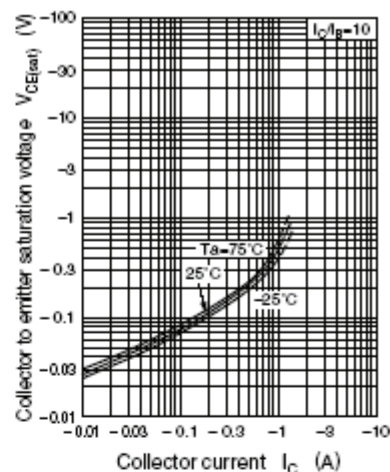
$P_C - T_a$



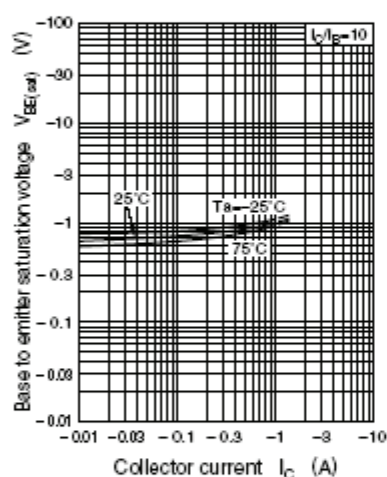
$I_C - V_{CE}$



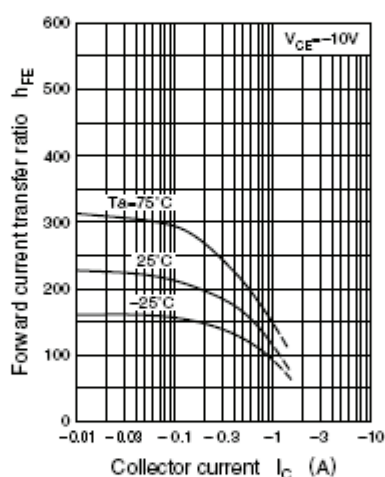
$V_{CE(sat)} - I_C$



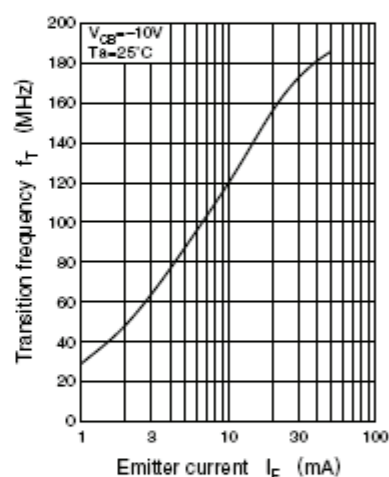
$V_{BE(sat)} - I_C$



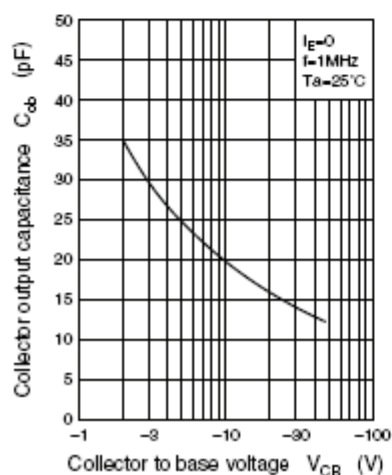
$h_{FE} - I_C$



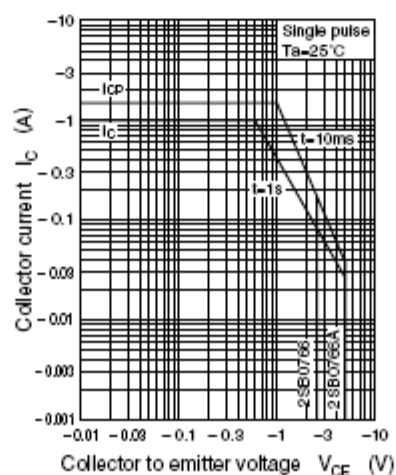
$f_T - I_E$



$C_{ob} - V_{CB}$

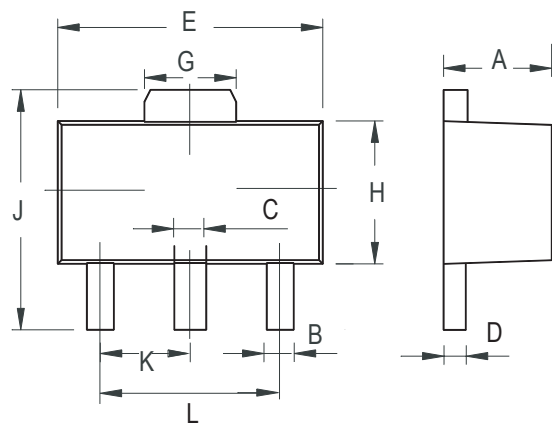


Area of safe operation (ASO)



SOT-89 Outline Dimensions

unit:mm



SOT-89		
Dim	Min	Max
A	1.400	1.600
B	0.320	0.520
C	0.360	0.560
D	0.350	0.440
E	4.400	4.600
G	1.400	1.800
H	2.300	2.600
J	3.940	4.250
K	1.500TYP	
L	2.900	3.100