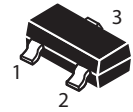
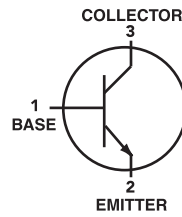


### NPN General Purpose Transistors

 Lead(Pb)-Free



SOT-23

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

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	30	V
Collector-Base Voltage	V <sub>CBO</sub>	35	V
Emitter-Base Voltage	V <sub>EBO</sub>	5.0	V
Collector Current - Continuous	I <sub>C</sub>	800	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

## ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage $I_C = 0.1\text{mA}, I_B = 0$	$V_{(BR)CEO}$	30	-	-	V
Collector-Base Breakdown Voltage $I_C = 10\text{mA}, I_E = 0$	$V_{(BR)CBO}$	35	-	-	V
Emitter-Base Breakdown Voltage $I_E = 0.01\text{mA}, I_C = 0$	$V_{(BR)EBO}$	5.0	-	-	V
Collector Cutoff Current $V_{CB} = 35\text{V}, I_E = 0$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$
Emitter Cutoff Current $V_{EB} = 5\text{V}, I_C = 0$	$I_{EBO}$	-	-	0.1	$\mu\text{A}$

## ON CHARACTERISTICS

Collector-Emitter Saturation Voltage $I_C = 500\text{mA}, I_B = 50\text{mA}$	$V_{CE(sat)}$	-	-	0.5	V
DC Current Transfer Ration $V_{CE} = 1\text{V}, I_C = 100\text{mA}$	$h_{FE}$	100	-	320	

## SMALL-SIGNAL CHARACTERISTICS

Transition Frequency $V_{CE} = 5\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$	$f_T$	-	120	-	MHz
Collector Output Capacitance $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	$C_{ob}$	-	13	-	pF

## Classification of $h_{FE}$

Rank	O	Y
Range	100-200	160-320
Marking	FAO	FAY

## Typica Characteristics

Fig. 1  $P_C - T_a$

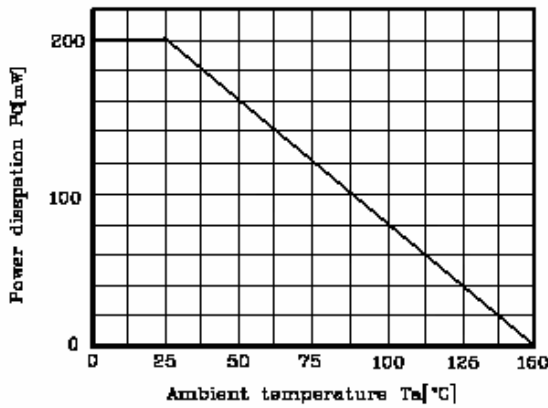


Fig. 2  $I_C - V_{BE}$

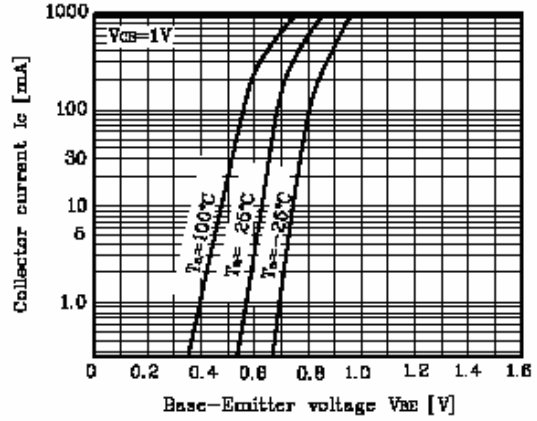


Fig. 3  $I_C - V_{CE}$

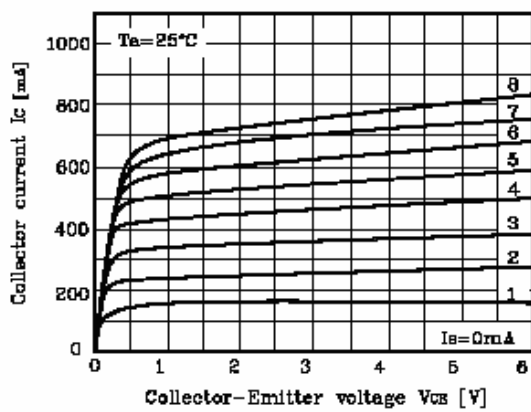


Fig. 4  $V_{CE(sat)} - I_C$

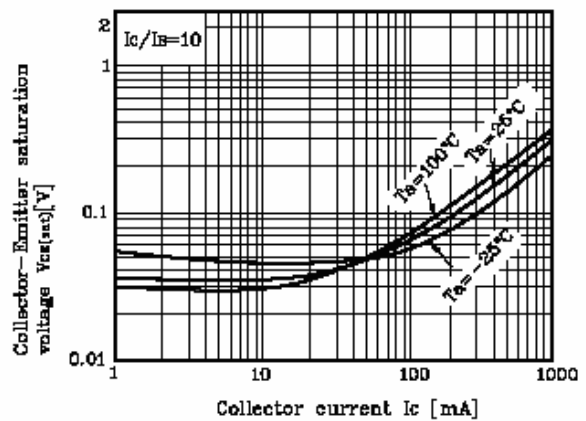
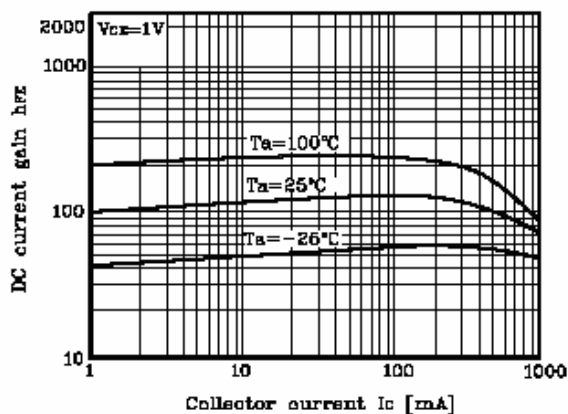
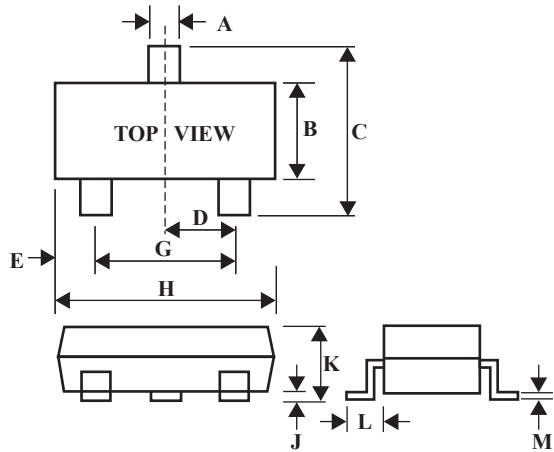


Fig. 5  $h_{FE} - I_C$



### 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