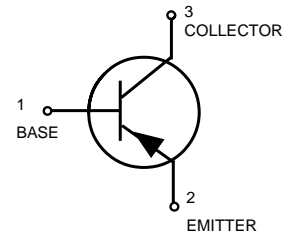


»Features

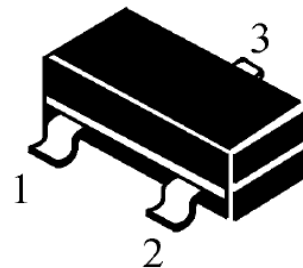
$V_{CE} = -40V$   
 $I_C = -0.2A$   
 $f_T = 250MHz @V_{CE}=-20V, I_C=-10mA, f=100MHz$

»Pin Configurations



»General Description

- As complementary type the NPN transistor MMBT3904T is recommended
- Epitaxial planar die constructio
- Epoxy UL: 94V-0
- SOT-523 Plastic Package.



»Absolute Maximum Ratings @ $T_A=25^{\circ}C$  unless otherwise noted

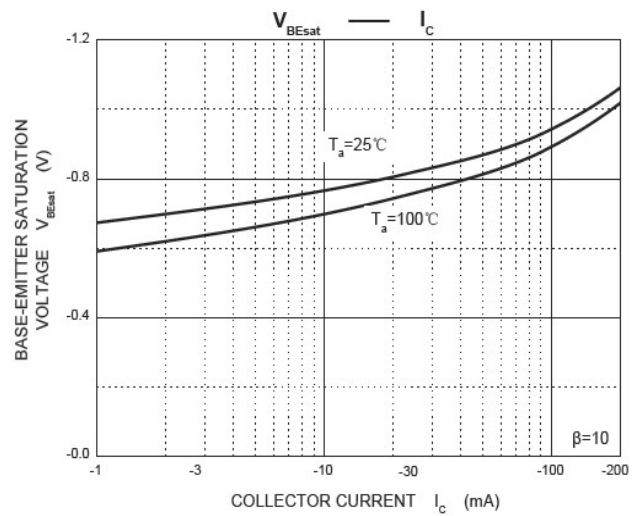
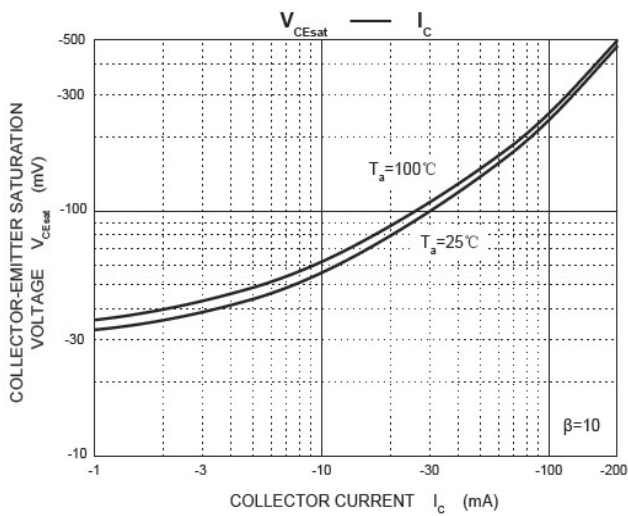
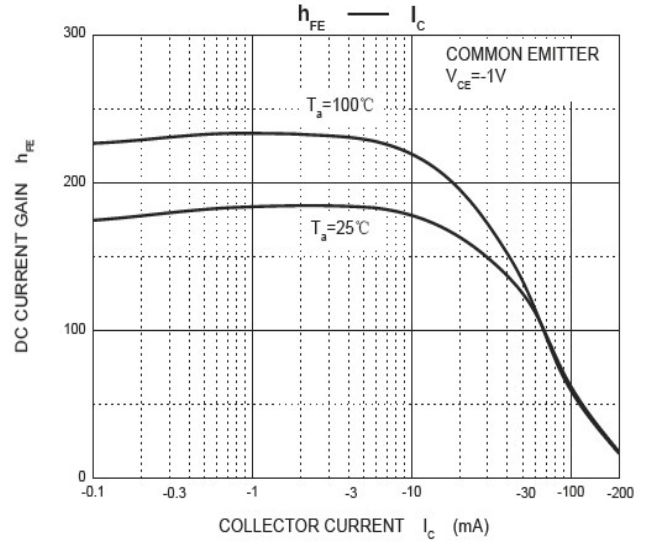
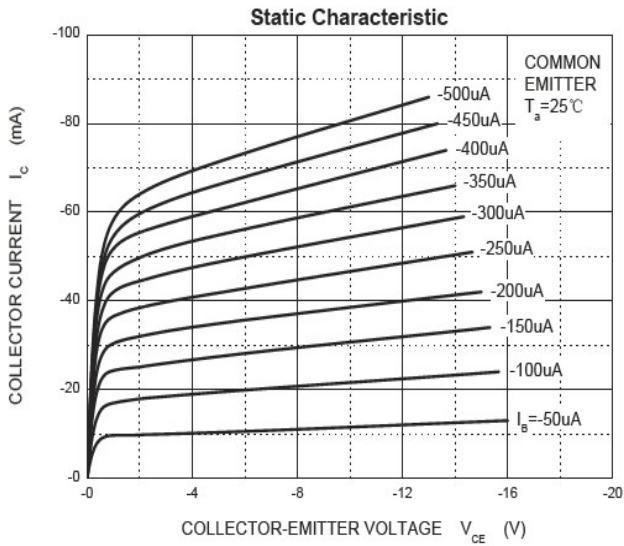
Parameters	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-40	V
Emitter -Base Voltage	$V_{EBO}$	-5	V
Collector Current-Continuous	$I_C$	-200	mA
Collector Power Dissipation	$P_C$	150	mW
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55-+150	$^{\circ}C$
Thermal resistance From junction to ambient	$R_{\theta JA}$	833	$^{\circ}C/W$

**»Electrical Characteristics @ $T_A=25^\circ\text{C}$  unless otherwise noted**

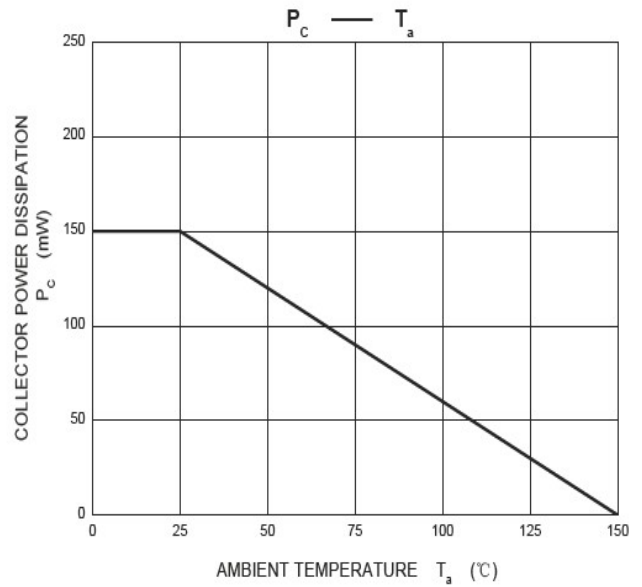
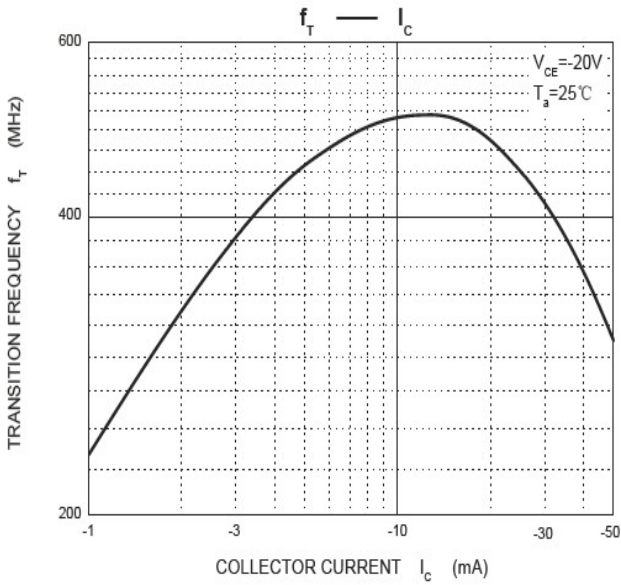
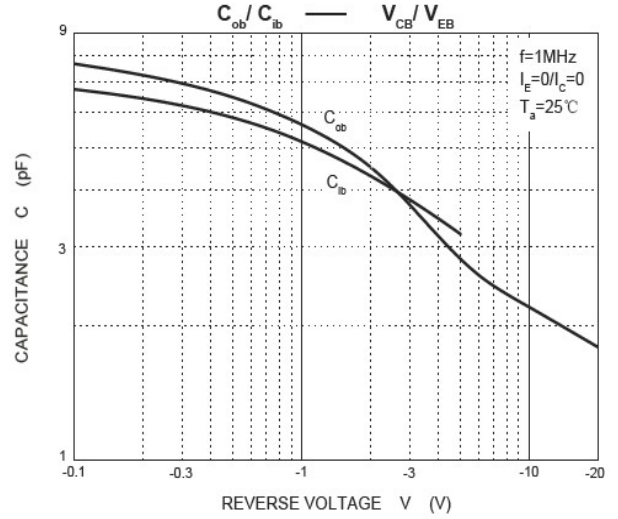
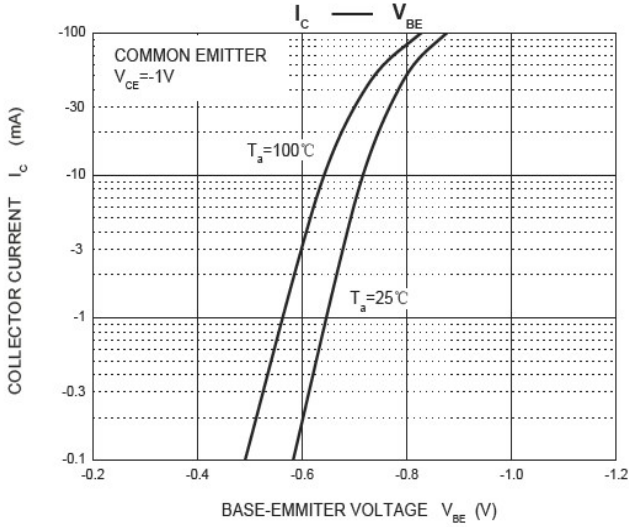
Parameter	Symbols	Test Condition	Limits		Unit
			Min	Max	
Collector-base breakdown voltage	<b>V(BR)CBO</b>	$I_C=-10\mu\text{A}, I_E=0$	-40		V
Collector-emitter breakdown voltage	<b>V(BR)CEO</b>	$I_C=-1\text{mA}, I_B=0$	-40		V
Emitter-base breakdown voltage	<b>V(BR)EBO</b>	$I_E=-10\mu\text{A}, I_C=0$	-5		V
Collector cut-off current	<b>ICBO</b>	$V_{CB}=-40\text{V}, I_E=0$		-100	nA
Emitter cut-off current	<b>IEBO</b>	$V_{EB}=-5\text{V}, I_C=0$		-100	nA
Collector cut-off current	<b>ICEX</b>	$V_{CE}=-30\text{V}, V_{EB(off)}=-3\text{V}$		-50	nA
DC current gain	<b>hFE(1)</b>	$V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$	60		
	<b>hFE(2)</b>	$V_{CE}=-1\text{V}, I_C=-1\text{mA}$	80		
	<b>hFE(3)</b>	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100	300	
	<b>hFE(4)</b>	$V_{CE}=-1\text{V}, I_C=-50\text{mA}$	60		
	<b>hFE(5)</b>	$V_{CE}=-2\text{V}, I_C=-100\text{mA}$	30		
Collector-emitter saturation voltage	<b>VCE(sat)</b>	$I_C=-10\text{mA}, I_B=-1\text{mA}$		-0.25	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$		-0.40	V
Base -emitter saturation voltage	<b>VBE(sat)</b>	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-0.65	-0.85	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$		-0.95	V
Transition frequency	<b>f<sub>T</sub></b>	$V_{CE}=-20\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	250		MHz
Collector output capacitance	<b>C<sub>ob</sub></b>	$V_{CB}=-5\text{V}, I_E=0, f=1\text{MHz}$		4.5	pF
Input capacitance	<b>C<sub>ib</sub></b>	$V_{EB}=-5\text{V}, I_E=0, f=1\text{MHz}$		10	pF
Noise figure	<b>NF</b>	$V_{CE}=-5\text{V}, I_C=-0.1\text{mA}$		4	dB
Delay time	<b>t<sub>d</sub></b>	$V_{CC}=-3\text{V}, V_{BE(off)}=-0.5\text{V}, I_C=-10\text{mA}, I_{B1}=-1\text{mA}$		35	nS
Rise time	<b>t<sub>r</sub></b>			35	nS
Storage time	<b>t<sub>s</sub></b>	$V_{CC}=-3\text{V}, I_C=-10\text{mA}, I_{B1}=I_{B2}=-1\text{mA}$		225	nS
Fall time	<b>t<sub>f</sub></b>			75	nS

\*Pulse test: pulse width $\leq 300\mu\text{s}$ , duty cycle $\leq 2.0\%$

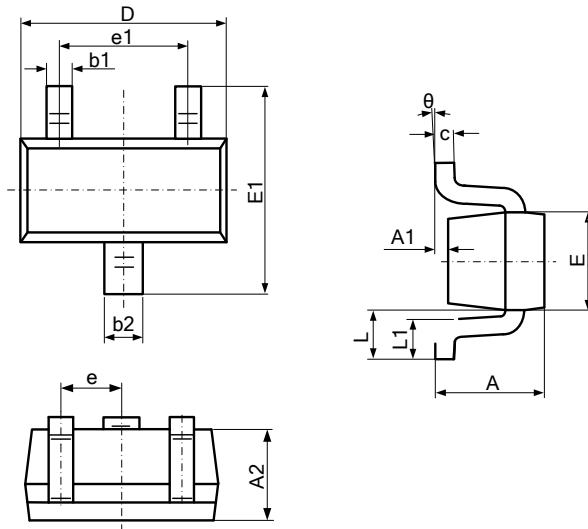
»Typical Performance Characteristics (T<sub>J</sub> = 25 °C, unless otherwise noted)



»Typical Performance Characteristics (( $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise noted))



»Package Information SOT-523



Symbol	Dimensions			
	Millimeter		Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.325	0.010	0.013
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.750	0.850	0.030	0.033
E1	1.450	1.750	0.057	0.069
e	0.50 BSC		0.02 BSC	
e1	0.900	1.100	0.035	0.043
L	0.300	0.500	0.012	0.020
L1	0.028	0.440	0.011	0.017
θ	0	8°	0	8°

»Ordering information

Order code	Package	Marking	Base qty	Delivery mode
MMBT3906T	SOT-523	3N	3K	Tape and reel

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