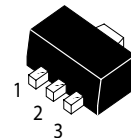


Epitaxial Planar NPN Transistors

Pb Lead(Pb)-Free

SOT-89



1. BASE
2. COLLECTOR
3. EMITTER

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Rating	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	100	V _{dc}
Collector-Emitter Voltage	V _{CEO}	80	V _{dc}
Emitter-Base Voltage	V _{EB0}	5	V _{dc}
Collector Current	I _C	1	A(DC)
	I _{CP}	2	A (Pulse)*
Collector Power Dissipation	P _C	0.5	W
Junction Temperature, Storage Temperature	T _j , T _{stg}	150, -55 to +150	°C

* Single pulse P_w = 20ms

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

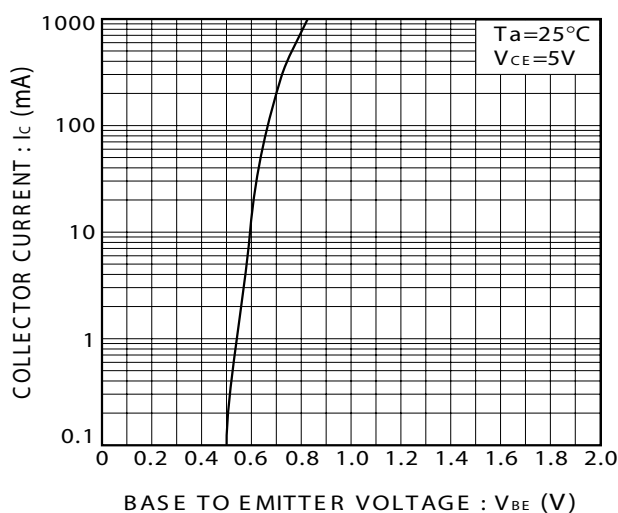
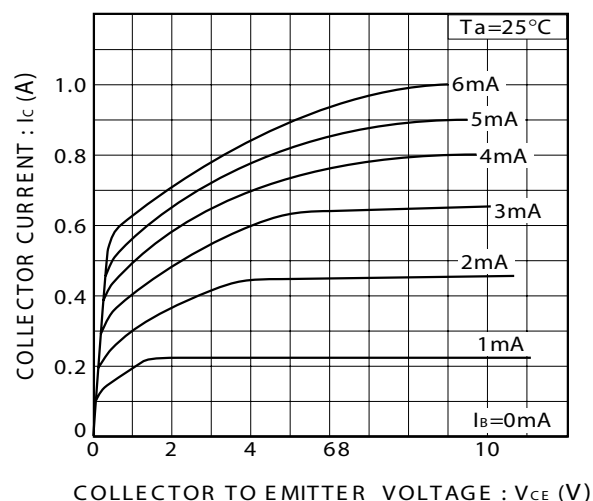
Parameter	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage(I _C =100uA)	BV _{CB0}	100	-	-	V
Collector-Emitter Breakdown Voltage(I _C =1mA)	BV _{CEO}	80	-	-	V
Emitter-Base Breakdown Voltage(I _E =100uA)	BV _{EB0}	5	-	-	V
Collector Cutoff Current(V _{CB} =80V)	I _{CB0}	-	-	1	uA
Emitter Cutoff Current(V _{EB} =4V)	I _{EBO}	-	-	1	uA

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

Parameter	Symbol	Min	Typ	Max	Unit
DC Current Gain ($V_{CE}=3\text{V}$, $I_C=500\text{mA}$)	h_{FE}	70	-	400	-
Collector-Emitter Saturation Voltage ($I_C=500\text{mA}$, $I_B=20\text{mA}$)	$V_{CE(sat)}$	-	-	0.4	V
Transition Frequency ($V_{CE}=10\text{V}$, $I_C=50\text{mA}$, $f=100\text{MHz}$)	f_T	-	100	-	MHz
Output Capacitance ($V_{CB}=10\text{V}$, $I_E=0\text{A}$, $f=1\text{MHz}$)	Cob	-	20	-	pF

CLASSIFICATION OF h_{FE}

Marking	ZO	ZY	ZG
Rank	O	Y	GR
Range	70-140	120-240	200-400

ELECTRICAL CHARACTERISTIC CURVES

FIG.1 Grounded Emitter Propagation Characteristics

FIG.2 Grounded Emitter Output Characteristics

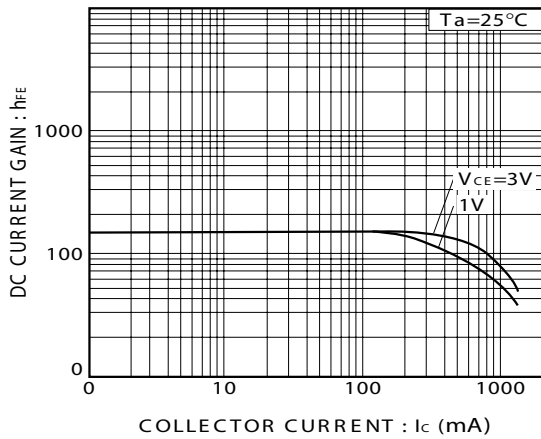


FIG.3 DC Current Gain vs. Collector Current

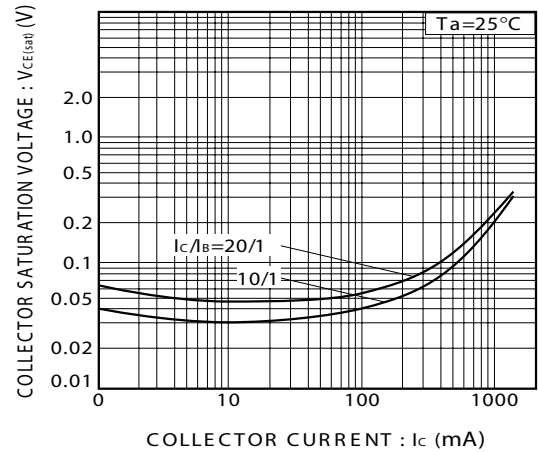


FIG.4 Collector-Emitter Saturation Voltage vs. Collector Current

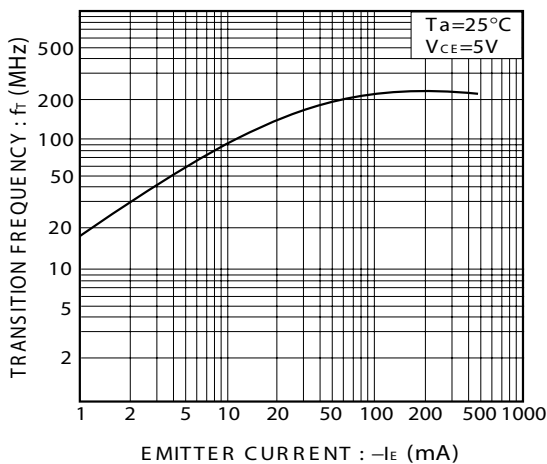
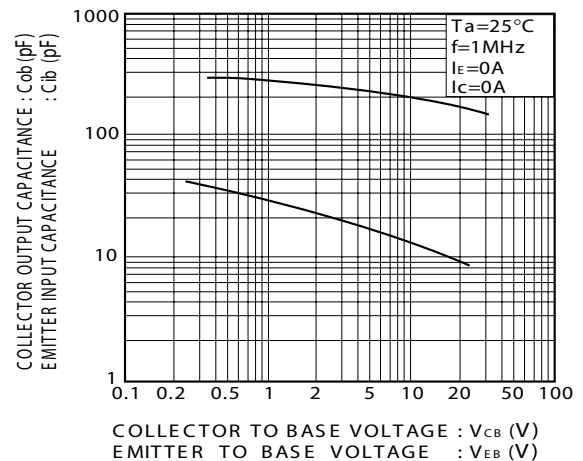


FIG.5 Gain Bandwidth Product vs. Emitter Current



**FIG.6 Collector Output Capacitance vs. Collector-Base Voltage
Emitter Input Capacitance vs. Emitter-Base Voltage**

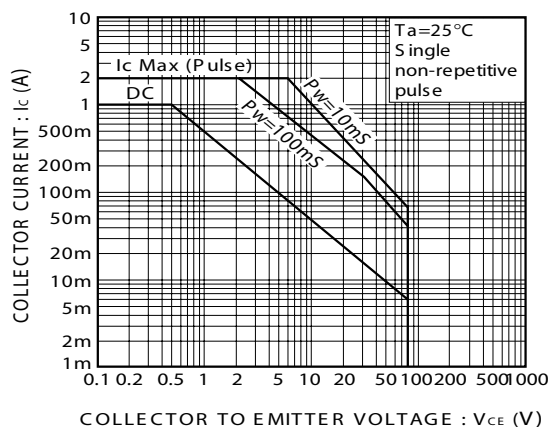
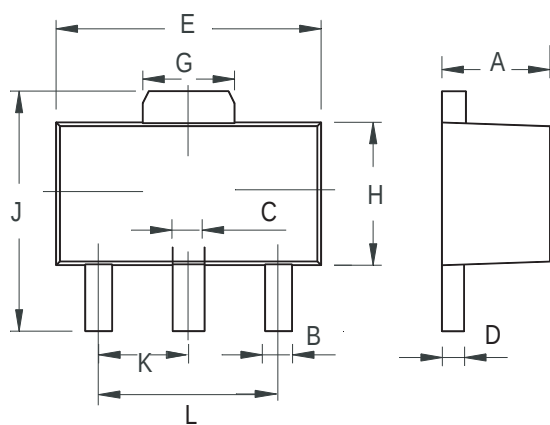


FIG.7 Safe Operating Area

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