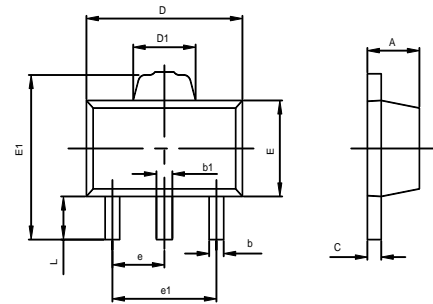


RoHS Compliant Product

Features

- 1) Low $V_{CE(sat)}$.
- 2) Excellent DC current gain characteristics
- 3) Complements the 2SD2098

SOT-89



Absolute maximum ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	-30	V
Collector-emitter voltage	V_{CEO}	-20	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_c	-5	A(DC)
		-10	A(Pulse) *1
Collector power dissipation	P_c	0.5	W
		2	W *2
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~+150	$^\circ\text{C}$

*1 Single pulse, $P_w=10\text{ms}$

*2 When mounted on a $40\times 40\times 0.7\text{ mm}$ ceramic board.

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 ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CB0}	-30	-	-	V	$I_c=-50\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	-20	-	-	V	$I_c=-1\text{mA}$
Emitter-base breakdown voltage	BV_{EBO}	-6	-	-	V	$I_E=-50\mu\text{A}$
Collector cutoff current	I_{cB0}	-	-	-0.5	μA	$V_{CB}=-20\text{V}$
Emitter cutoff current	I_{EB0}	-	-	-0.5	μA	$V_{EB}=-5\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	-1.0	V	$I_c/I_B=-4A/-0.1A$ *
DC current transfer ratio	h_{FE}	82	-	390	-	$V_{CE}=-2\text{V}$, $I_c=-0.5\text{A}$ *
Transition frequency	f_T	-	120	-	MHz	$V_{CE}=-6\text{V}$, $I_E=50\text{mA}$, $f=30\text{MHz}$
Output capacitance	C_{ob}	-	60	-	pF	$V_{CB}=-20\text{V}$, $I_E=0\text{A}$, $f=1\text{MHz}$

*Measured using pulse current.

h_{FE} values are classified as follows :

Rank	P	Q	R
h_{FE}	82~180	120~270	180~390

● Electrical characteristic curves

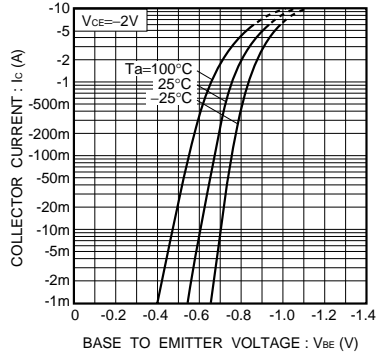


Fig.1 Grounded emitter propagation characteristics

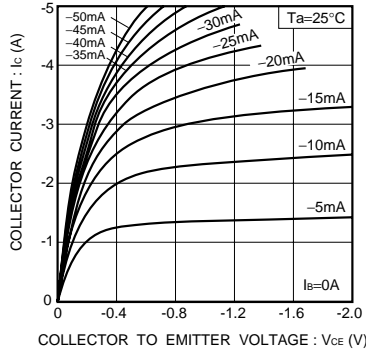


Fig.2 Grounded emitter output characteristics

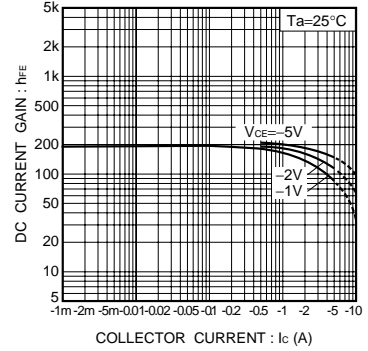


Fig.3 DC current gain vs. collector current (I)

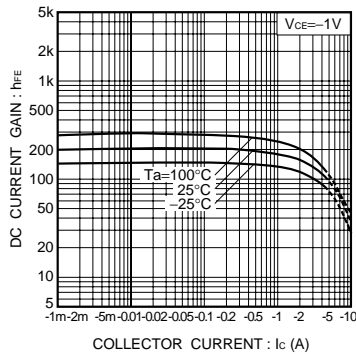


Fig.4 DC current gain vs. collector current (II)

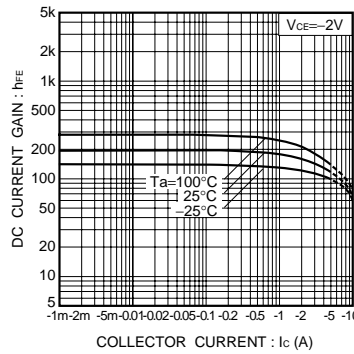


Fig.5 DC current gain vs. collector current (III)

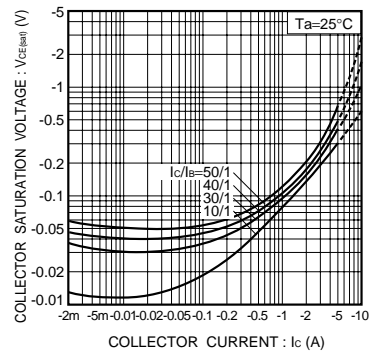


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

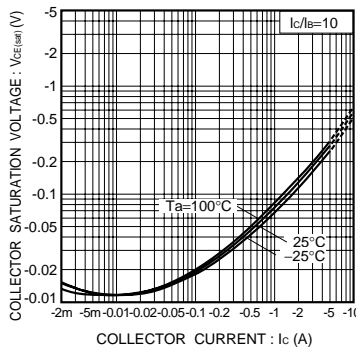


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

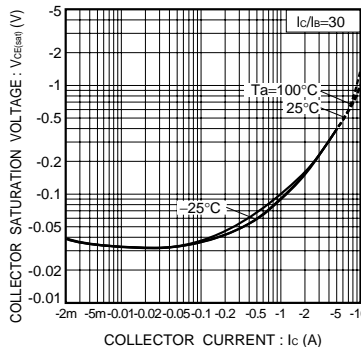


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

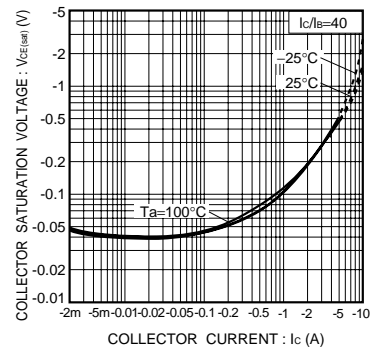


Fig.9 Collector-emitter saturation voltage vs. collector current (IV)

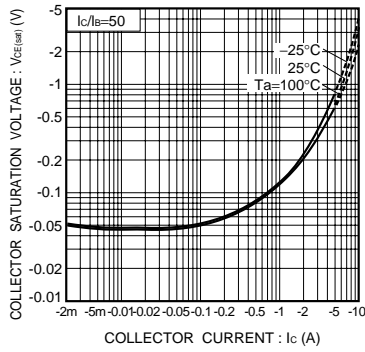


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

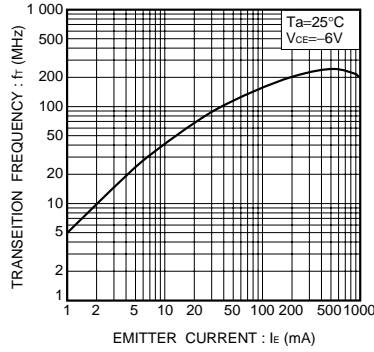


Fig.11 Gain bandwidth product vs. emitter current

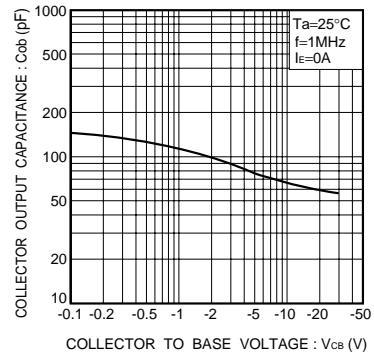


Fig.12 Collector output capacitance vs. collector-base voltage

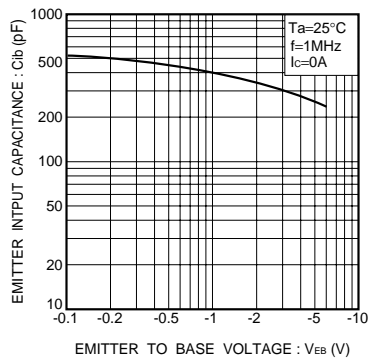


Fig.13 Emitter input capacitance vs. emitter-base voltage