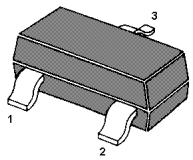
MMBTH10

NPN Silicon VHF/UHF Transistor



1. Base 2. Emitter 3. Collector
SOT-23 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	30	V
Collector Emitter Voltage	V_{CEO}	25	V
Emitter Base Voltage	V_{EBO}	3	V
Total Device Dissipation FR-5 Board[1)]	P_{tot}	200	mW
Derate above 25 °C		1.8	mW / °C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	°C

[1)] FR-5 = 1 X 0.75 X 0.062 in.

Characteristics at T_{amb}=25 °C

	Symbol	Min.	Max.	Unit
DC Current Gain at V_{CE}=10V, I_C=4mA	h_{FE}	60	-	-
Collector Emitter Saturation Voltage at I_C=4mA, I_B=0.4mA	V_{CEsat}	-	0.5	V
Base Emitter On Voltage at I_C=4mA, V_{CE}=10V	V_{BE}	-	0.95	V
Collector Cutoff Current at V_{CB}=25V	I_{CBO}	-	100	nA
Emitter Cutoff Current at V_{EB}=2V	I_{EBO}	-	100	nA
Collector Base Breakdown Voltage at I_C=100μA	$V_{(BR)CBO}$	30	-	V
Collector Emitter Breakdown Voltage at I_C=1mA	$V_{(BR)CEO}$	25	-	V
Emitter Base Breakdown Voltage at I_E=10μA	$V_{(BR)EBO}$	3.0	-	V
Current Gain Bandwidth Product at V_{CE}=10V, I_C=4mA, f=100MHz	f_T	650	-	MHz
Collector-Base Capacitance at V_{CB}=10V, I_E=0, f=1MHz	C_{cb}	-	0.7	pF
Common-Base Feedback Capacitance at V_{CB}=10V, I_E=0, f=1MHz	C_{rb}	-	0.65	pF
Collector-Base Time Constant at V_{CB}=10V, I_C=4.0mA, f=31.8MHz	rb' Cc	-	9	ps

TYPICAL CHARACTERISTICS

COMMON-BASE y PARAMETERS versus FREQUENCY
(VCB=10Vdc, IC=4.0mAdc, TA=25°C)

yib, INPUT ADMITTANCE

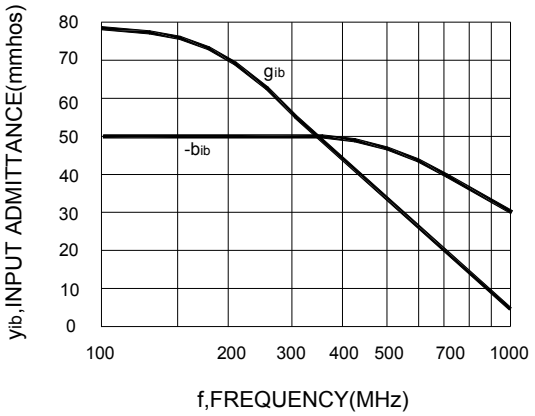


Figure 1. Rectangular Form

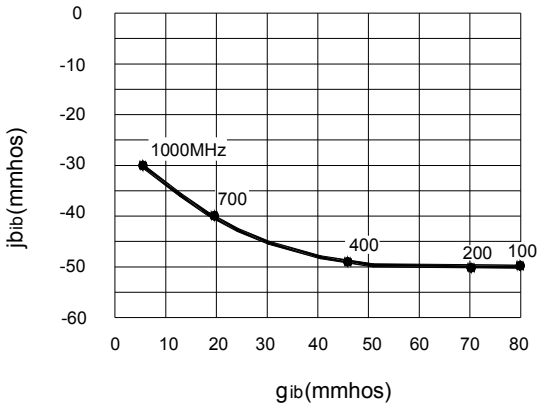


Figure 2. Polar Form

yfb, FORWARD TRANSFER ADMITTANCE

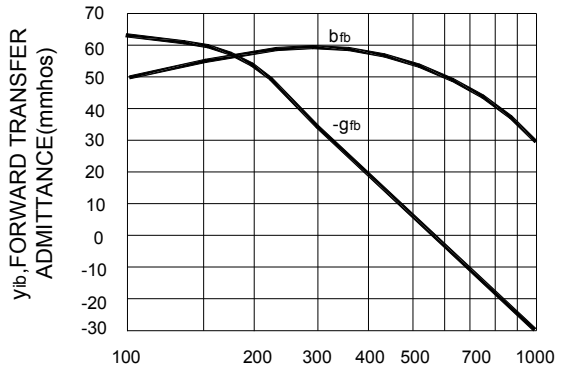


Figure 3. Rectangular Form

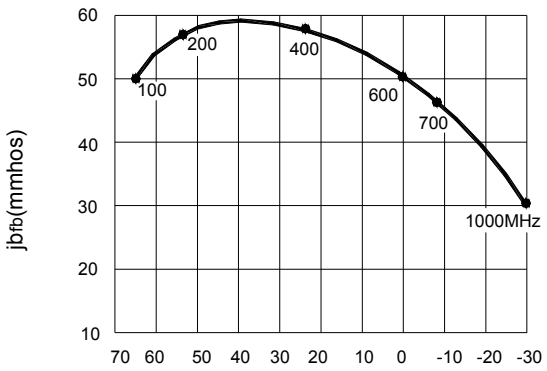


Figure 4. Polar Form

TYPICAL CHARACTERISTICS

COMMON-BASE y PARAMETERS versus FREQUENCY

(VCB=10Vdc, IC=4.0mAdc, TA=25°C)

yrb, REVERSE TRANSFER ADMITTANCE

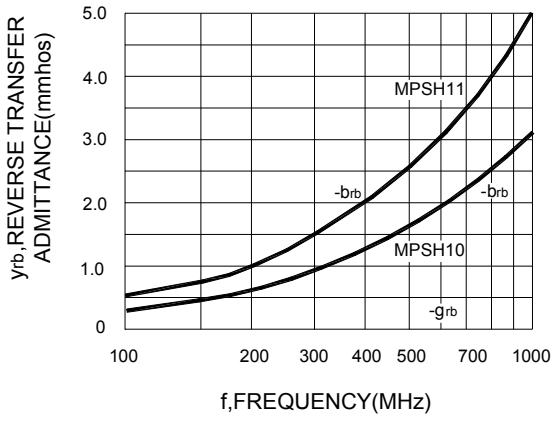


Figure 5. Rectangular Form

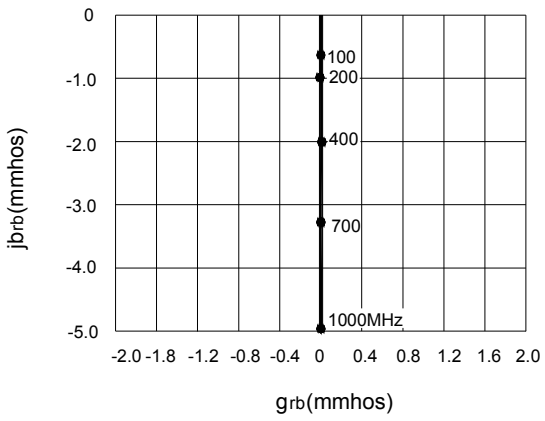


Figure 6. Polar Form

yob, OUTPUT ADMITTANCE

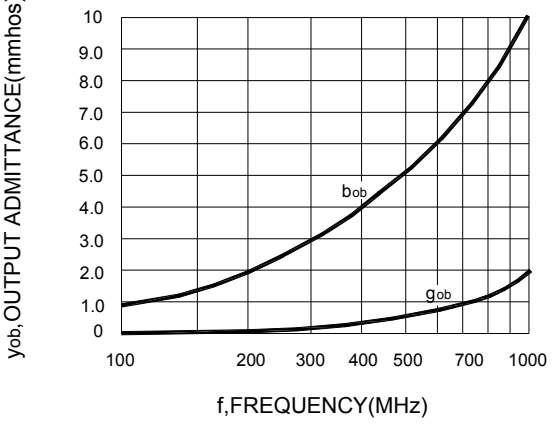


Figure 7. Rectangular Form

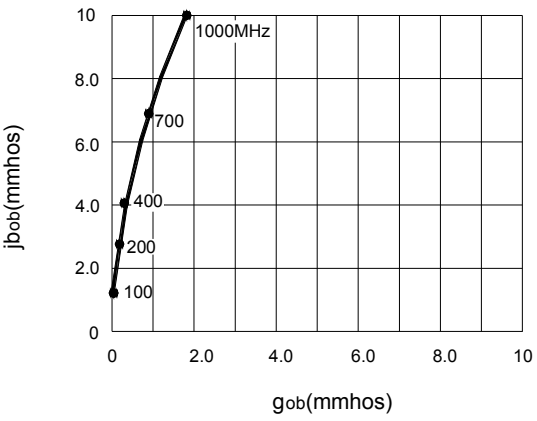


Figure 8. Polar Form