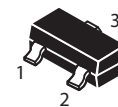
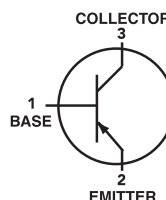


**PNP General Purpose Transistors**
 **Lead(Pb)-Free**

**SOT-23**
**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	-25	Vdc
Collector-Base Voltage	$V_{CBO}$	-40	Vdc
Emitter-Base Voltage	$V_{EBO}$	-5.0	Vdc
Collector Current-Continuous	$I_C$	-1500	mAdc

**THERMAL CHARACTERISTICS**

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (1) $T_A=25^{\circ}\text{C}$ Derate above $25^{\circ}\text{C}$	$P_D$	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	1.8	$\text{mW}/^{\circ}\text{C}$
Total Device Dissipation Alumina Substrate, (2) $T_A=25^{\circ}\text{C}$ Derate above $25^{\circ}\text{C}$	$P_D$	300	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	2.4	$\text{mW}/^{\circ}\text{C}$
Junction and Storage, Temperature	$T_J, T_{stg}$	-55 to +150	$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS**

Characteristics	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage ( $I_C=-0.1\text{mAdc}, I_E=0$ )	$V_{(BR)CEO}$	-25	-	Vdc
Collector-Base Breakdown Voltage ( $I_C=-100\mu\text{Adc}, I_E=0$ )	$V_{(BR)CBO}$	-40	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E=-100\mu\text{Adc}, I_C=0$ )	$V_{(BR)EBO}$	-5.0	-	Vdc
Collector Cutoff Current ( $V_{CE}=-20\text{Vdc}, I_E=0$ )	$I_{CEO}$	-	-0.15	$\mu\text{Adc}$
Collector Cutoff Current ( $V_{CB}=-40\text{Vdc}, I_E=0$ )	$I_{CBO}$	-	-0.15	$\mu\text{Adc}$
Emitter Cutoff Current ( $V_{EB}=-5.0\text{Vdc}, I_C=0$ )	$I_{EBO}$	-	-0.15	$\mu\text{Adc}$

1.FR-5=1.0 x 0.75 x 0.062 in

2.Alumina=0.4 x 0.3 x 0.024 in. 99.5% alumina

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Max	Unit
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**ON CHARACTERISTICS**

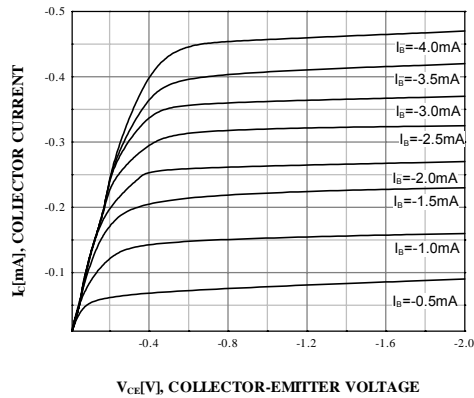
DC Current Gain ( $I_C=-100\text{ mAdc}, V_{CE}=1.0\text{ Vdc}$ )	$h_{FE}^{(1)}$	120	600	-
Collector-Emitter Saturation Voltage ( $I_C=-800\text{ mAdc}, I_B=-80\text{ mAdc}$ )	$V_{CE(sat)}$	-	-0.5	Vdc

**SMALL-SIGNAL CHARACTERISTICS**

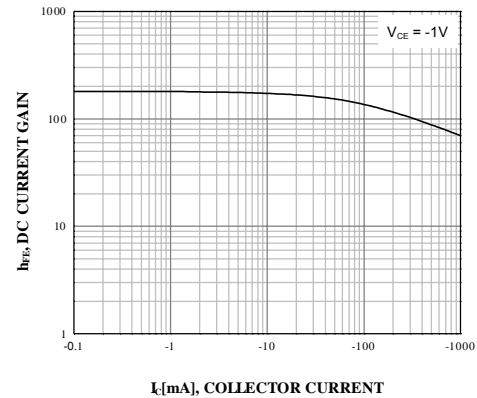
Current-Gain-Bandwidth Product ( $I_C=-50\text{ mAdc}, V_{CE}=-10\text{ Vdc}, f=30\text{ MHz}$ )	$f_T$	100	-	MHz
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**CLASSIFICATION OF  $h_{FE(1)}$** 

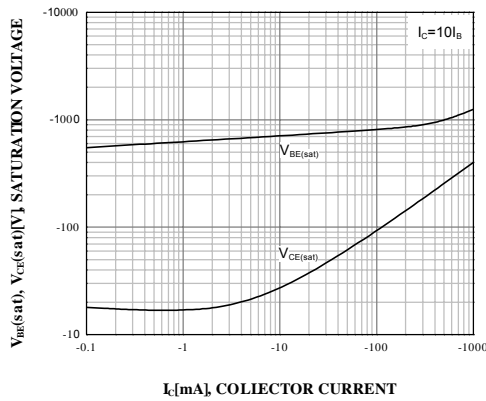
Rank	P	Q	R	S
Range	120-200	150-300	200-400	300-600
Marking	1HB	1HD	1HF	1HH



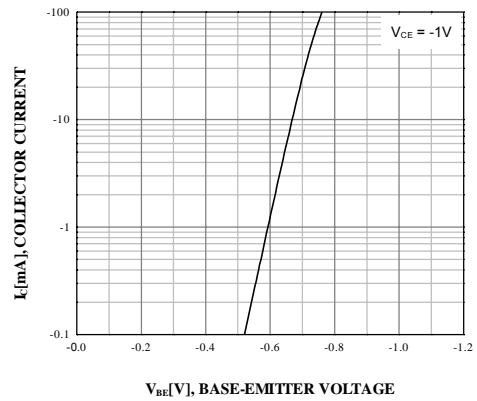
**FIG.1 Static Characteristic**



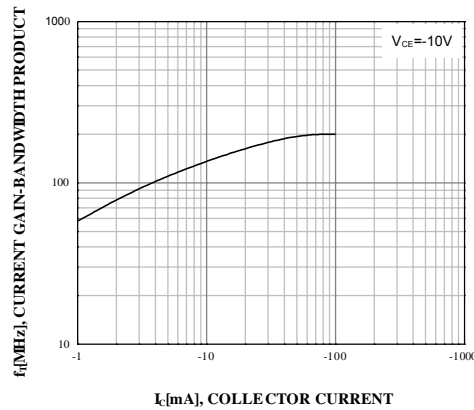
**FIG.2 DC Current Gain**



**FIG.3 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage**

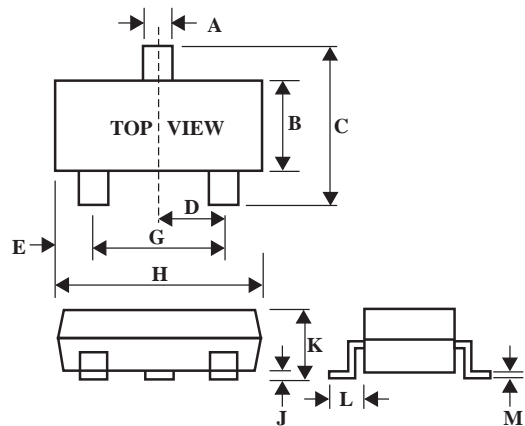


**FIG.4 Base-Emitter On Voltage**



**FIG.5 Current Gain Bandwidth Product**

**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