

Features

- Small package.
- Complementary to MMBT3906M

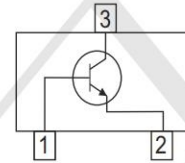
Mechanical data

- Case: SOT-723, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.

Package and Pin Configuration

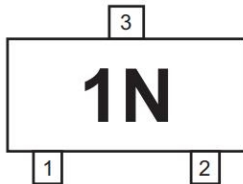


Circuit diagram



- 1.BASE
- 2.EMITTER
- 3.COLLECTOR

Marking



Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Collector-Base voltage		V _{CB0}	60	V
Collector-Emitter voltage		V _{CE0}	40	V
Emitter-Base voltage		V _{EB0}	6	V
Collector current-continuous		I _C	0.2	A
Power dissipation		P _C	0.1	W
Thermal resistance	junction to ambient	R _{θJA}	1250	°C/W
Junction temperature		T _J	150	°C
Storage temperature range		T _{stg}	-55~+150	°C

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

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

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig.1 - Static Characteristic

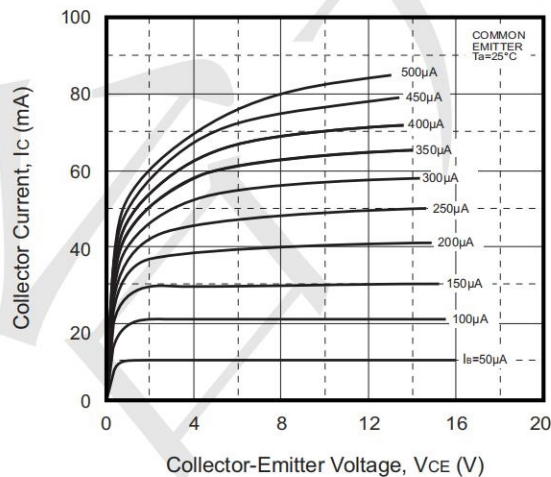


Fig.2 - $h_{FE} - I_C$

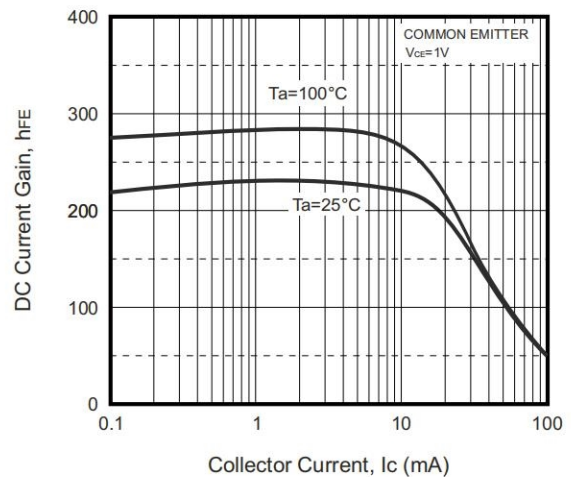


Fig.3 - $V_{CEsat} - I_c$

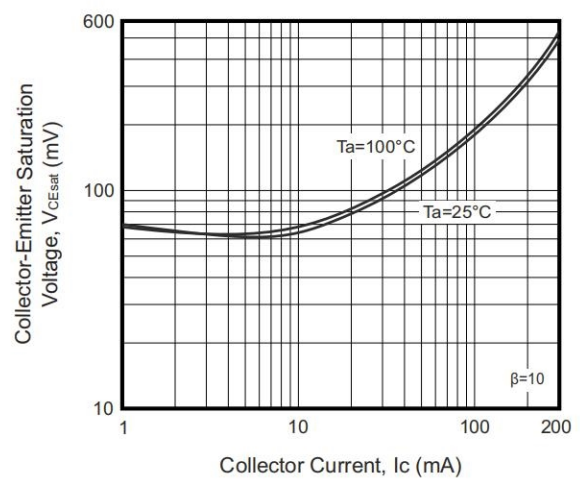


Fig.4 - $V_{BEsat} - I_c$

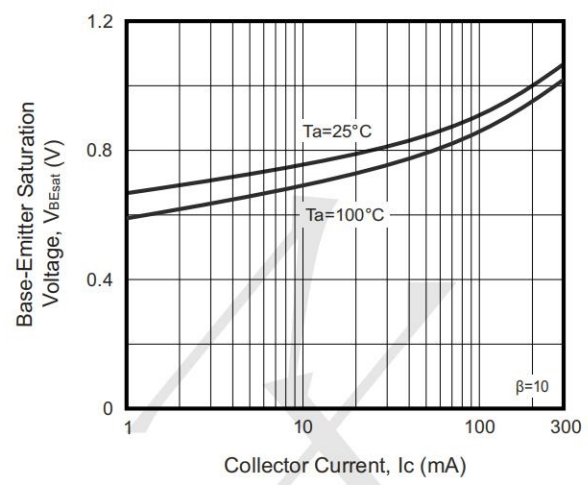


Fig.5 - $I_c - V_{BE}$

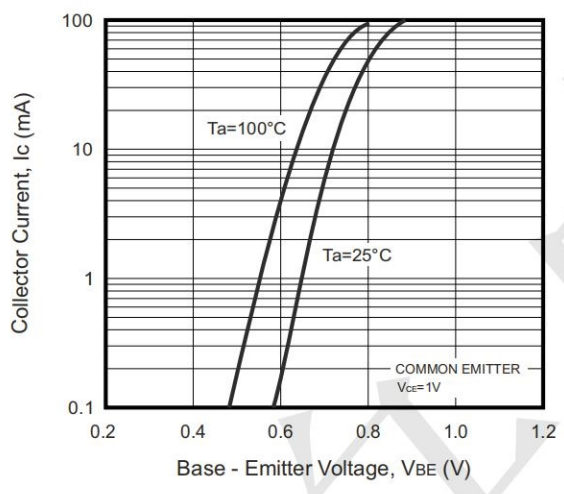


Fig.6 - $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

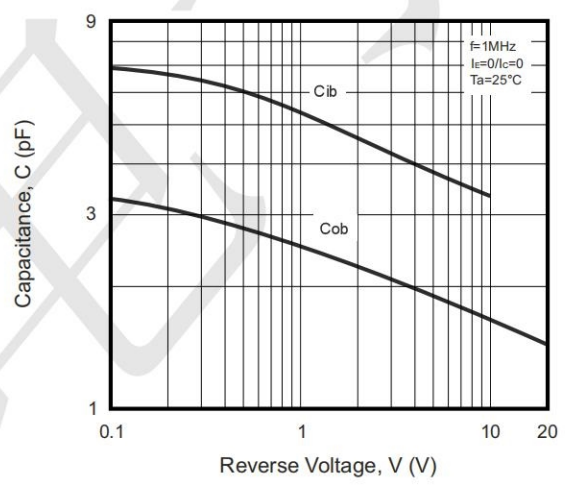


Fig.7 - $f_T - I_c$

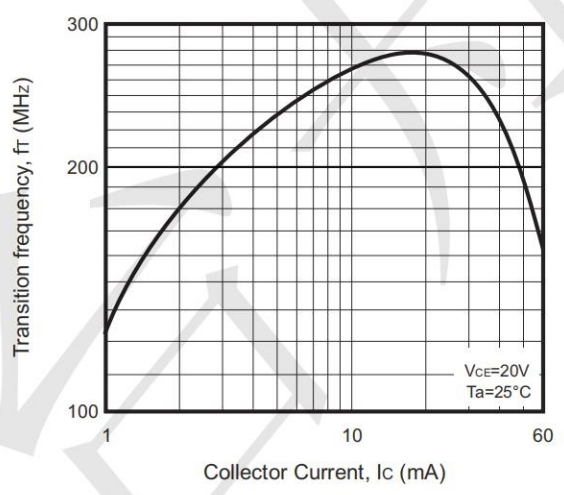
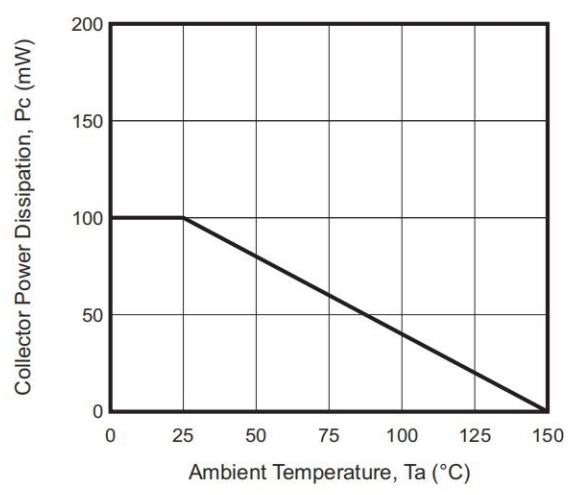
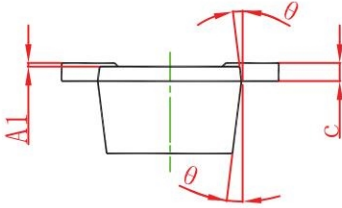
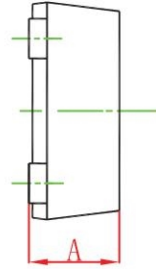
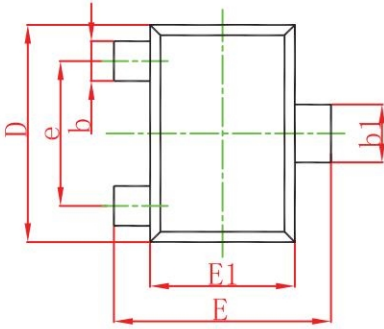


Fig.8 - $P_c - T_a$



SOT-723 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	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	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
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.	

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