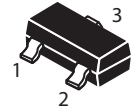
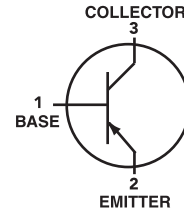


PNP General Purpose Transistors

(Pb) 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°C	P_D	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (2) $T_A=25^\circ\text{C}$ Derate above 25°C	P_D	300	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
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	μAdc
Collector Cutoff Current ($V_{CB}=-40\text{Vdc}, I_E=0$)	I_{CBO}	-	-0.15	μAdc
Emitter Cutoff Current ($V_{EB}=-5.0\text{Vdc}, I_C=0$)	I_{EBO}	-	-0.15	μAdc

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

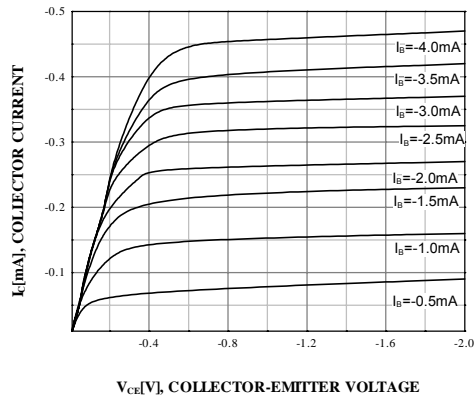


FIG.1 Static Characteristic

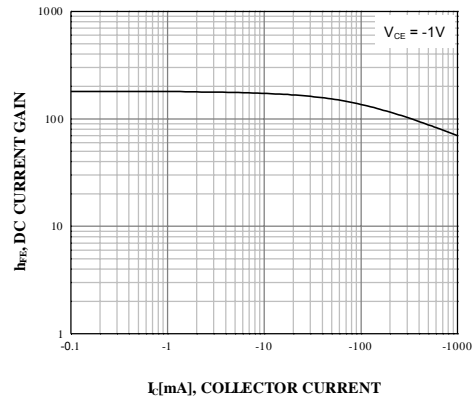
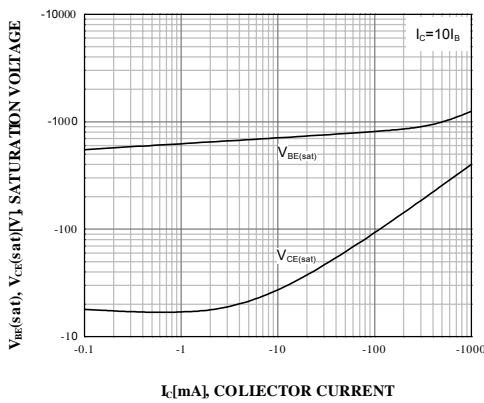


FIG.2 DC Current Gain



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

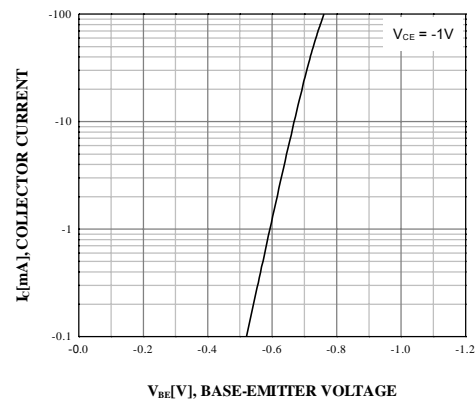


FIG.4 Base-Emitter On Voltage

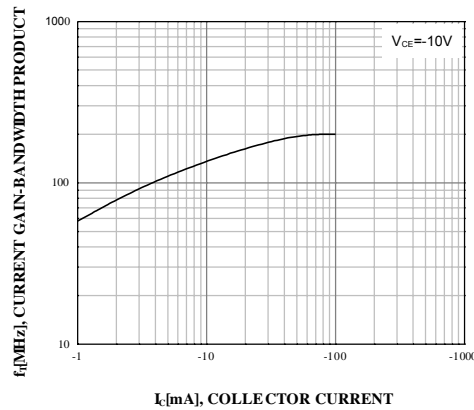
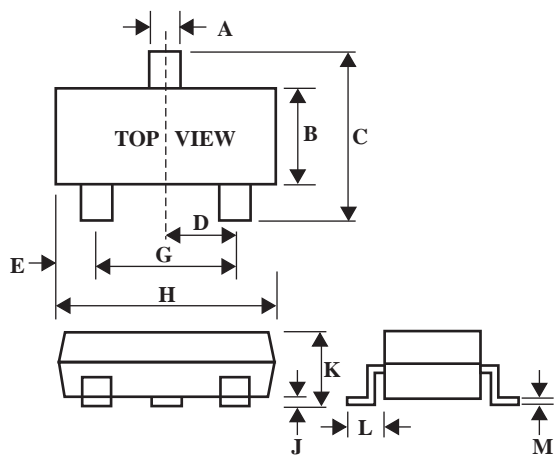


FIG.5 Current Gain Bandwidth Product

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