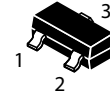
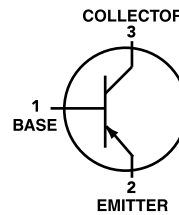


### PNP General Purpose Transistors

 Lead(Pb)-Free



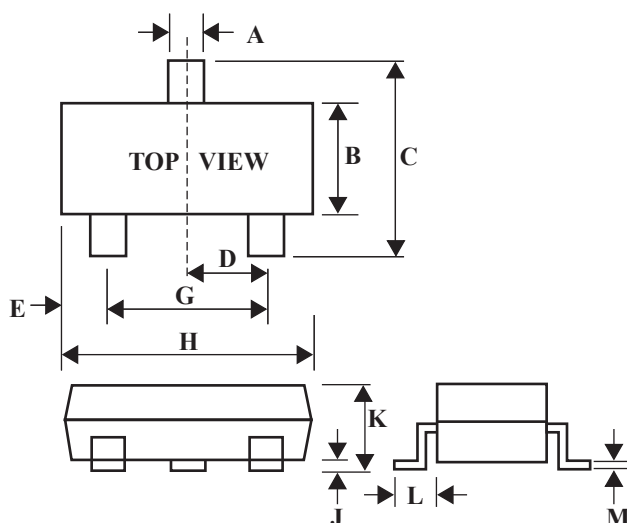
**SOT-323**

### MAXIMUM RATINGS(T<sub>a</sub>=25°C)

Rating	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-50	V
Emitter-Base Voltage	V <sub>EBO</sub>	-6.0	V
Collector Current - Continuous	I <sub>C</sub>	-150	mA
Total Device Dissipation T <sub>A</sub> =25°C	P <sub>D</sub>	200	mW
Junction Temperature	T <sub>j</sub>	+150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

### SOT-323 Outline Dimension

Unit:mm



SOT-323		
Dim	Min	Max
A	0.30	0.40
B	1.15	1.35
C	2.00	2.40
D	-	0.65
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.00	0.10
K	0.80	1.00
L	0.42	0.53
M	0.10	0.25

## ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage $I_C = -50\mu A, I_E = 0A$	$V_{(BR)CBO}$	-60	-	-	V
Collector-Emitter Breakdown Voltage $I_C = -1mA, I_B = 0A$	$V_{(BR)CEO}$	-50	-	-	V
Emitter-Base Breakdown Voltage $I_E = -50\mu A, I_C = 0A$	$V_{(BR)EBO}$	-6.0	-	-	V
Collector Cutoff Current $V_{CB} = -60V, I_E = 0A$	$I_{CBO}$	-	-	-0.1	$\mu A$
Emitter Cutoff Current $V_{EB} = -6V, I_C = 0A$	$I_{EBO}$	-	-	-0.1	$\mu A$

## ON CHARACTERISTICS

Collector-Emitter Saturation Voltage $I_C = -50mA, I_B = -5mA$	$V_{CE(sat)}$	-	-	-0.5	V
DC Current Transfer Ration $V_{CE} = -6V, I_C = -1mA$	$h_{FE}$	120	-	560	

## SMALL-SIGNAL CHARACTERISTICS

Transition frequency $V_{CE} = -12V, I_C = -2mA, f = 30MHz$	$f_T$	-	140	-	MHz
Collector output capacitance $V_{CB} = -12V, I_E = 0mA, f = 1MHz$	$C_{ob}$	-	4	5	pF

CLASSIFICATION  $h_{FE}$ 

Rank	Q	R	S
Range	120-270	180-390	270-560
Marking	FQ	FR	FS

## Electrical characteristic curves

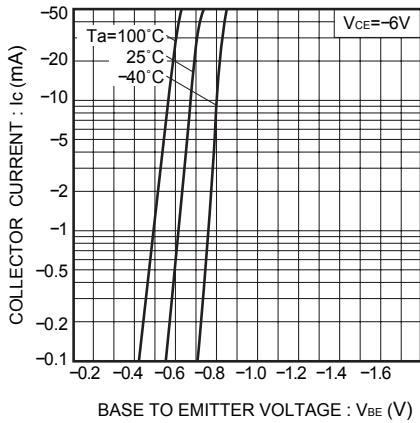


Fig.1 Grounded emitter propagation characteristics

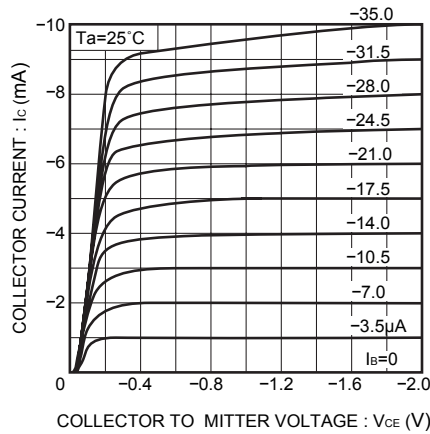


Fig.2 Grounded emitter output characteristics (I)

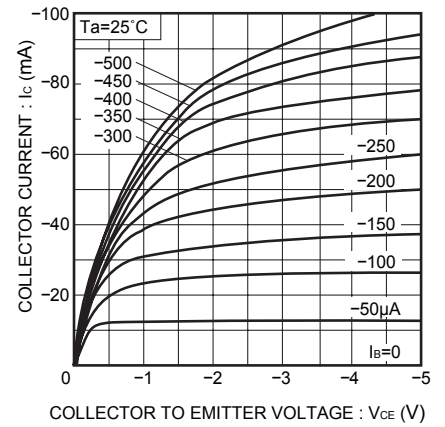


Fig.3 Grounded emitter output characteristics (II)

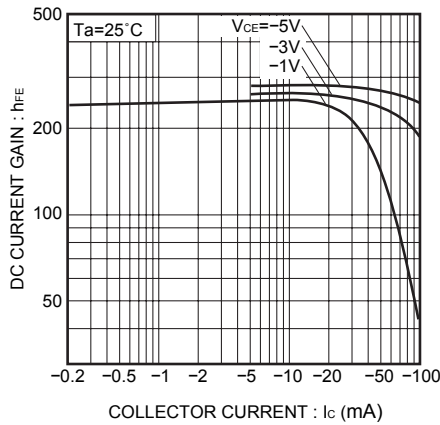


Fig.4 DC current gain vs. collector current (I)

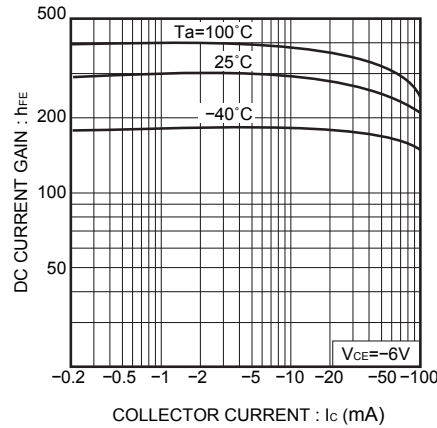


Fig.5 DC current gain vs. collector current (II)

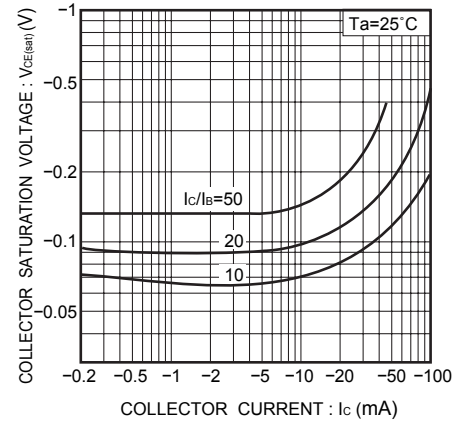


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

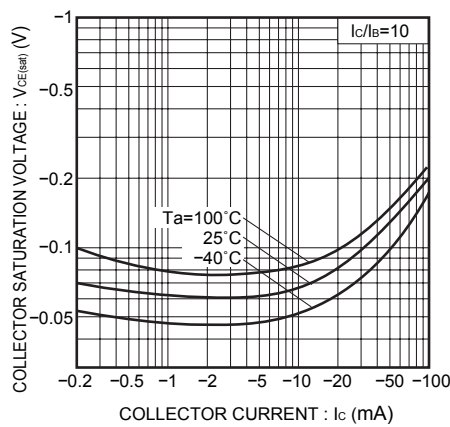


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

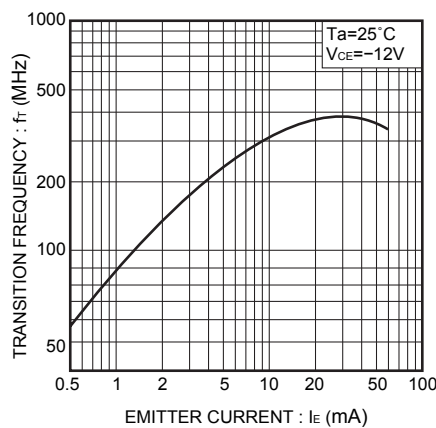


Fig.8 Gain bandwidth product vs. emitter current

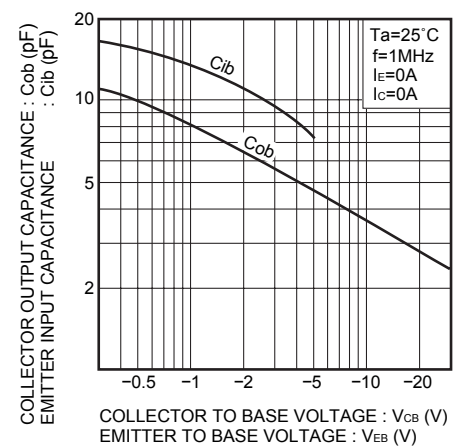


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage