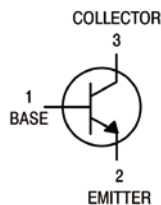


Features

- Complementary to MMBT3906M
- Small Package



SOT-723



Equivalent Circuit

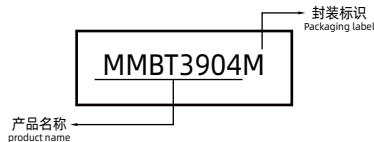
Absolute Maximum Ratings($T_A=25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
V_{CB0}	Collector-Base Voltage	60	V
V_{CE0}	Collector-Emitter Voltage	40	V
V_{EB0}	Emitter-Base Voltage	6	V
I_C	Collector Current	0.2	A
P_C	Power dissipation	0.1	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	1250	$^{\circ}\text{C}/\text{W}$
T_J, T_{stg}	Operation Junction And Storage Temperature Range	-55 ~ +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CB0}$	Collector-base breakdown voltage	$I_C=10\mu\text{A}, I_E=0$	60			V
$V_{(BR)CE0}$	Collector-emitter breakdown voltage	$I_C=1\text{mA}, I_B=0$	40			V
$V_{(BR)EB0}$	Emitter-base breakdown voltage	$I_E=10\mu\text{A}, I_C=0$	6			V
I_{CEX}	Collector cut-off current	$V_{CE}=30\text{V}, V_{BE}(\text{off})=3\text{V}$			50	nA
I_{EBO}	Emitter-base cutoff current	$V_{EB}=5\text{V}, I_C=0$			100	nA
$h_{FE(1)}$	DC current gain	$V_{CE}=1\text{V}, I_C=0.1\text{mA}$	40			
$h_{FE(2)}$		$V_{CE}=1\text{V}, I_C=1\text{mA}$	70			
$h_{FE(3)}$		$V_{CE}=1\text{V}, I_C=10\text{mA}$	100		300	
$h_{FE(4)}$		$V_{CE}=1\text{V}, I_C=50\text{mA}$	60			
$V_{CE(sat)1}$	Collector-emitter saturation voltage	$I_C=10\text{mA}, I_B=1\text{mA}$			0.2	V
$V_{CE(sat)2}$		$I_C=50\text{mA}, I_B=5\text{mA}$			0.3	V
$V_{BE(sat)1}$	Base-emitter saturation voltage	$I_C=10\text{mA}, I_B=1\text{mA}$	0.65		0.85	V
$V_{BE(sat)2}$		$I_C=50\text{mA}, I_B=5\text{mA}$			0.95	V
f_T	Transition frequency	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	300			MHz
C_{ob}	Output capacitance	$V_{CB}=5\text{V}, I_E=0, f=1\text{MHz}$			4	pF
C_{ib}	Input capacitance	$V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$			8	pF
NF	Noise figure	$V_{CE}=5\text{V}, I_C=0.1\text{mA}, f=1\text{MHz}, R_S=1\text{k}\Omega$			5	dB
t_d	Delay time	$V_{CC}=3\text{V}, V_{BE}(\text{off})=-0.5\text{V}$ $I_C=10\text{mA}, I_{B1}=1\text{mA}$			35	ns
t_r	Rise time				35	ns
t_s	Storage time	$V_{CC}=3\text{V}, I_C=10\text{mA}$ $I_{B1}=-I_{B2}=1\text{mA}$			200	ns
t_f	Fall time				50	ns

Ordering information

Product ID	Pack	Naming rule	Marking	$h_{FE(1)}$	Qty(PCS)
MMBT3904M	SOT-723		1N	100-300	8000



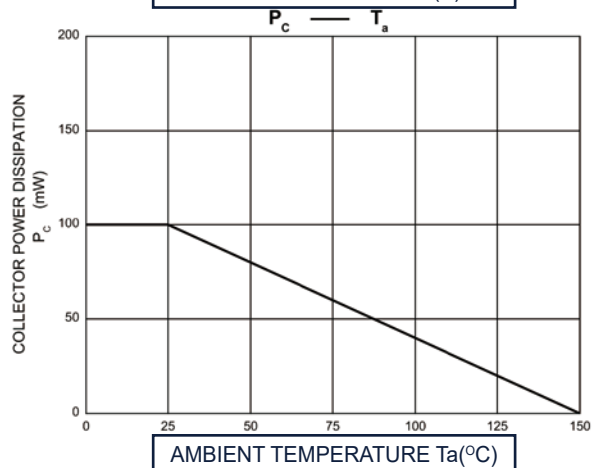
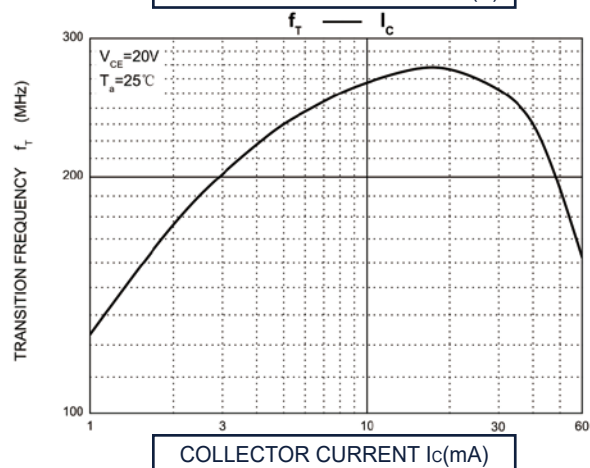
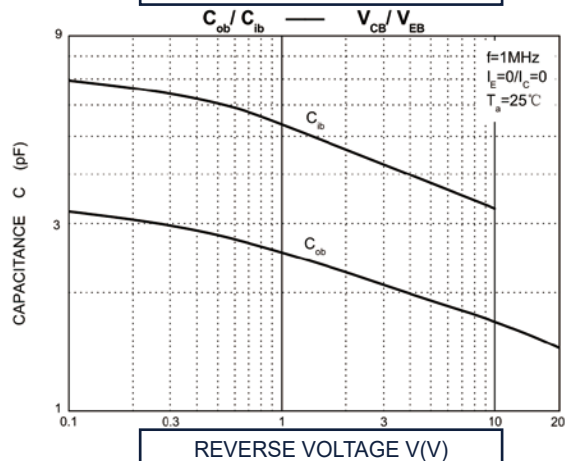
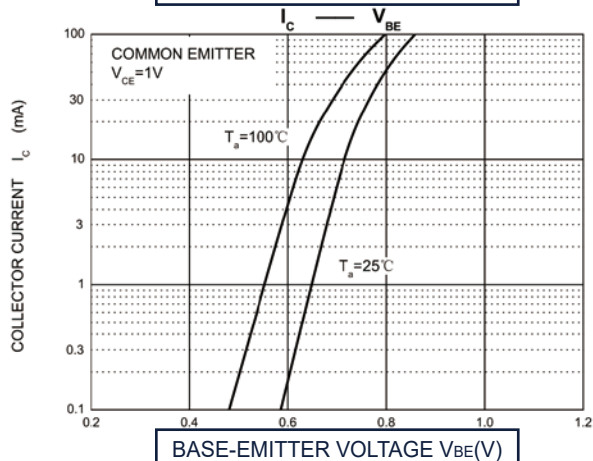
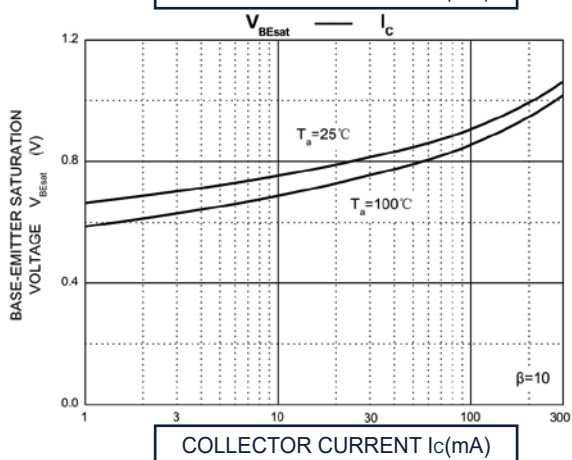
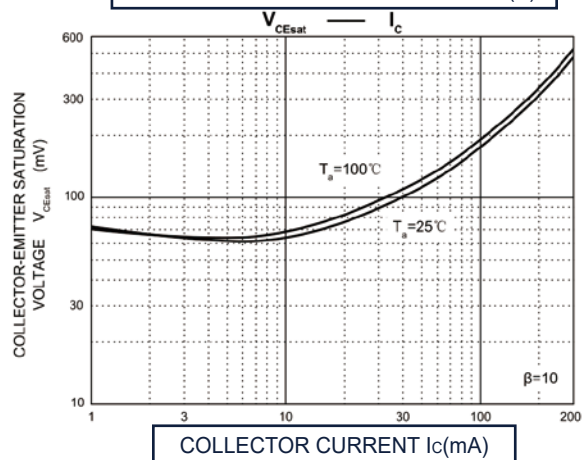
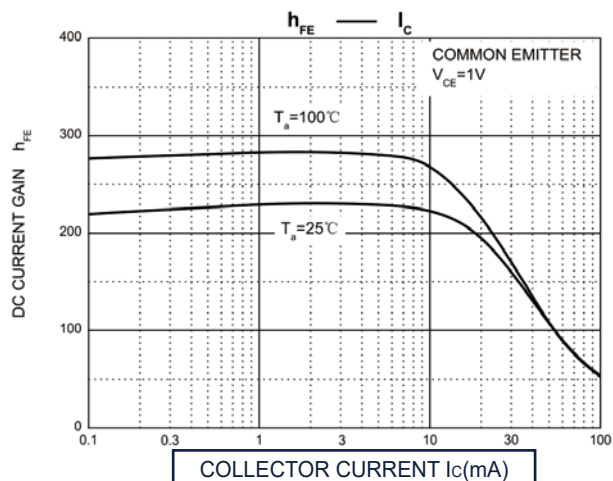
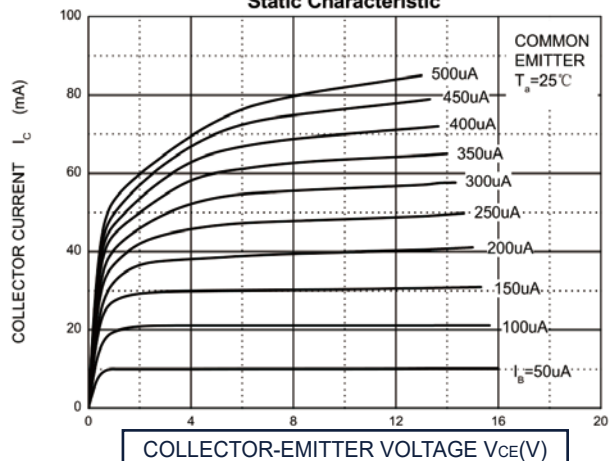
TWTLSEMI

TL-MMBT3904M

SOT-723 Plastic-Encapsulate Transistors (NPN)

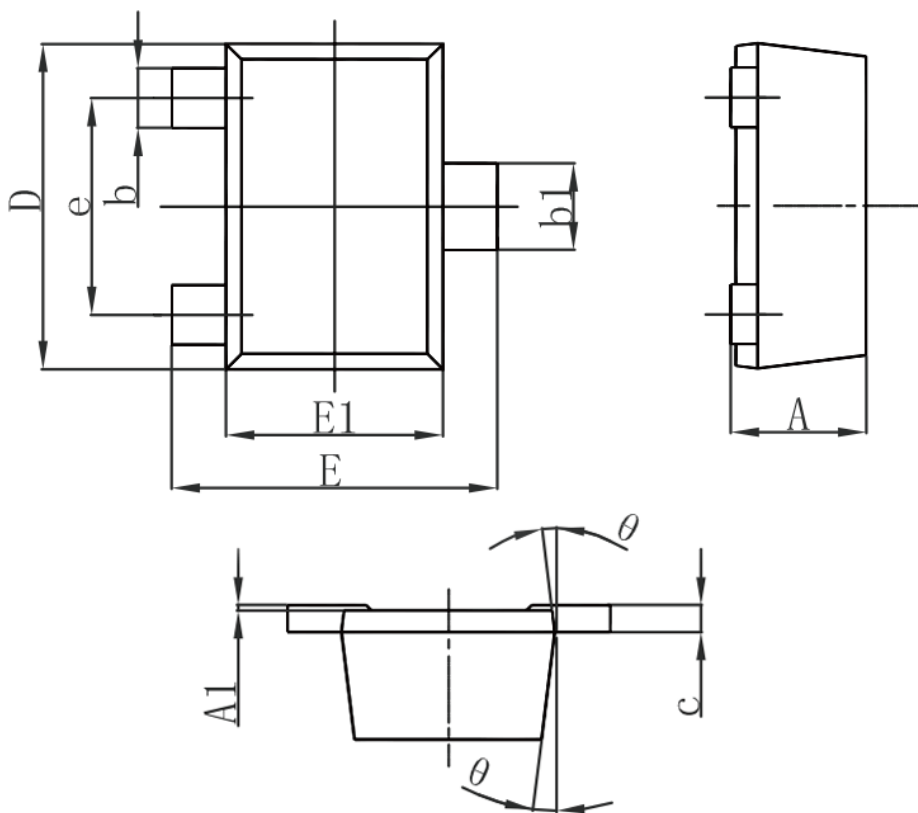
Typical Characteristics

Static Characteristic





SOT-723 Package Outline Dimensions



Symbol	Dimensions in Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A		0.500		0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c		0.150		0.006
D	1.150	1.250	0.045	0.045
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	