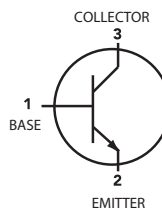


NPN 1.1 GHz RF Transistor

 Lead(Pb)-Free

FEATURES

- Designed for VHF/UHF Amplifier Applications and High Output VHF oscillators.
- High Current Gain Bandwidth product.
- Ideal for Mixer and RF Amplifier Application with Collector Current in the 100mA~20mA Range in Common emitter or Common base mode of operations.



MAXIMUM RATINGS (Ta=25°C)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	25	V
Collector-Base Voltage	V _{CB0}	30	V
Emitter-Base Voltage	V _{EBO}	3	V
Collector Current - Continuous	I _C	50	mA
Total Power Dissipation FR-5 Board ⁽¹⁾ TA =25°C	P _D	225	mW
Derate above =25°C		1.8	mW/°C
Thermal Resistance , Junction Ambient	R _{θJA}	556	°C/W
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{stg}	-55~150	°C

1. T_j = 25°C unless otherwise specified.

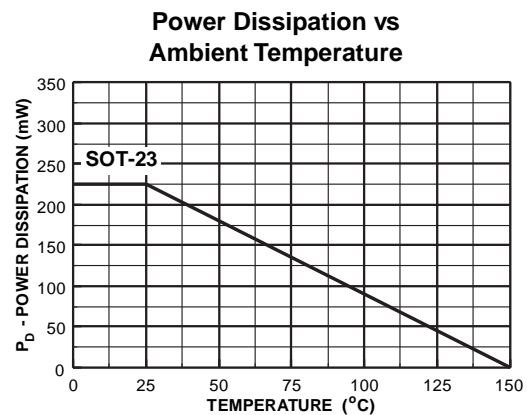
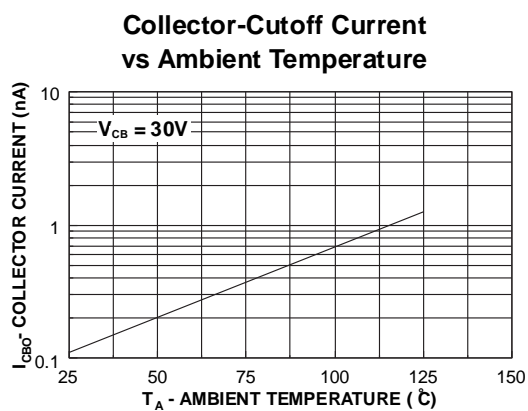
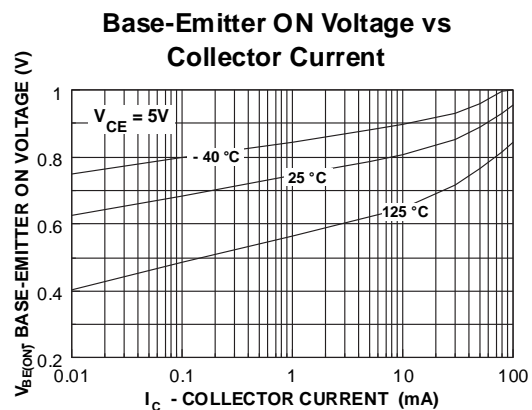
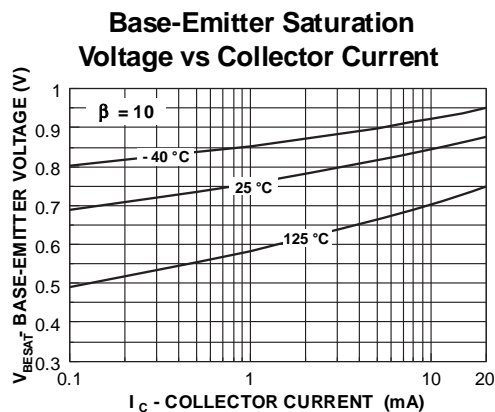
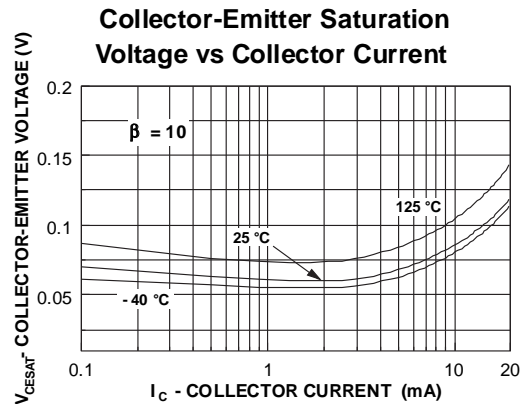
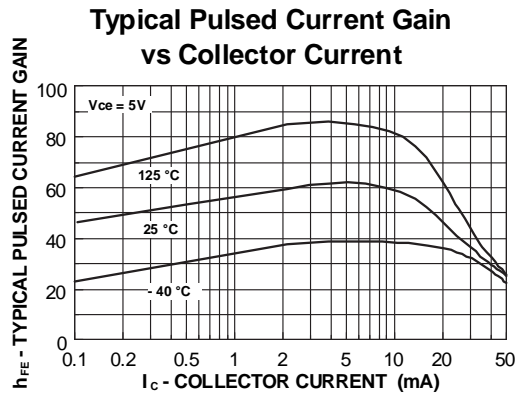
Device Marking

MMBTH10=3EM, HT10

ELECTRICAL CHARACTERISTICS (Ta=25 °C unless otherwise noted) (Countinued)

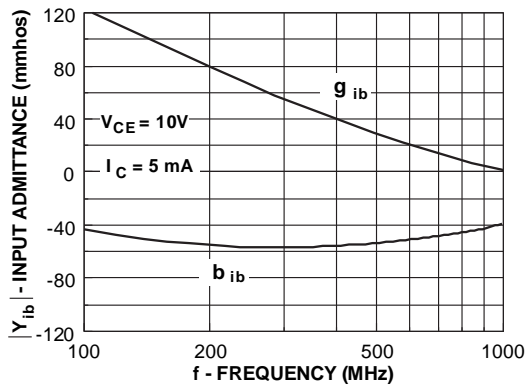
Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Emitter Voltage ($I_C = 10\text{mA}$, $I_B = 0$)	V_{CE0}	25	-	-	V
Collector-Base Voltage ($I_C = 10\mu\text{A}$, $I_E = 0$)	V_{CBO}	30	-	-	V
Emitter-Base Voltage ($I_E = 10\mu\text{A}$, $I_C = 0$)	V_{EBO}	3	-	-	V
Collector cut-off current ($I_E = 0$, $V_{CB} = 25\text{V}$)	I_{CBO}	-	-	100	nA
Emitter cut-off current ($I_C = 0$, $V_{EB} = 2.0\text{V}$)	I_{EBO}	-	-	100	nA
DC current gain ($I_C = 4\text{mA}$, $V_{CE} = 10\text{V}$)	h_{FE}	60	-	-	-
Collector-Emitter Saturation ($I_C = 4\text{mA}$, $I_B = 0.4\text{mA}$)	$V_{CE(sat)}$	-	-	0.5	V
Base-Emitter On Voltage ($I_C = 4\text{mA}$, $V_{CE} = 10\text{V}$)	$V_{BE(on)}$	-	-	0.95	V
Transition frequency ($I_C = 4\text{mA}$, $V_{CE} = 10\text{V}$, $f = 100\text{MHz}$)	f_T	0.65	1.1	-	GHz
Collector-Base Capacitance ($V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1.0\text{MHz}$)	C_{cb}	-	-	0.7	pF
Common-Base Feedback Capacitance ($V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$)	C_{rb}	-	-	0.65	pF
Collector Base Time Constant ($I_C = 4\text{mA}$, $V_{CB} = 10\text{V}$, $f = 31.8\text{MHz}$)	$r_b' C_c$	-	-	9.0	ps

Typical Characteristics

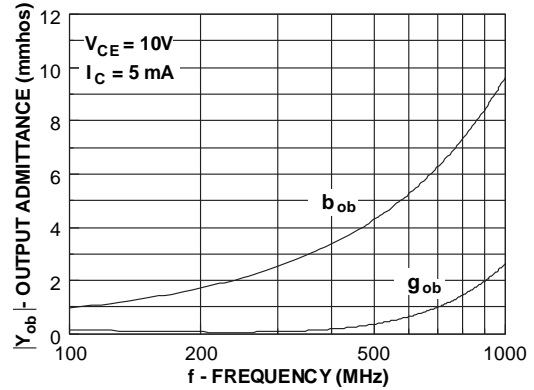


Common Base Y Parameters vs. Frequency

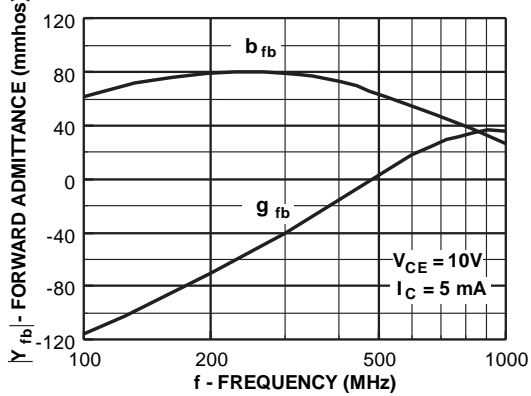
Input Admittance



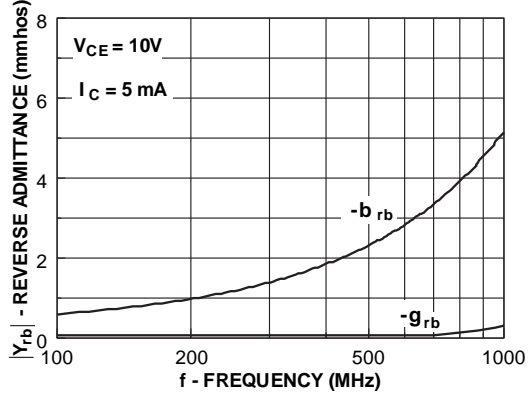
Output Admittance



Forward Transfer Admittance

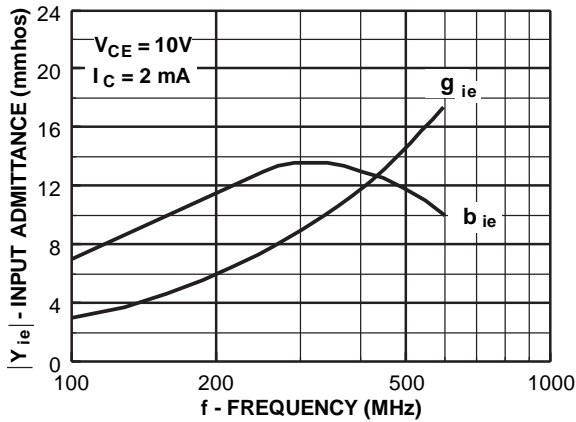


Reverse Transfer Admittance

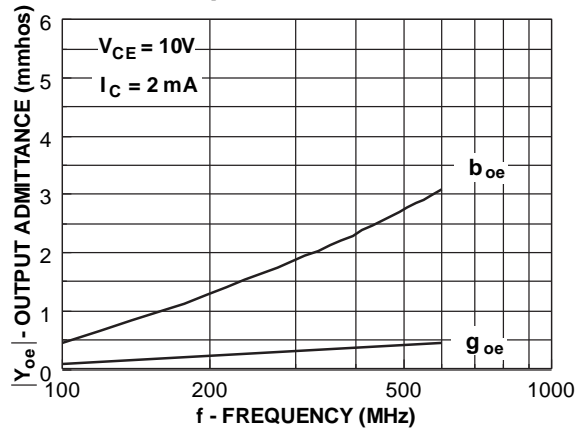


Common Emitter Y Parameters vs. Frequency

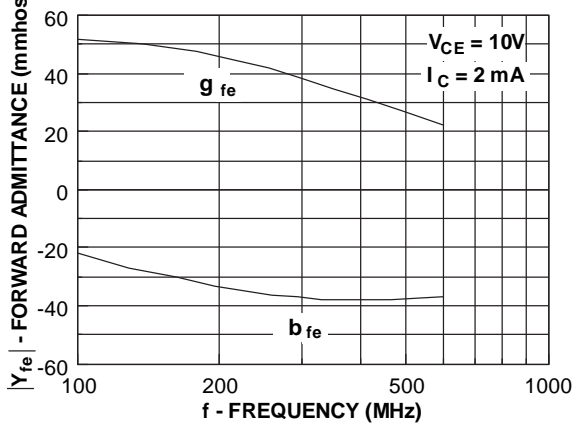
Input Admittance



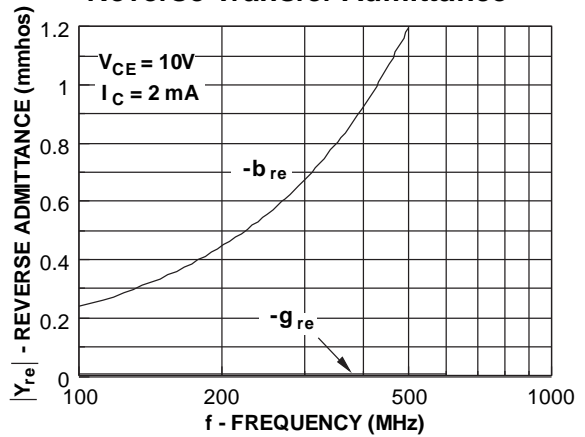
Output Admittance



Forward Transfer Admittance

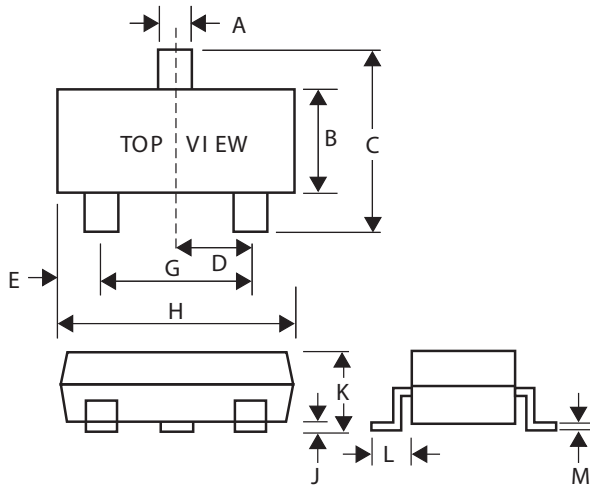


Reverse Transfer Admittance



SOT-23 Package Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25