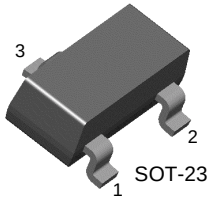
FAIRCHILD SEMICONDUCTOR®

February 2005

MMBT3906K

PNP Epitaxial Silicon Transistor

General Purpose Transistor



1. Base 2. Emitter 3. Collector

Marking

Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-200	mA
P_C	Collector Power Dissipation	350	mW
T_{STG}	Storage Temperature	150	°C

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -10μA, I_E = 0	-40		V
BV_{CEO}	Collector-Emitter Breakdown Voltage *	I_C = -1.0mA, I_B = 0	-40		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10μA, I_C = 0	-5		V
I_{CEX}	Collector Cut-off Current	V_{CE} = -30V, V_{EB} = -3V		-50	nA
h_{FE}	DC Current Gain *	V_{CE} = -1V, I_C = -0.1mA V_{CE} = -1V, I_C = -1mA V_{CE} = -1V, I_C = -10mA V_{CE} = -1V, I_C = -50mA V_{CE} = -1V, I_C = -100mA	60 80 100 60 30	 300 	
V_{CE} (sat)	Collector-Emitter Saturation Voltage *	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5.0mA		-0.25 -0.4	V V
V_{BE} (sat)	Base-Emitter Saturation Voltage *	I_C = -10mA, I_B = -1.0mA I_C = -50mA, I_B = -5.0mA	-0.65	-0.85 -0.95	V V
f_T	Current Gain Bandwidth Product	I_C = -10mA, V_{CE} = -20V, f = 100MHz	250		MHz
C_{ob}	Output Capacitance	V_{CB}= -5V, I_E=0, f=1.0MHz		4.5	pF
NF	Noise Figure	I_C = -100μA, V_{CE} = -5V, R_S = 1KΩ f = 10Hz to 15.7KHz		4	dB
t_{ON}	Turn On Time	V_{CC} = -3V, V_{BE} = -0.5V I_C = -10mA, I_{B1} = -1mA		70	ns
t_{OFF}	Turn Off Time	V_{CC} = -3V, I_C = -10mA, I_{B1} = I_{B2} = -1mA		300	ns

* Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure 1. DC current Gain

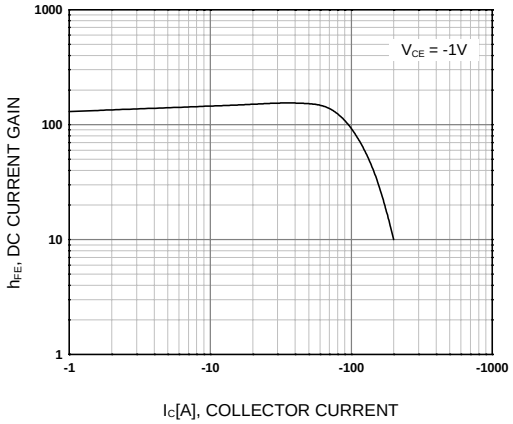


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

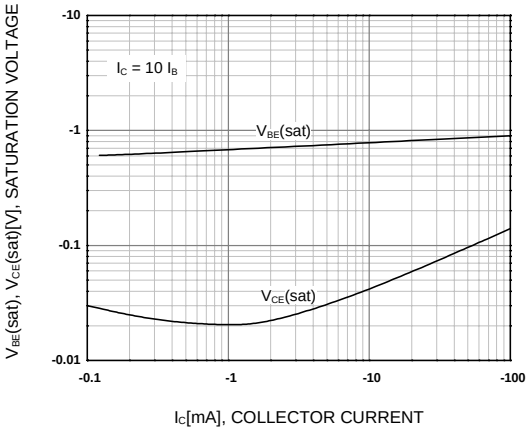


Figure 3. Output Capacitance

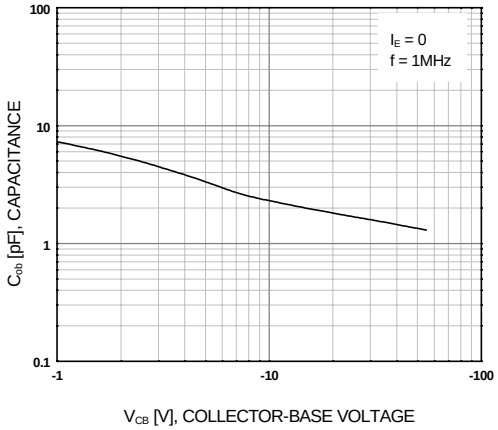
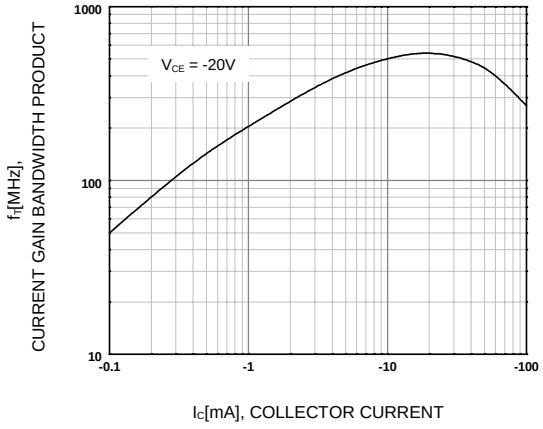
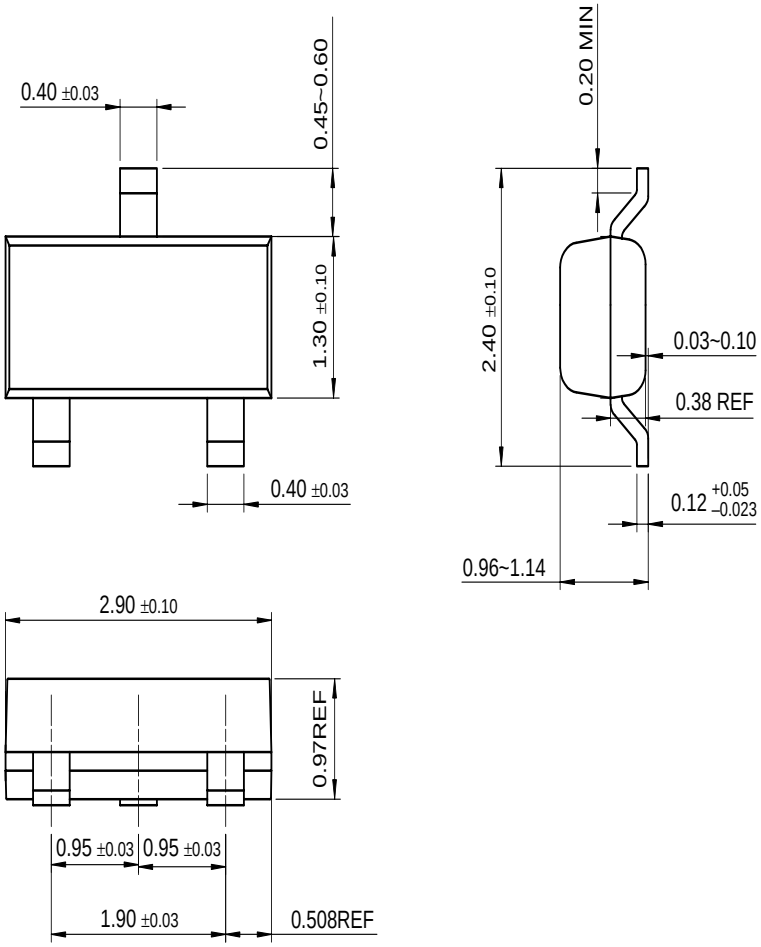


Figure 4. Current Gain Bandwidth Product



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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