



MMBTH10

VHF/UHF NPN SILICON TRANSISTOR

VOLTAGE 25 Volts **POWER** 225 mW

FEATURES

- NPN Silicon

MMBTH10 is a VHF/UHF NPN Silicon Transistor. It is designed for use in a wide range of applications, including mobile phones, pagers, and other portable communication devices. The device is characterized by its high frequency performance and low noise figure.

MECHANICAL DATA

Case : SOT-23, Plastic

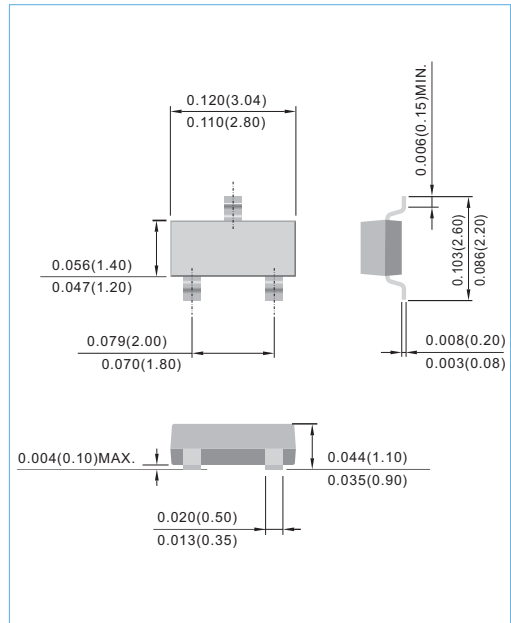
Terminals : Solderable per MIL-STD-750, Method 2026

Approx weight : 0.0081 gram

Tape : 13mm

SOT-23

Unit : inch(mm)



MAXIMUM RATINGS

RATING	SYMBOL	VALUE	UNIT
Collector-Emitter Voltage	V_{CE0}	25	Vdc
Collector-Base Voltage	V_{CB0}	30	Vdc
Emitter-Base Voltage	V_{EB0}	3.0	Vdc

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNITS
Total Device Dissipation FR-5 Board (Note 1) $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^{\circ}\text{C}$
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	556	$^{\circ}\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate (Note 2) $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^{\circ}\text{C}$
Thermal Resistance Junction to Ambient (Note 2)	$R_{\theta JA}$	417	$^{\circ}\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Note 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



MMBTH10

ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise noted)

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I _c =1.0mA _{dc} , I _B =0)	V _{(BR)CEO}	25	-	-	V _{dc}
Collector-Base Breakdown Voltage (I _c =100μA _{dc} , I _E =0)	V _{(BR)CBO}	30	-	-	V _{dc}
Emitter-Base Breakdown Voltage (I _E =10μA _{dc} , I _C =0)	V _{(BR)EBO}	3.0	-	-	V _{dc}
Collector Cutoff Current (V _{CB} =25V _{dc} , I _E =0)	I _{CBO}	-	-	100	nA _{dc}
Emitter Cutoff Current (V _{EB} =2.0V _{dc} , I _C =0)	I _{EBO}	-	-	100	nA _{dc}
ON CHARACTERISTICS					
DC Current Gain (I _c =4.0mA _{dc} , V _{CE} =10V _{dc})	h _{FE}	60	-	-	-
Collector-Emitter Saturation Voltage (I _c =4.0mA _{dc} , I _B =0.4mA _{dc})	V _{CE(sat)}	-	-	0.5	V _{dc}
Base-Emitter On Voltage (I _c =4.0mA _{dc} , V _{CE} =10V _{dc})	V _{BE}	-	-	0.95	V _{dc}
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain-Bandwidth Product (I _c =4.0mA _{dc} , V _{CE} =10V _{dc} , f=100MHz)	f _T	650	-	-	MHz
Collector-Base Capacitance (V _{CB} =10V _{dc} , I _E =0, f=1.0MHz)	C _{cb}	-	-	0.7	pF
Common-Base Feedback Capacitance (V _{CB} =10V _{dc} , I _E =0, f=1.0MHz)	C _{rb}	-	-	0.65	pF
Collector-Base Time Constant (I _c =4.0mA _{dc} , V _{CB} =10V _{dc} , f=31.8MHz)	rb'C _c	-	-	9.0	ps



MMBTH10

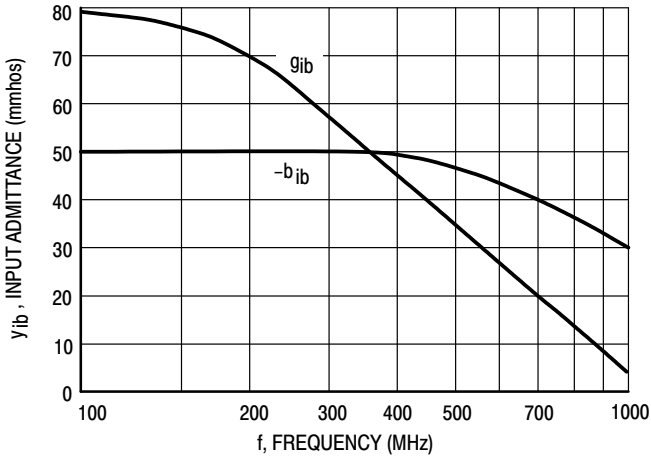


Figure 1. Rectangular Form

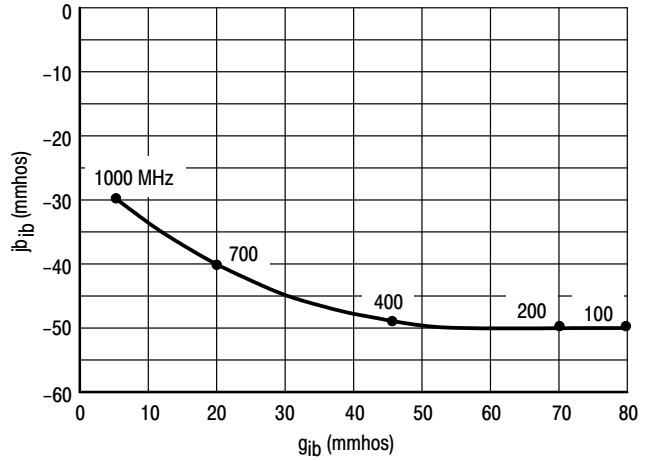


Figure 2. Polar Form

yfb, FORWARD TRANSFER ADMITTANCE

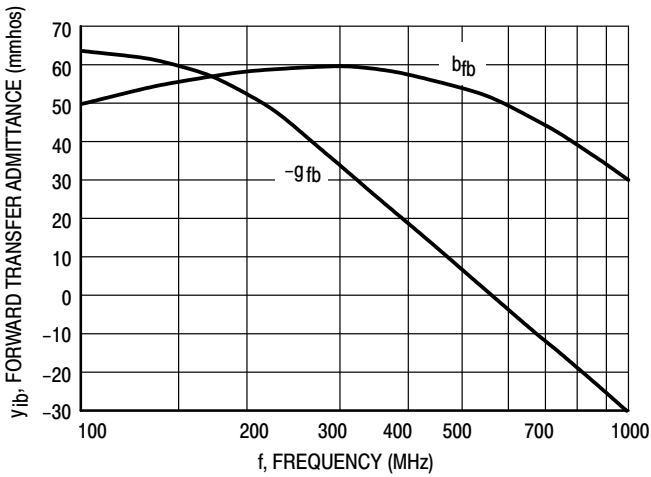


Figure 3. Rectangular Form

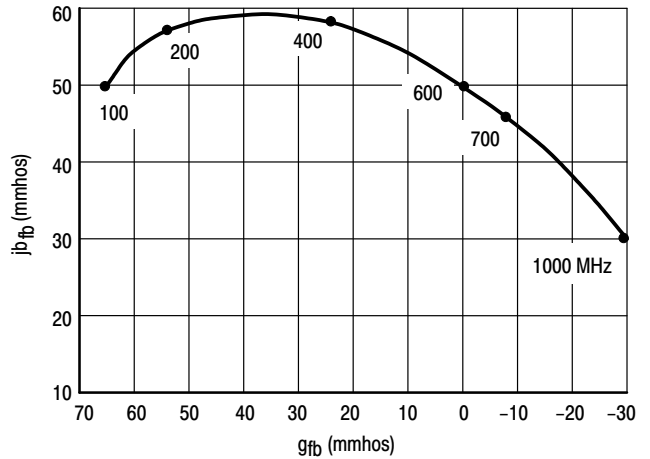


Figure 4. Polar Form



MMBTH10

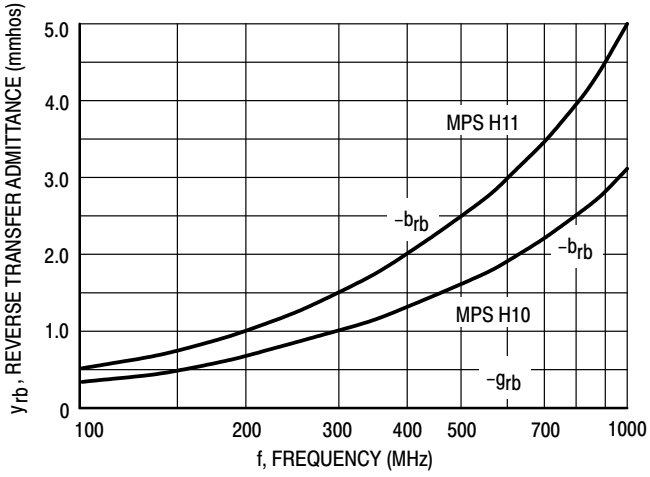


Figure 5. Rectangular Form

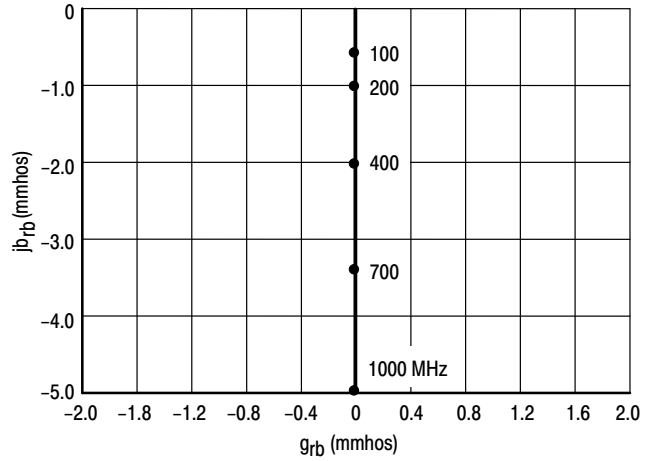


Figure 6. Polar Form

y_{ob}: OUTPUT ADMITTANCE

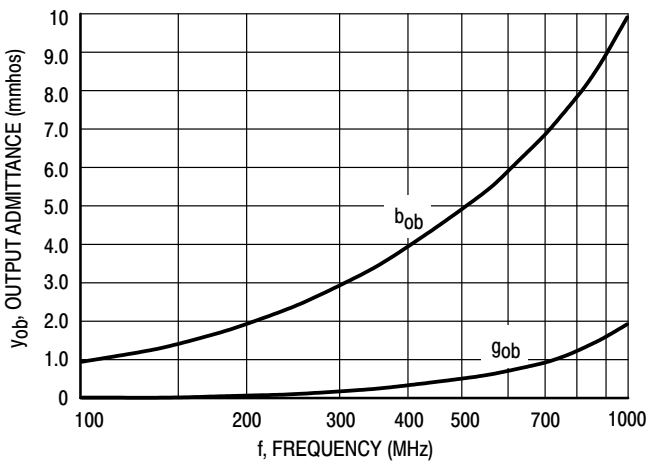


Figure 7. Rectangular Form

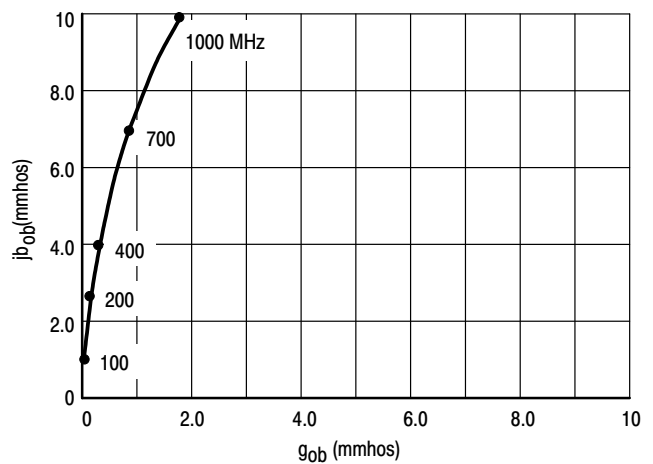
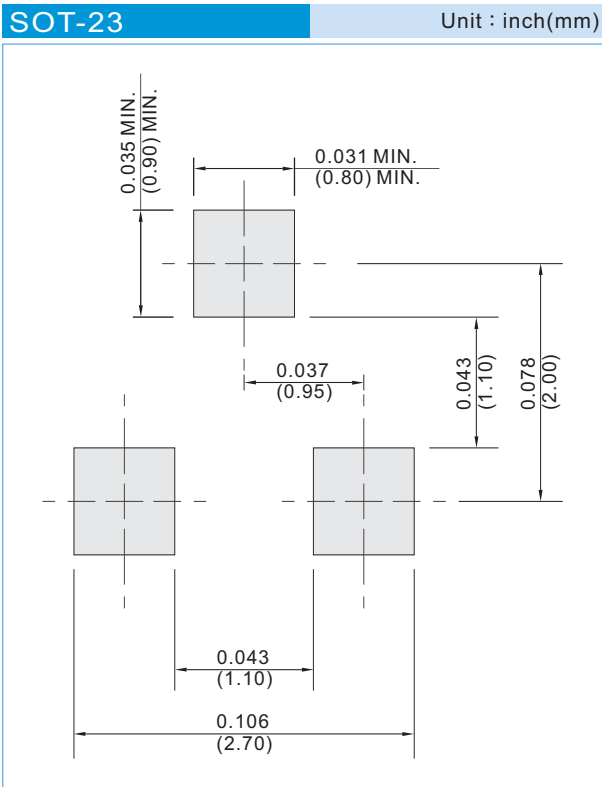


Figure 8. Polar Form



MMBTH10

MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
 - T/R - 12K per 13" plastic Reel
 - T/R - 3K per 7" plastic Reel

LEGAL STATEMENT

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