



MMBT9012

PNP Silicon Transistors

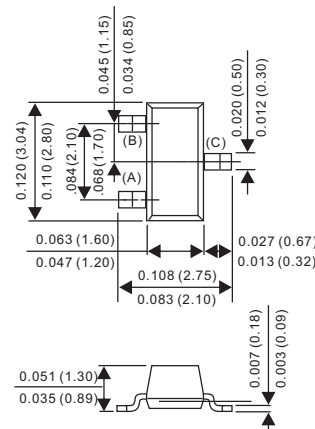
Features

- High Collector Current
- Excellent h_{FE} Linearity

SOT23**RoHS**
COMPLIANT

MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-25	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-500	mA
P_C	Collector Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	416	$^{\circ}\text{C}/\text{W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$



Dimensions in inches and (millimeters)

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

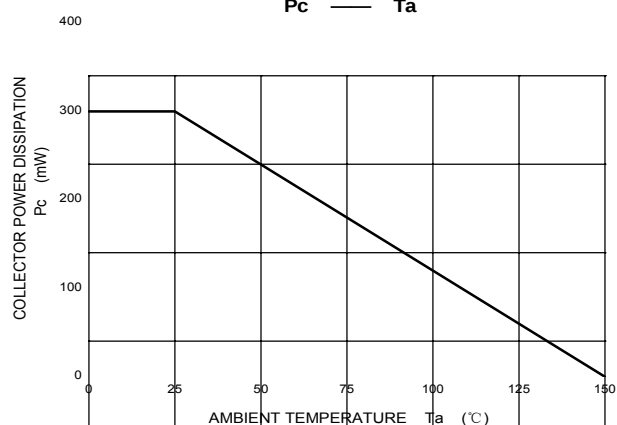
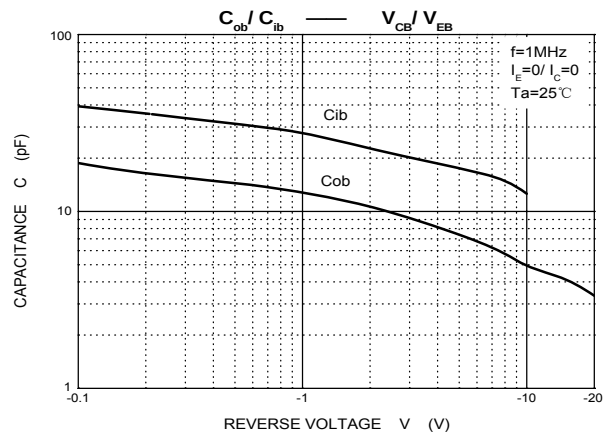
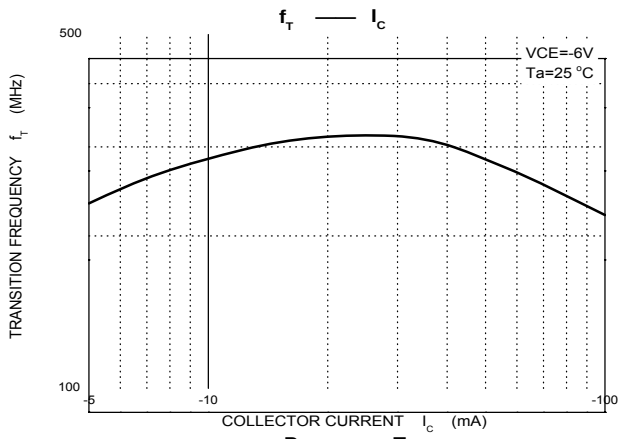
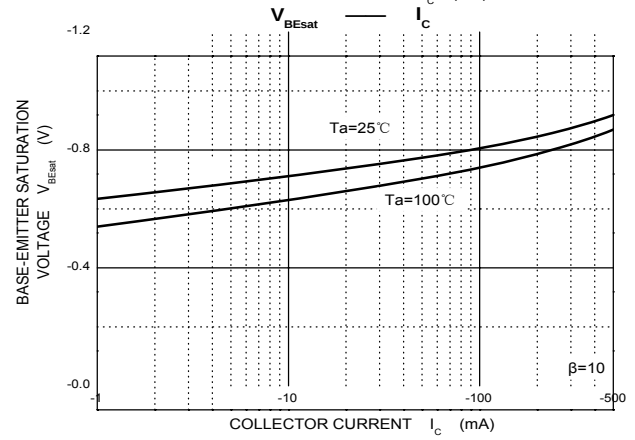
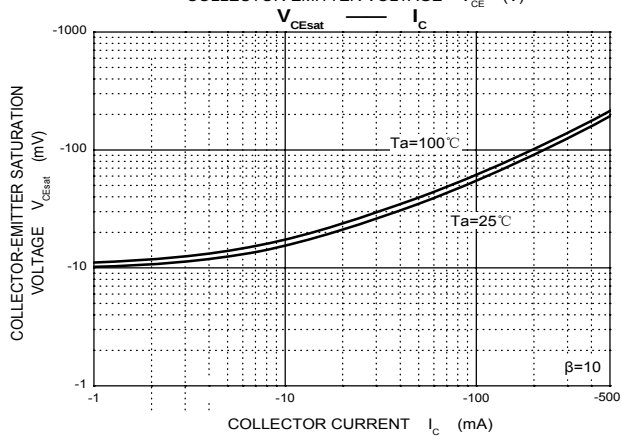
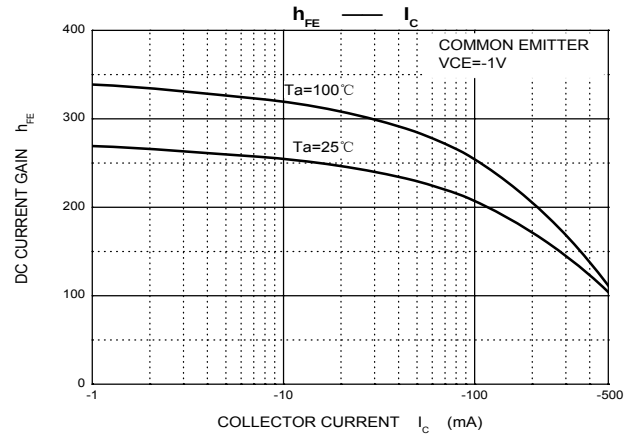
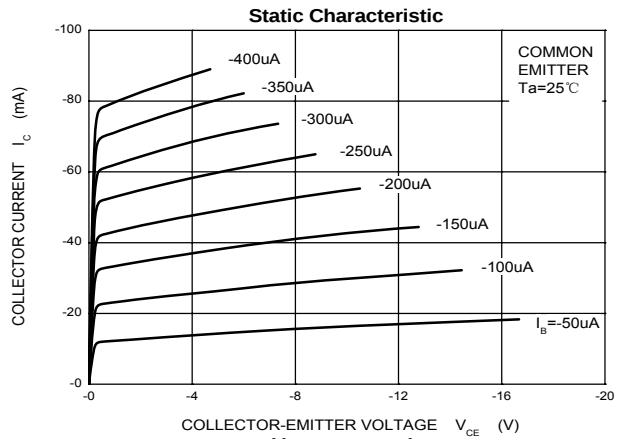
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-0.1\text{mA}$, $I_E=0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}$, $I_B=0$	-25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-0.1\text{mA}$, $I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-40\text{V}$, $I_E=0$			-0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE}=-20\text{V}$, $I_B=0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-5\text{V}$, $I_C=0$			-0.1	μA
DC current gain	h_{FE}	$V_{CE}=-1\text{V}$, $I_C=-50\text{mA}$	120		400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$			-0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$			-1.2	V
Transition frequency	f_T	$V_{CE}=-6\text{V}$, $I_C=-20\text{mA}$, $f=30\text{MHz}$	150			MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}$, $I_E=0$, $f=1\text{MHz}$			5	pF

CLASSIFICATION OF h_{FE} (2)

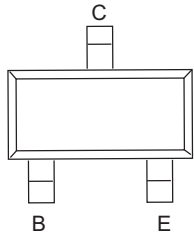
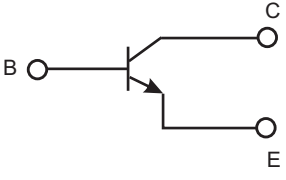
RANK	L	H	J
RANGE	120-200	200-350	300-400



Rating and characteristic curves

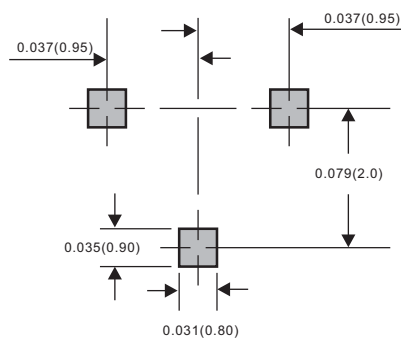


Pinning information

Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
MMBT9012	2T1

Suggested solder pad layout
SOT-23


Dimensions in inches and (millimeters)