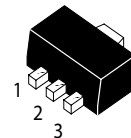


Epitaxial Planar NPN Transistors

(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	Vdc
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Emitter-Base Voltage	V_{EB0}	5	Vdc
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($I_C=50\mu A, I_E=0$)	BV_{CB0}	100	-	-	V
Collector-Emitter Breakdown Voltage($I_C=1mA, I_B=0$)	BV_{CEO}	80	-	-	V
Emitter-Base Breakdown Voltage($I_E=50\mu A, I_C=0$)	BV_{EB0}	5	-	-	V
Collector Cutoff Current($V_{CB}=80V, I_E=0$)	I_{CBO}	-	-	1	μA
Emitter Cutoff Current($V_{EB}=4V, I_C=0$)	I_{EBO}	-	-	1	μA

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

Parameter	Symbol	Min	Typ	Max	Unit
DC Current Gain ($V_{CE}=3\text{V}$, $I_C=500\text{mA}$)	h_{FE}	82	-	390	-
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 ($V_{CB}=10\text{V}$, $I_E=0\text{A}$, $f=1\text{MHz}$)	C_{ob}	-	20	-	pF

CLASSIFICATION OF h_{FE}

Marking	DF		
Rank	P	Q	R
Range	82-180	120-270	180-390

ELECTRICAL CHARACTERISTIC CURVES

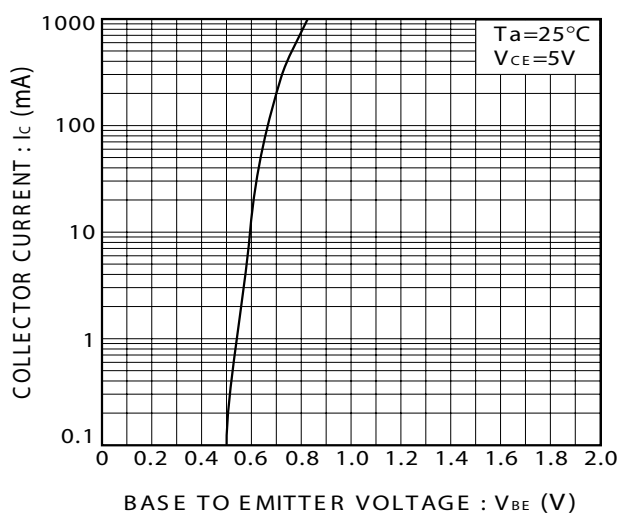


FIG.1 Grounded Emitter Propagation Characteristics

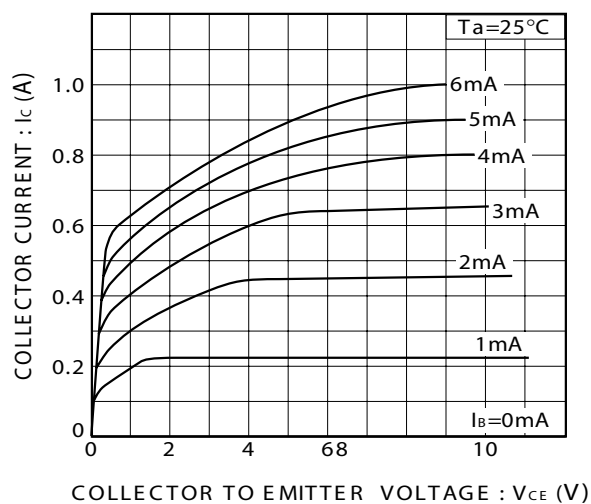


FIG.2 Grounded Emitter Output Characteristics

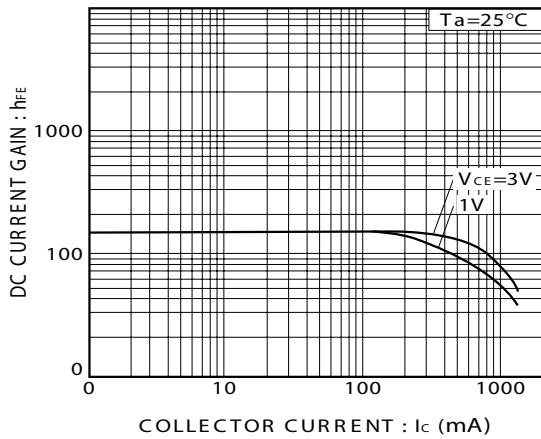


FIG.3 DC Current Gain vs. Collector Current

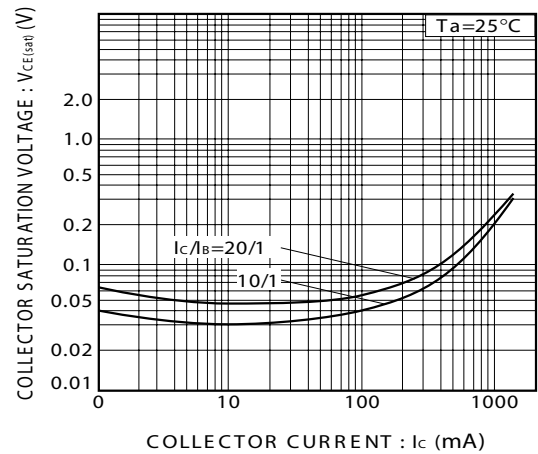


FIG.4 Collector-Emitter Saturation Voltage vs. Collector Current

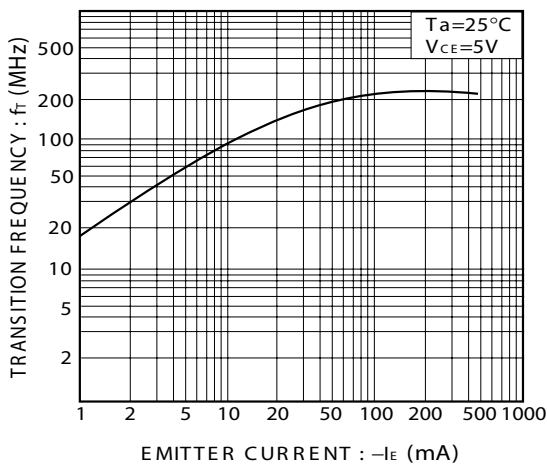
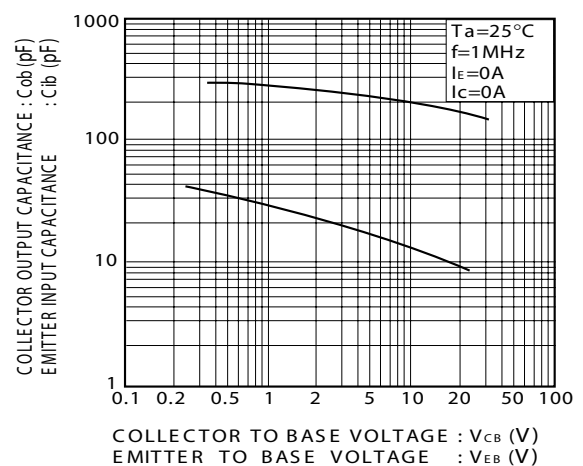


FIG.5 Gain Bandwidth Product vs. Emitter Current



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

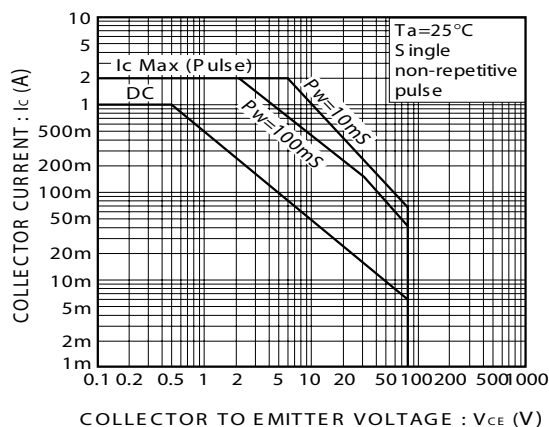
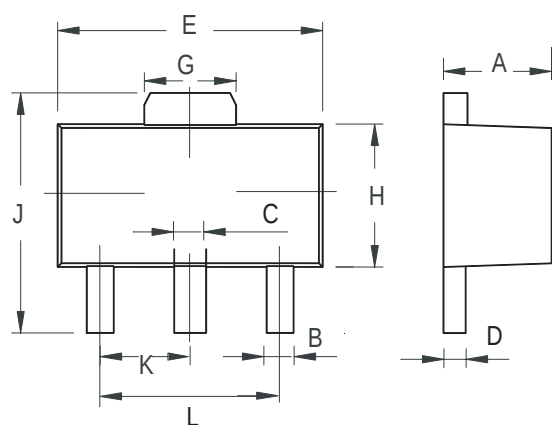


FIG.7 Safe Operating Area

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