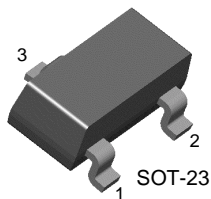


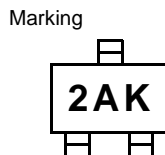
# MMBT3906K

## PNP Epitaxial Silicon Transistor

### General Purpose Transistor



1. Base 2. Emitter 3. Collector



### 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	
$V_{CE(sat)}$	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
$V_{BE(sat)}$	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	$I_C = -100\mu\text{A}, V_{CE} = -5\text{V}, R_S = 1\text{K}\Omega$ $f = 10\text{Hz to } 15.7\text{KHz}$		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

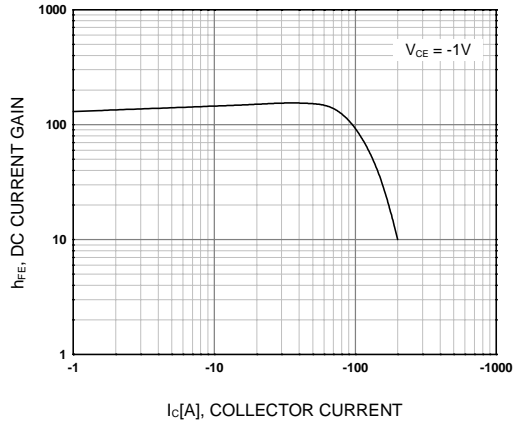


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

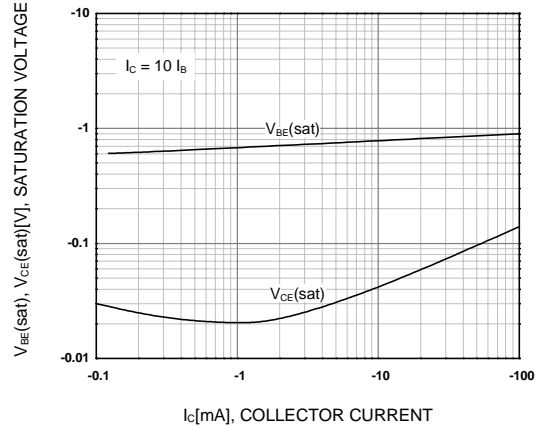


Figure 3. Output Capacitance

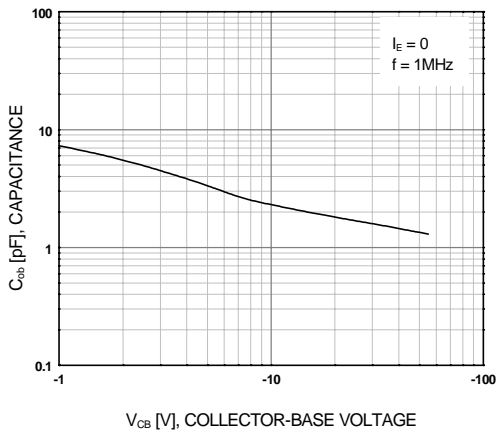
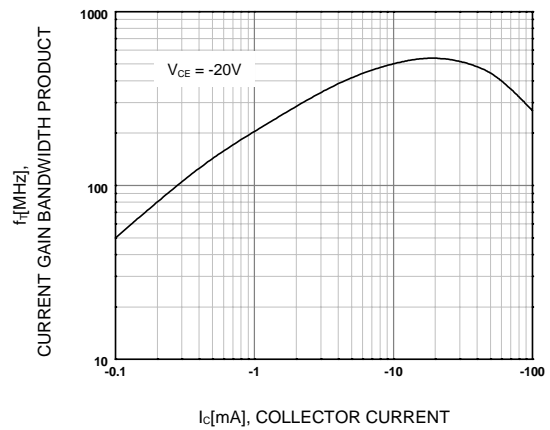
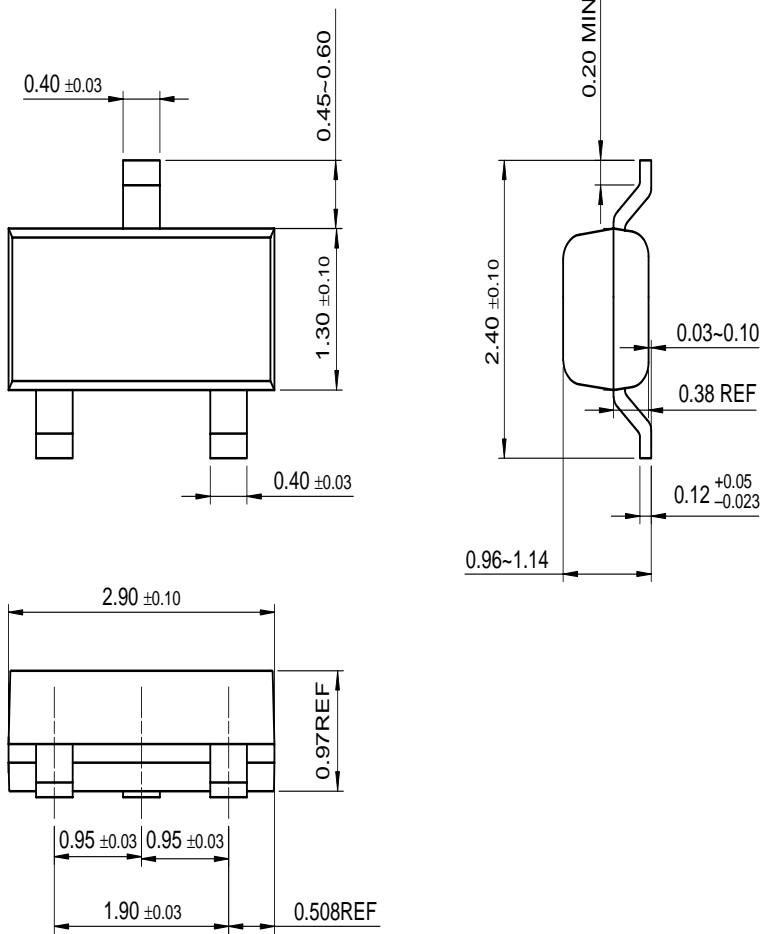


Figure 4. Current Gain Bandwidth Product



Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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FACT Quiet Series™		OCXPro™	RapidConnect™	UHC™
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Programmable Active Droop™		PACMAN™	SMART START™	VCX™

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