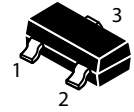
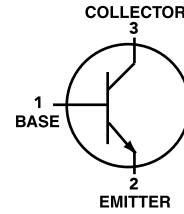


NPN General Purpose Transistors

 Lead(Pb)-Free



SOT-23

MAXIMUM RATINGS(T_a=25°C)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	50	V
Collector-Base Voltage	V _{CBO}	60	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current - Continuous	I _C	100	mA
Total Device Dissipation T _A =25°C	P _D	200	mW
Junction Temperature	T _j	+150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage $I_C = 1\text{mA}, I_B = 0$	$V_{(BR)CEO}$	50	-	-	V
Collector-Base Breakdown Voltage $I_C = 100\mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	60	-	-	V
Emitter-Base Breakdown Voltage $I_E = 100\mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	5.0	-	-	V
Collector Cutoff Current $V_{CB} = 60\text{V}, I_E = 0$	I_{CBO}	-	-	0.1	μA
Emitter Cutoff Current $V_{EB} = 5\text{V}, I_C = 0$	I_{EBO}	-	-	0.1	μA

ON CHARACTERISTICS

Collector-Emitter Saturation Voltage $I_C = 100\text{mA}, I_B = 10\text{mA}$	$V_{CE(sat)}$	-	-	0.3	V
Base-Emitter Saturation Voltage $I_C = 100\text{mA}, I_B = 10\text{mA}$	$V_{BE(sat)}$	-	-	1.0	V
DC Current Transfer Ratio $V_{CE} = 6\text{V}, I_C = 1\text{mA}$	h_{FE}	90	-	600	

SMALL-SIGNAL CHARACTERISTICS

Transition frequency $V_{CE} = 6\text{V}, I_C = 10\text{mA}$	f_T	-	250	-	MHz
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CLASSIFICATION h_{FE}

Rank	L4	L5	L6	L7
Range	90-180	135-270	200-400	300-600
Marking	L4	L5	L6	L7

Electrical characteristic curves

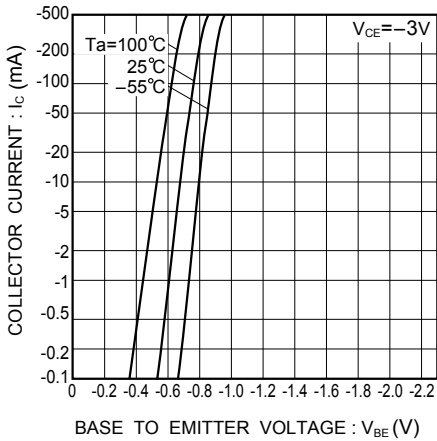


Fig.1 Grounded emitter propagation

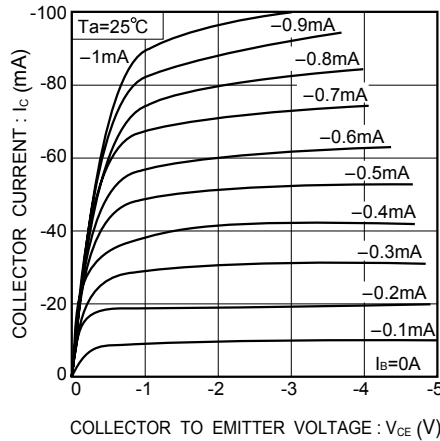


Fig.2 Grounded emitter output characteristics (I)

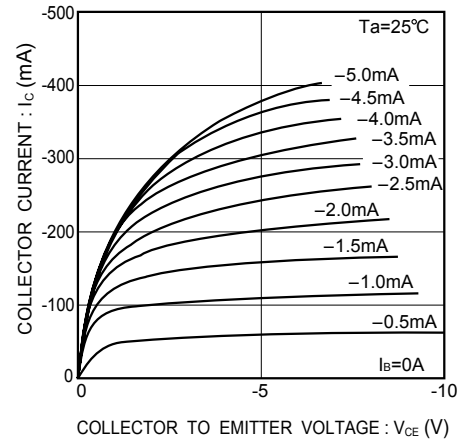


Fig.3 Ground emitter output characteristics (II)

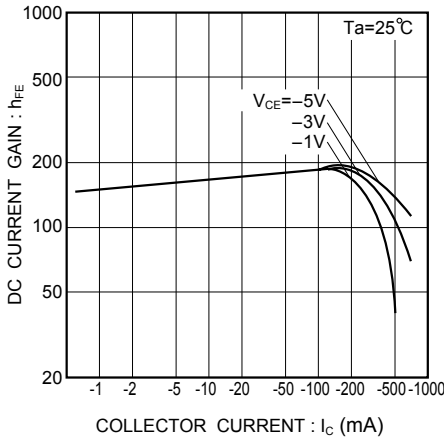


Fig.4 DC current gain vs collector current (I)

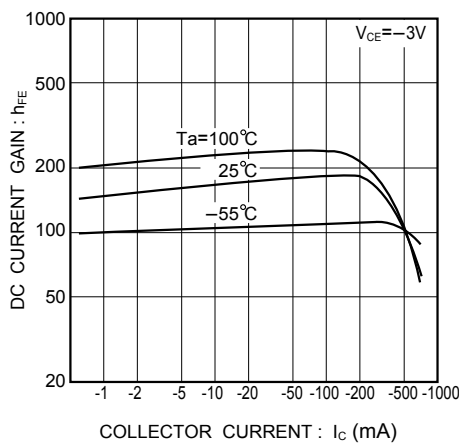


Fig.5 DC current gain vs. collector current (II)

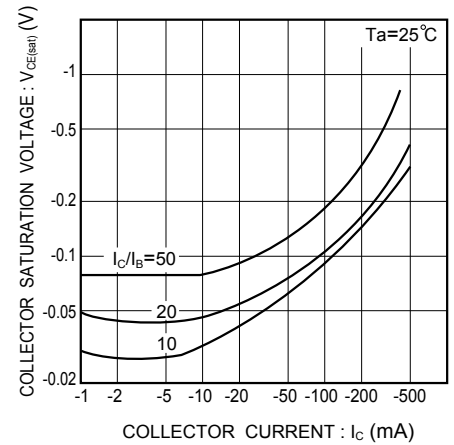


Fig.6 Collector emitter saturation voltage vs. collector current (I)

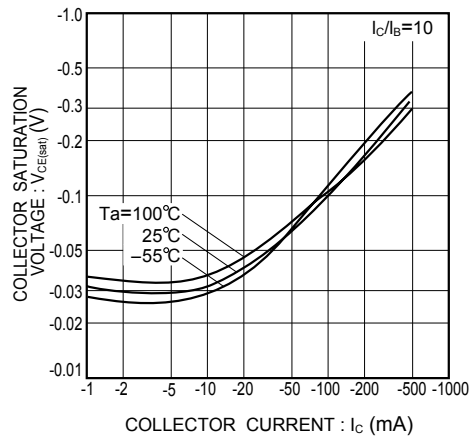


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

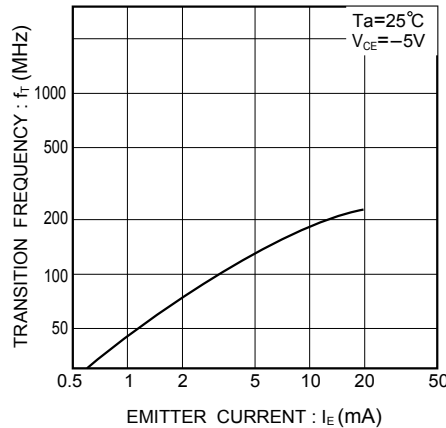


Fig.8 Gain bandwidth product vs. emitter current

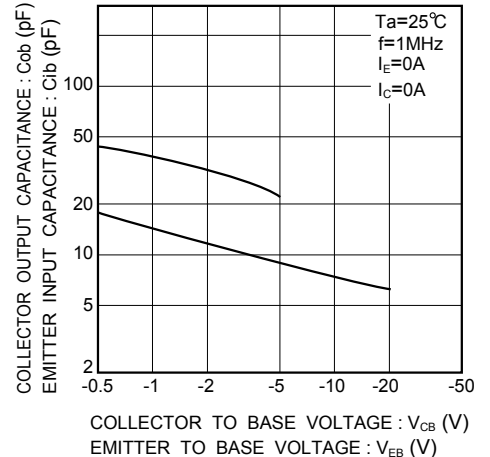
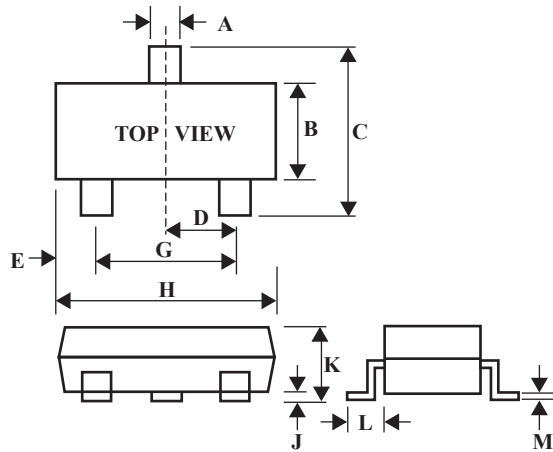


Fig.9 Collector output capacitance vs. collector-base voltage. Emitter input capacitance vs. emitter-base voltage

SOT-23 Outline Dimension



SOT-23		
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25