

RoHS Compliant Product

**FEATURES**

Power dissipation

$P_{CM} : 500\text{mW}$  ( $T_{amb}=25^{\circ}\text{C}$ )

Collector current

$I_{CM} : -3 \text{ A}$

Collector-base voltage

$V_{B(BR)CBO} : -40 \text{ V}$

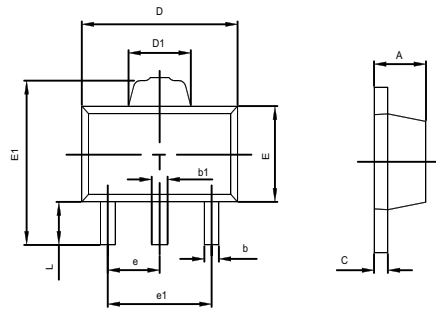
Operating and storage junction temperature range

$T_J, T_{stg} : -55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$

**SOT-89**



- 1.BASE
- 2.COLLECTOR
- 3.EMITTER



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.360	0.560	0.014	0.022
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043

**ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}\text{C}$  unless otherwise specified) CLASSIFICATION OF  $h_{FE(1)}$**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100 \mu\text{A}$ , $I_E=0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10 \text{mA}$ , $I_B=0$	-30			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-100 \mu\text{A}$ , $I_C=0$	-6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-40 \text{V}$ , $I_E=0$			-1	$\mu\text{A}$
Collector cut-off current	$I_{CEO}$	$V_{CE}=-30 \text{V}$ , $I_B=0$			-10	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-6 \text{V}$ , $I_C=0$			-1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=-2 \text{V}$ , $I_C=-1 \text{A}$	60		400	
	$h_{FE(2)}$	$V_{CE}=-2 \text{V}$ , $I_C=-100 \text{mA}$	32			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-2 \text{A}$ , $I_B=-0.2 \text{A}$			-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-2 \text{A}$ , $I_B=-0.2 \text{A}$			-1.5	V
Transition frequency	$f_T$	$V_{CE}=-5 \text{V}$ , $I_C=-0.1 \text{A}$ $f = 10 \text{MHz}$	50			MHz

**CLASSIFICATION OF  $h_{FE(1)}$**

Rank	R	O	Y	GR
Range	60-120	100-200	160-320	200-400

RATING AND CHARACTERISTIC CURVES

Fig.1 Static characteristics

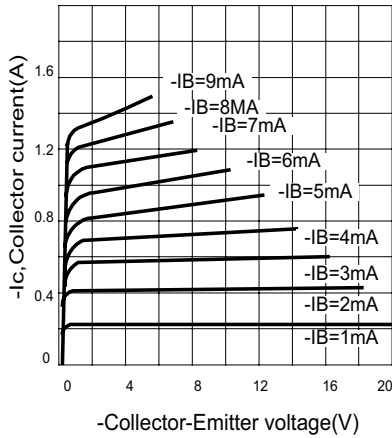


Fig.2 Derating curve of safe operating areas

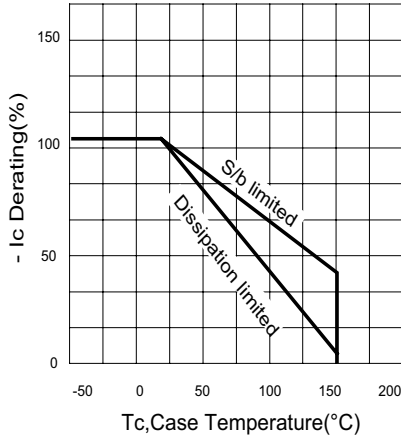


Fig.3 Power Derating

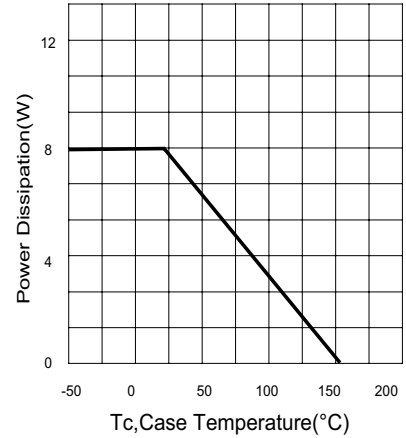


Fig.4 Collector Output capacitance

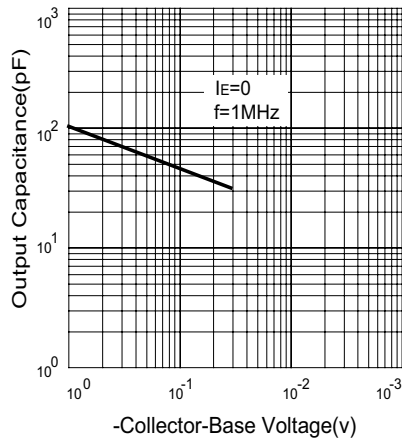


Fig.5 Current gain-bandwidth product

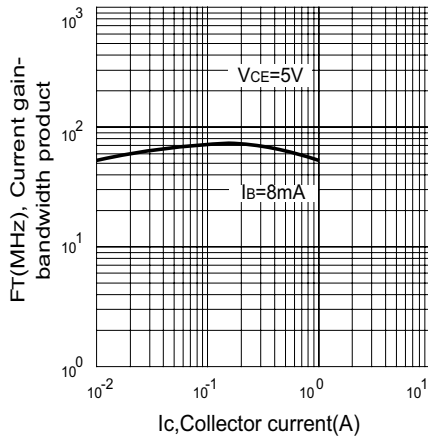


Fig.6 Safe operating area

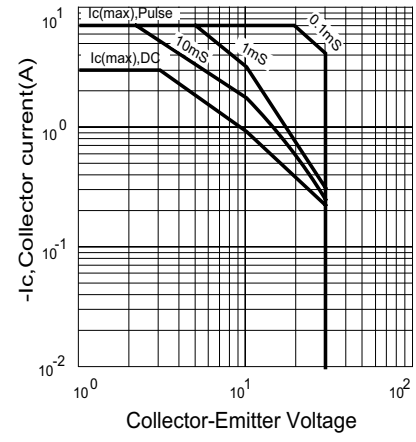


Fig.7 DC current gain

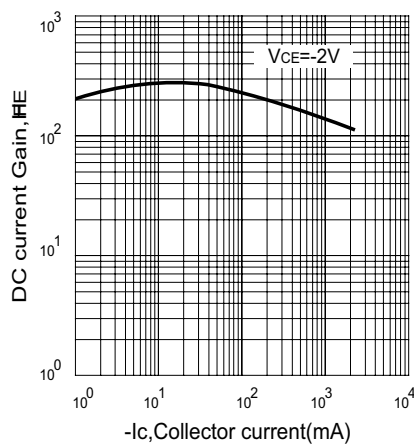


Fig.8 Saturation Voltage

