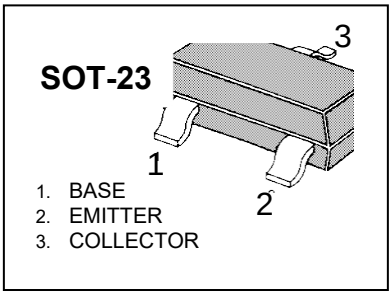
MMBTH10 TRANSISTOR (NPN)

FEATURES

- VHF/UHF Transistor



MARKING: 3EM

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	3	V
I_C	Collector Current	50	mA
P_C	Collector Power Dissipation	225	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	556	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55 ~ +150	℃

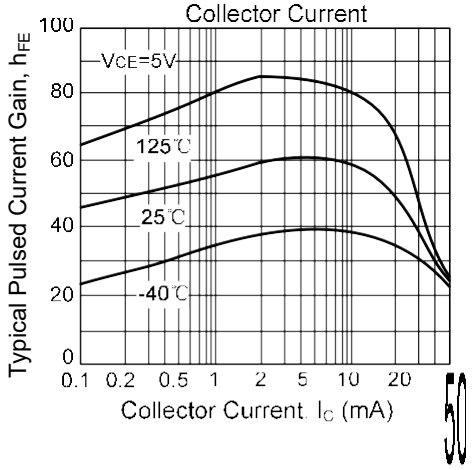
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA, I_E=0	30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA, I_B=0	25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	3			V
Collector cut-off current	I_{CBO}	V_{CB}=25V, I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=2V, I_C=0			0.1	μA
DC current gain	h_{FE}	V_{CE}=10V, I_C=4mA	60			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=4mA, I_B=0.4mA			0.5	V
Base-emitter voltage	V_{BE}	V_{CE}=10V, I_C=4mA			0.95	V
Transition frequency	f_T	V_{CE}=10V, I_C=4mA f=100MHz	650			MHz
Collector output capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz			0.7	pF

■ CLASSIFICATION OF h_{FE}

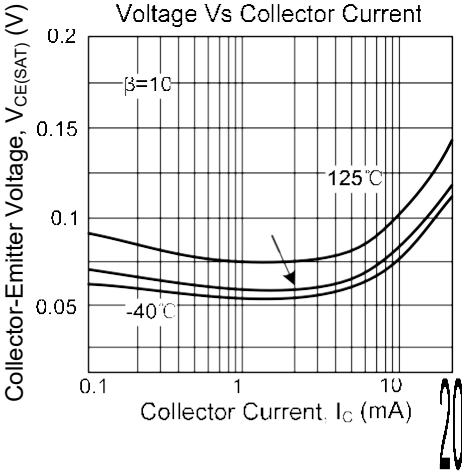
RANK	A	B	C
RANGE	60-100	90-130	120-200

Typical Pulsed Current Gain Vs Collector Current



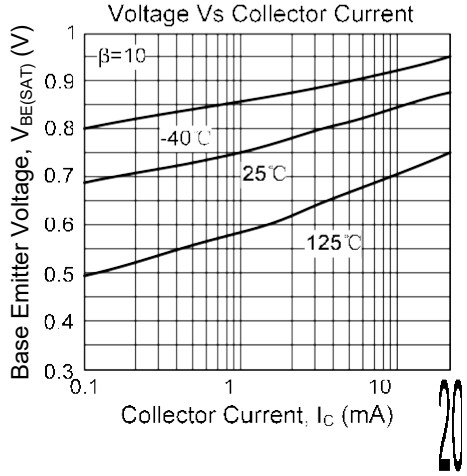
50

Collector-Emitter Saturation Voltage Vs Collector Current



20

Base-Emitter Saturation Voltage Vs Collector Current



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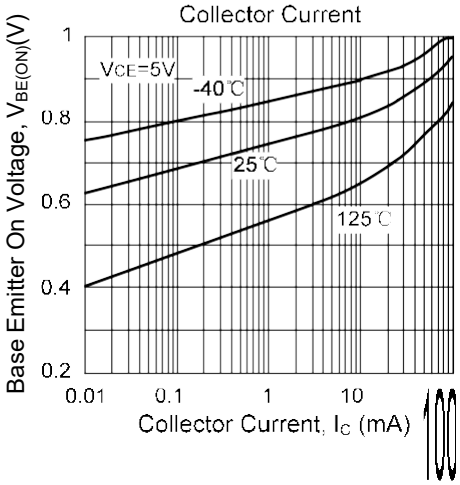
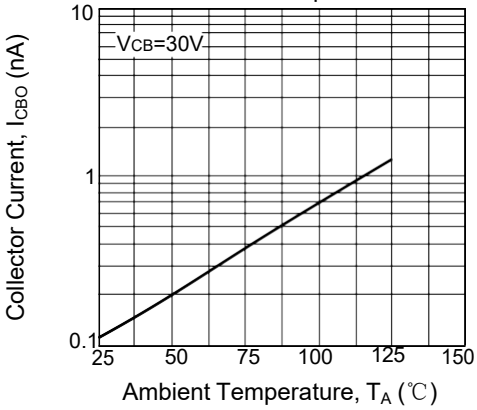
Base - Emitter ON Voltage Vs Collector Current

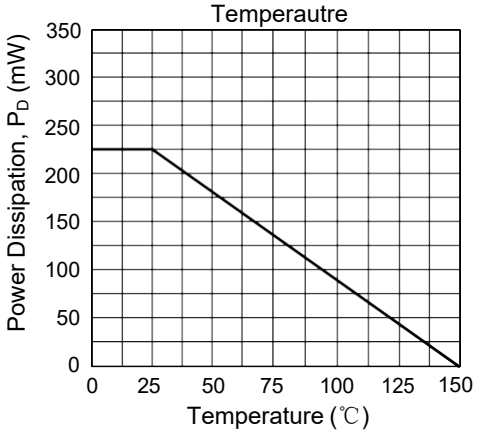


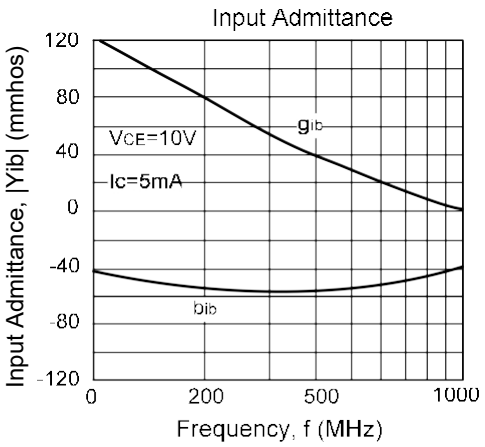
100

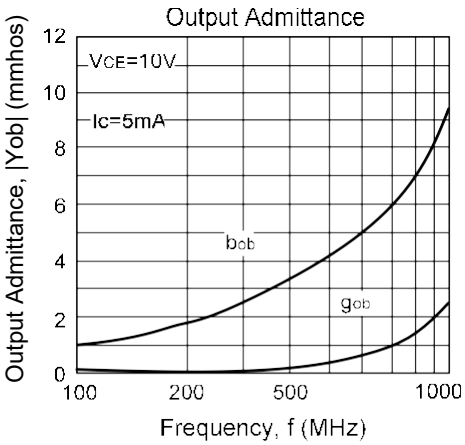
Collector-Cutoff Current Vs Ambient Temperature

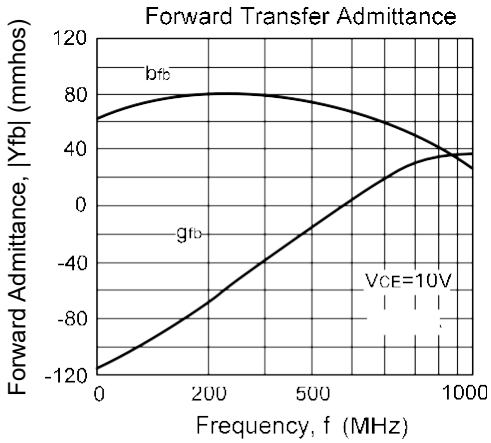


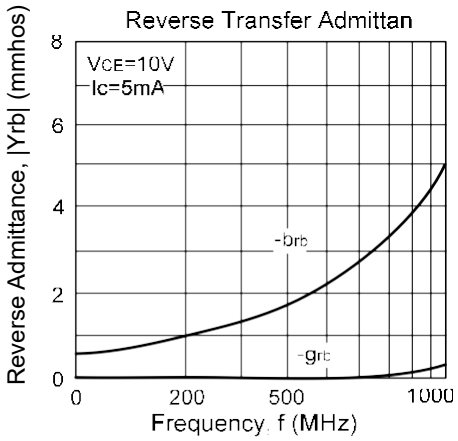
Power Dissipation Vs Ambient Temperautre

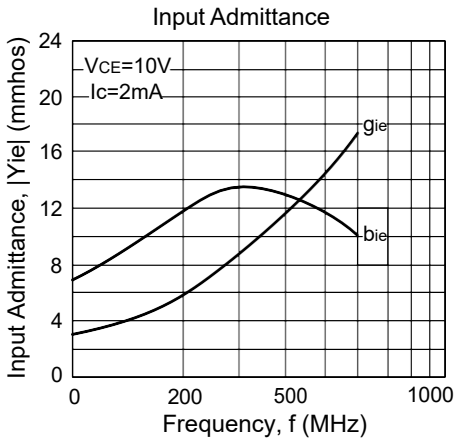


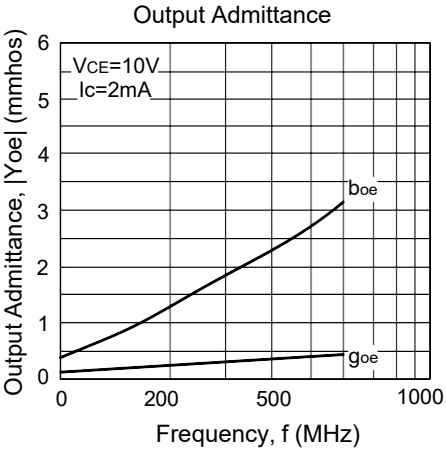

Input Admittance
Input Admittance, |Yib| (mmhos)
120
80
40
0
-40
-80
-120
VCE=10V
Ic=5mA
gib
bib
0
200
500
1000
Frequency, f (MHz)


Output Admittance
Output Admittance, |Yob| (mmhos)
12
10
8
6
4
2
0
VCE=10V
Ic=5mA
bob
gob
100
200
500
1000
Frequency, f (MHz)


Forward Transfer Admittance
Forward Admittance, |Yfb| (mmhos)
120
80
40
0
-40
-80
-120
bfb
gfb
VCE=10V
0
200
500
1000
Frequency, f (MHz)

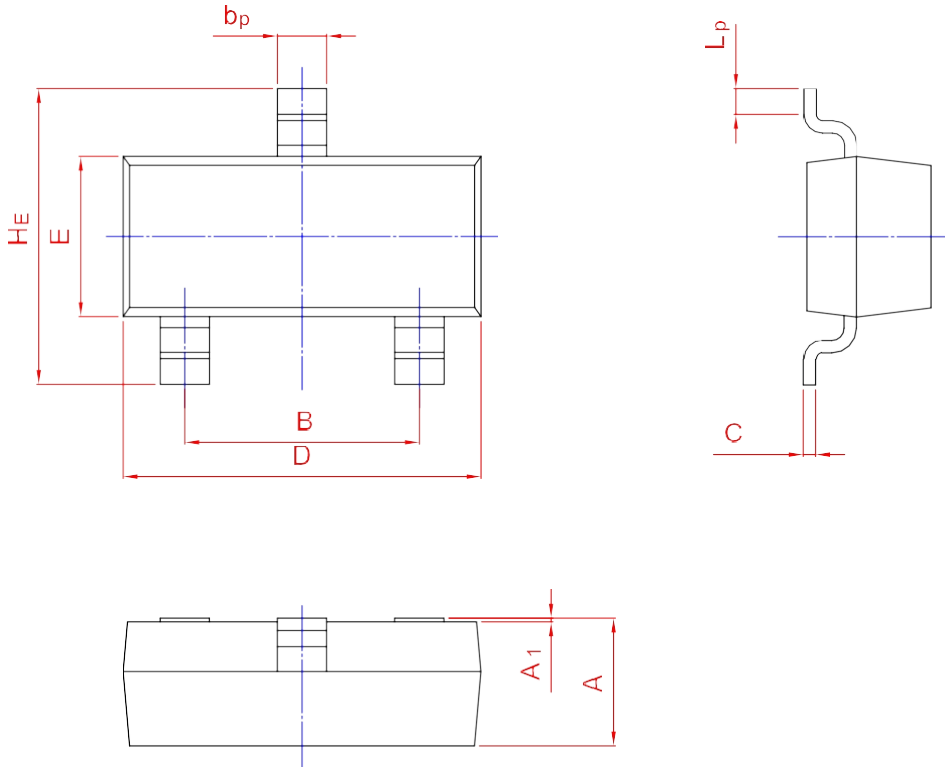

Reverse Transfer Admittan
Reverse Admittance, |Yrb| (mmhos)
8
6
4
2
0
VCE=10V
Ic=5mA
-brb
-grb
0
200
500
1000
Frequency, f (MHz)


Input Admittance
Input Admittance, |Yie| (mmhos)
24
20
16
12
8
4
0
VCE=10V
Ic=2mA
gie
bie
0
200
500
1000
Frequency, f (MHz)


Output Admittance
Output Admittance, |Yoe| (mmhos)
6
5
4
3
2
1
0
VCE=10V
Ic=2mA
boe
goe
0
200
500
1000
Frequency, f (MHz)

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20