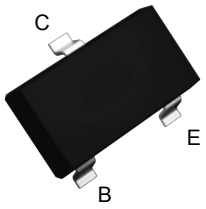
GOOD-ARK
SEMICONDUCTOR

MMBTH10
NPN Transistor

Features

- VHF/UHF Transistor
- SOT-23 plastic-encapsulate package
- RoHS compliant



SOT-23

Applications

- For general purpose amplification and switching

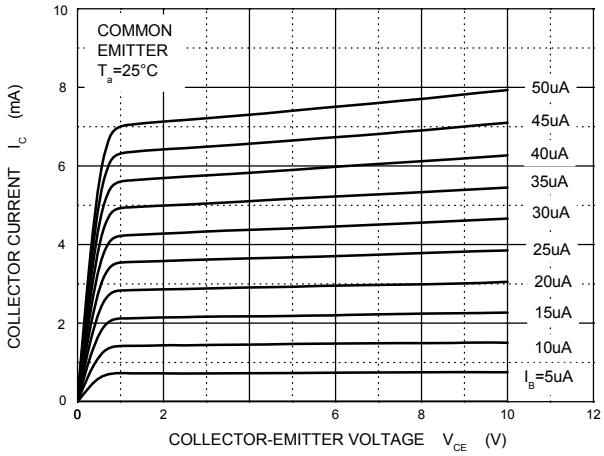
Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	50	mA
Collector Power Dissipation	P_C	225	mW
Thermal Resistance from Junction to Ambient	$R_{\Theta JA}$	556	°C/W
Junction Temperature	T_J	-55 to +150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

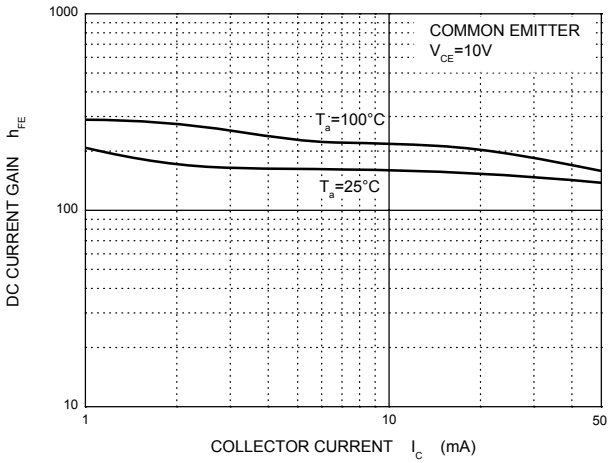
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	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

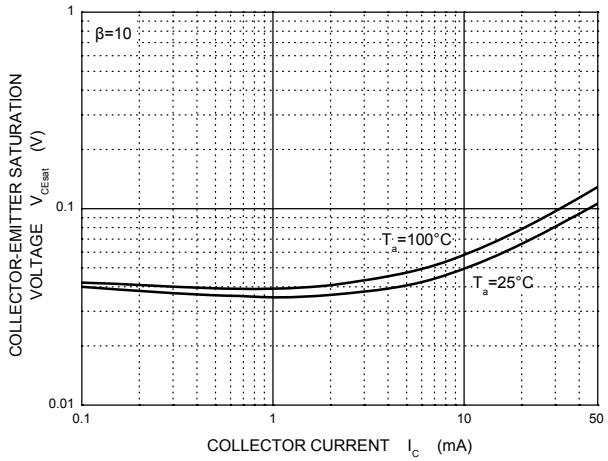
Typical Characteristic Curves



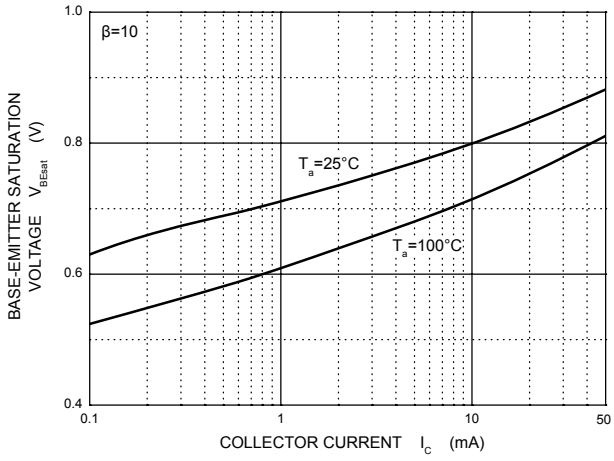
Static Characteristic



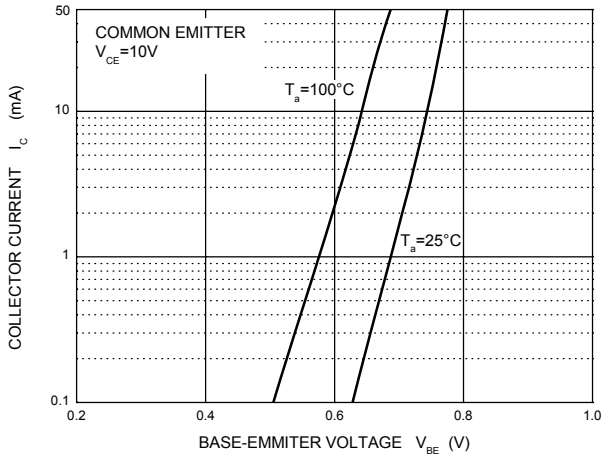
h_{FE} —— I_C



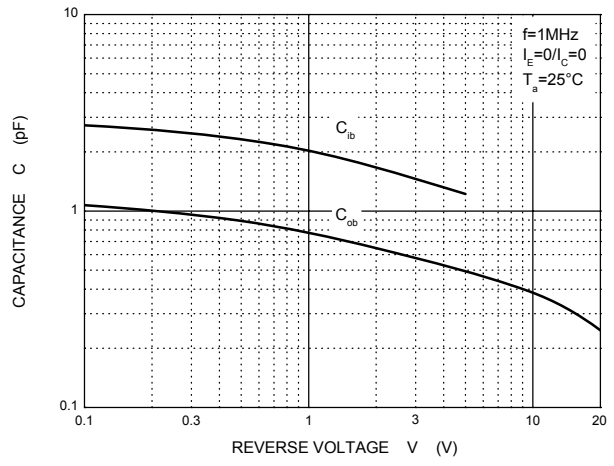
V_{CEsat} —— I_C



V_{BEsat} —— I_C

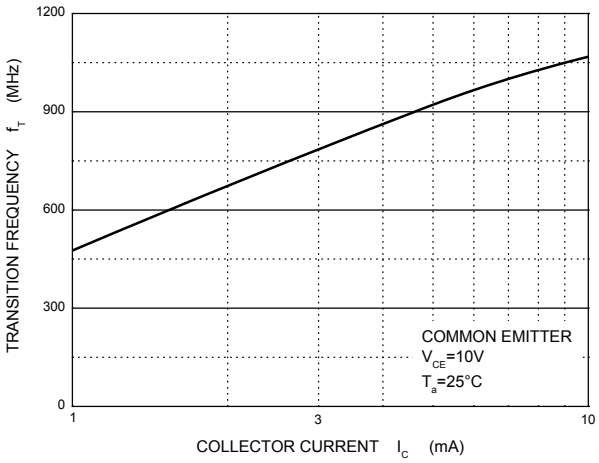


I_C —— V_{BE}

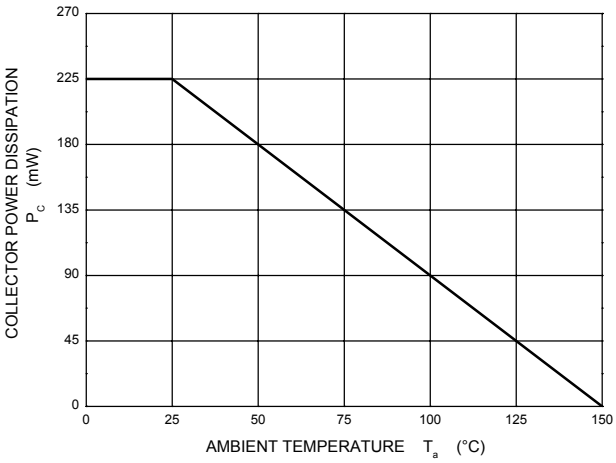


C_{ob}/ C_{ib} —— V_{CB}/ V_{EB}

Typical Characteristic Curves

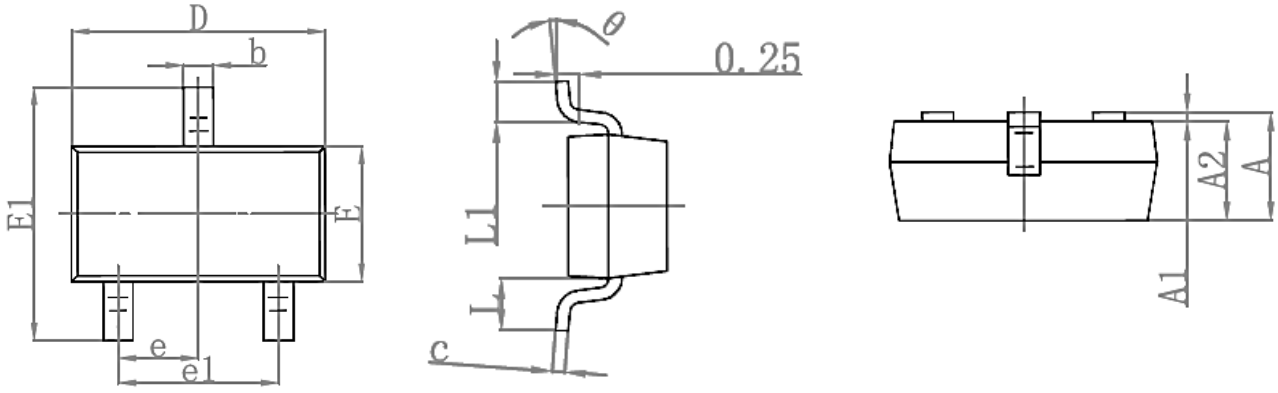


f_T —— I_C



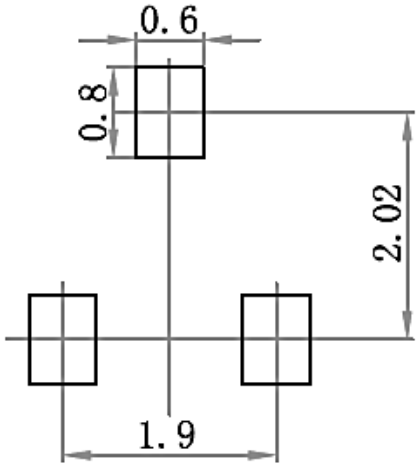
P_C —— T_a

Package Outline Dimensions SOT-23



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

Order Information

Device	Package	Marking	Carrier	Quantity	HSF Status
MMBTH10	SOT-23	3EM	Tape & Reel	3,000pcs/Reel	RoHS Compliant