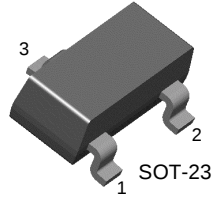


MMBT3906K

PNP Epitaxial Silicon Transistor

General Purpose Transistor



1. Base 2. Emitter 3. Collector

Marking



Absolute Maximum Ratings

$T_a = 25^\circ\text{C}$ 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	$^\circ\text{C}$

Electrical Characteristics

$T_a = 25^\circ\text{C}$ unless otherwise noted

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

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Typical Performance Characteristics

Figure 1. DC current Gain

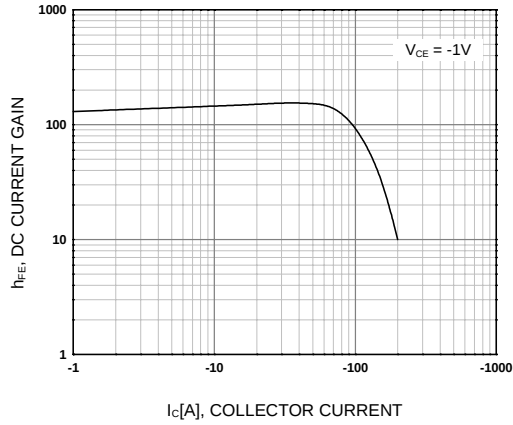


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

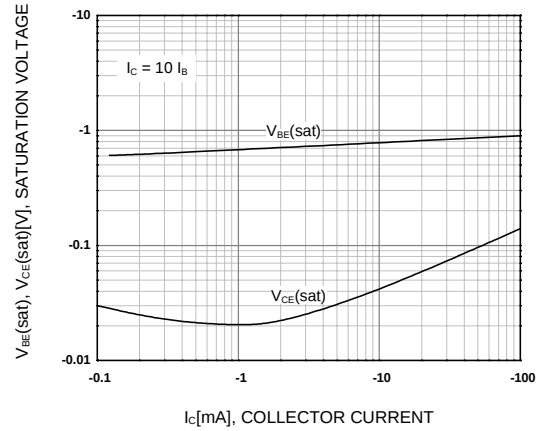


Figure 3. Output Capacitance

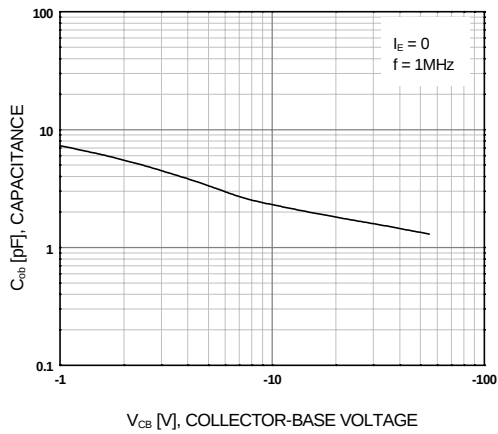
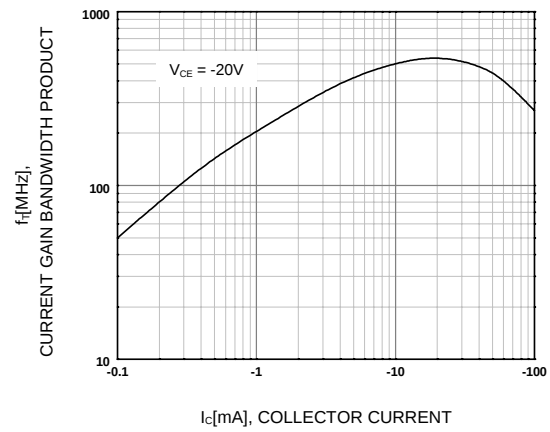
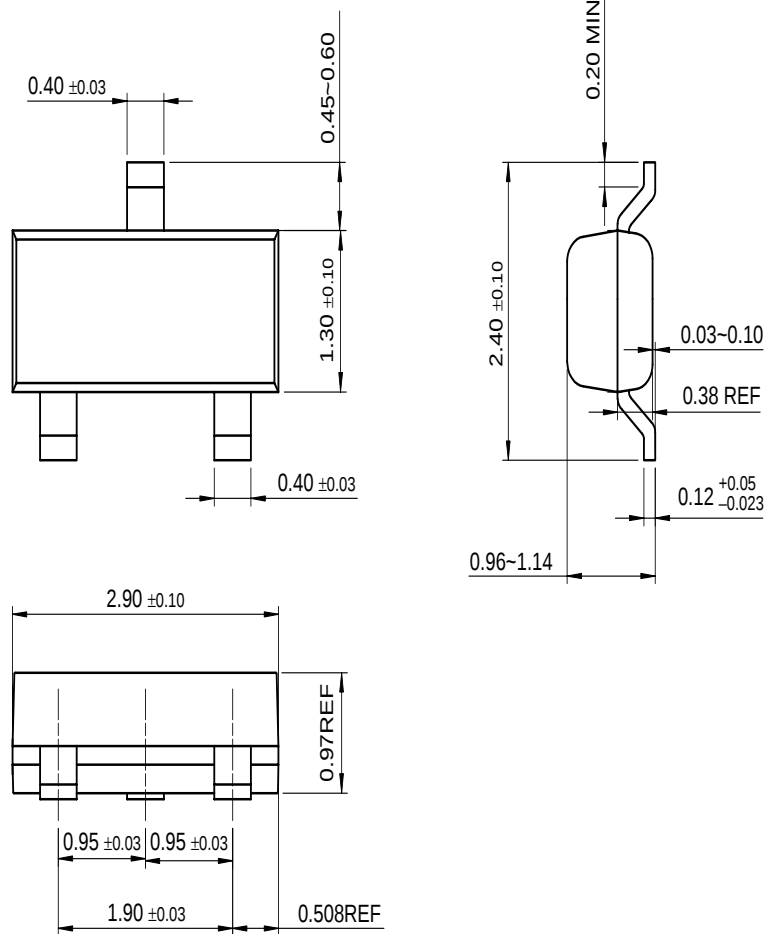


Figure 4. Current Gain Bandwidth Product



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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