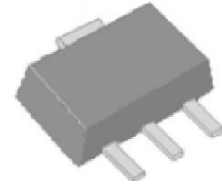


SOT-89

Features

- ✧ Low $V_{CE(sat)}$: -0.2V(Typ) $I_C/I_B=-500mA/-50mA$
- ✧ Compliments 2SD1664

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

1Base 2Collector 3Emitter

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	-1	A
P_C	Collector Power Dissipation	500	mW
T_J	Junction Temperature	-55-150	$^{\circ}C$
T_{stg}	Storage Temperature	-55-150	$^{\circ}C$

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-50\mu A, I_E=0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1mA, I_B=0$	-32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-50\mu A, I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-20V, I_E=0$			-0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-4V, I_C=0$			-0.5	μA
DC current gain	h_{FE}	$V_{CE}=-3V, I_C=-100mA$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-500mA, I_B=-50mA$		-0.2	-0.5	V
Transition frequency	f_T	$V_{CE}=-5V, I_C=-50mA, f=30MHz$		150		MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10V, I_E=0, f=1MHz$		20	30	pF

CLASSIFICATION OF h_{FE}

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	BAP	BAQ	BAR

Typical Characteristics

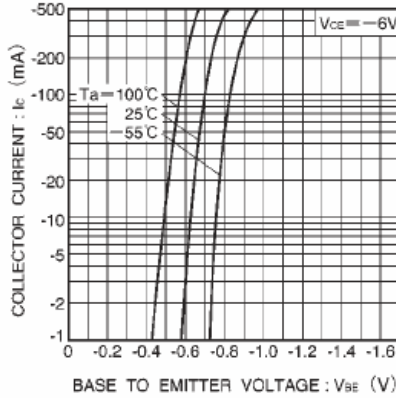


Fig.1 Grounded emitter propagation characteristics

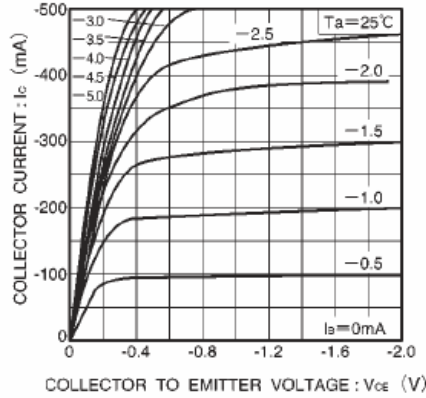


Fig.2 Grounded emitter output characteristics

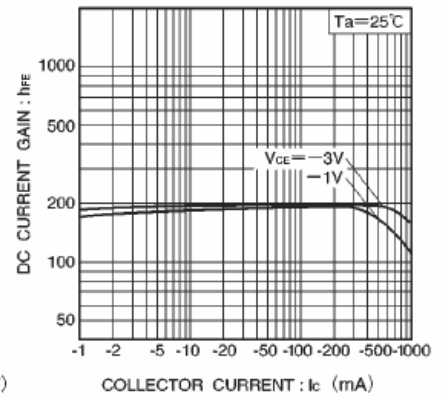


Fig.3 DC current gain vs. collector current (I)

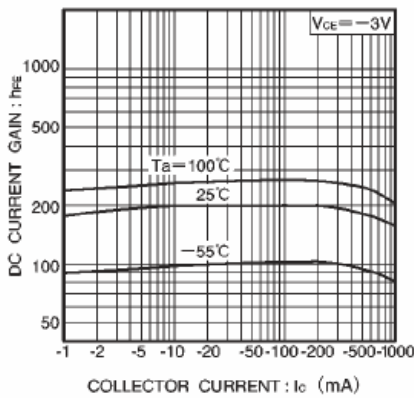


Fig.4 DC current gain vs. collector current (II)

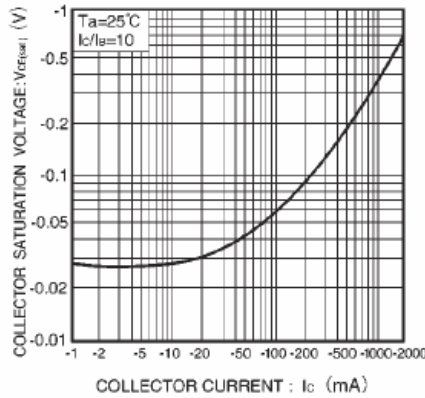


Fig.5 Collector-emitter saturation voltage vs. collector current

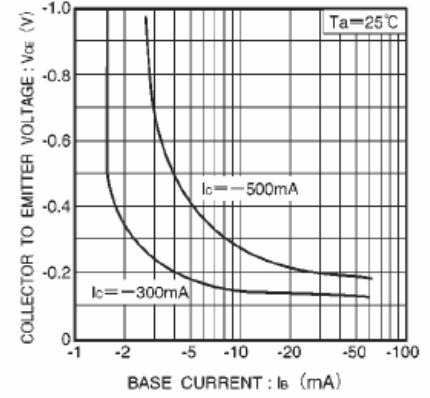


Fig.6 Collector-emitter saturation voltage vs. base current

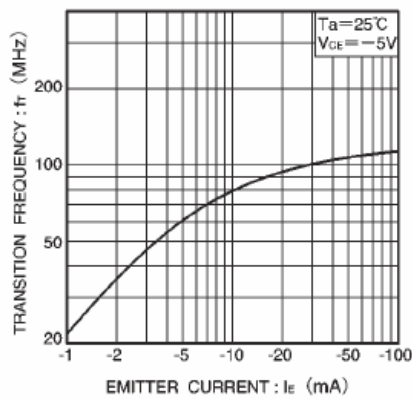


Fig.7 Gain bandwidth product vs. emitter current

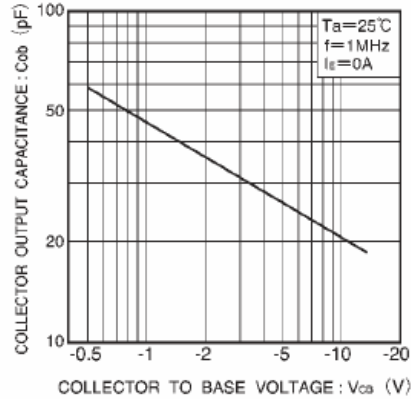


Fig.8 Collector output capacitance vs. collector-base voltage

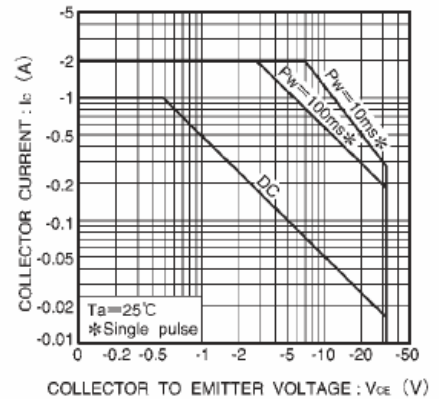


Fig.9 Safe operation area

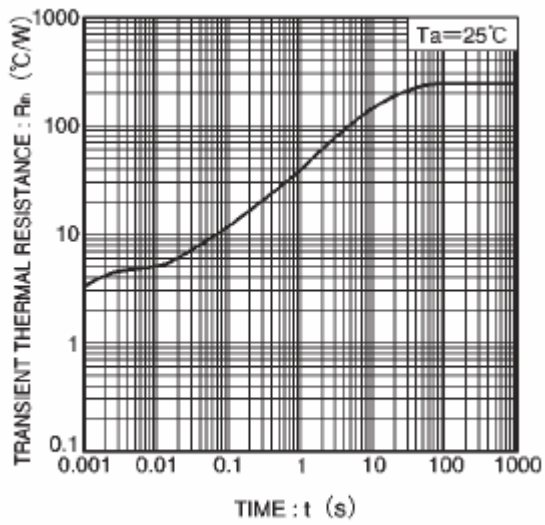
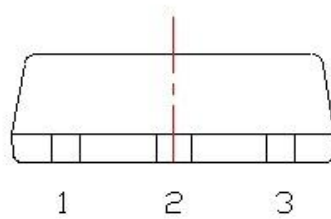
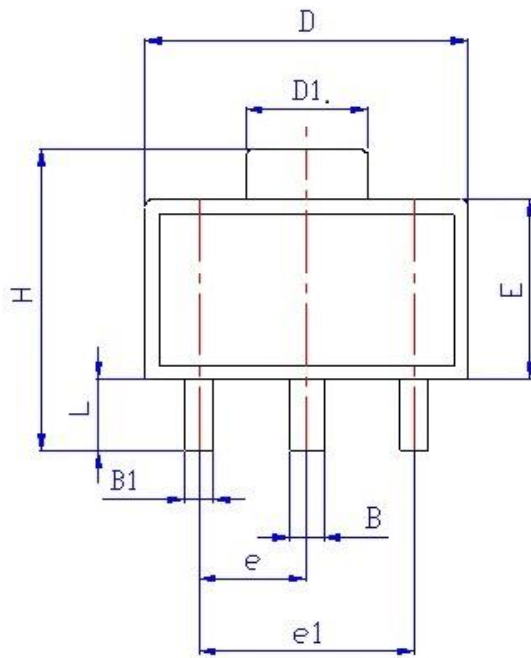


Fig.10 Transient thermal resistance



- 1 BASE
- 2 COLLECTOR
- 3 EMITTER

DIM	MILLIMETERS	
	MIN.	MAX.
A	1.40	1.60
B	0.46	0.56
B1	0.36	0.48
C	0.35	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
E1	---	---
e	1.50REF	
e1	3.00REF	
H	3.94	4.25
L	0.89	1.20

SOT-89(TO-243)