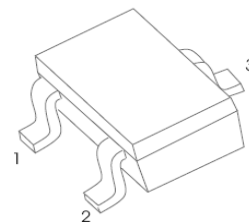
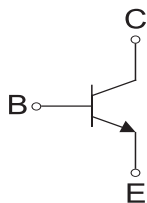
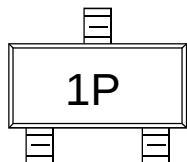


SOT-523 Plastic-Encapsulate Transistors**MMBT2222AT**

TRANSISTOR (NPN)

SOT - 523**FEATURES**

- Complementary To MMBT2907AT (PNP)

MARKING**Equivalent Circuit****1. BASE****2. EMITTER****3. COLLECTOR**

HFE	100-300	
RANK	L	H
RANGE	100 - 200	200 - 300

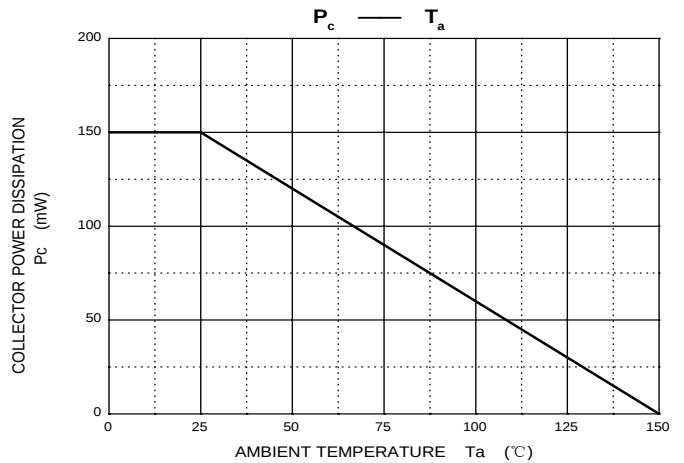
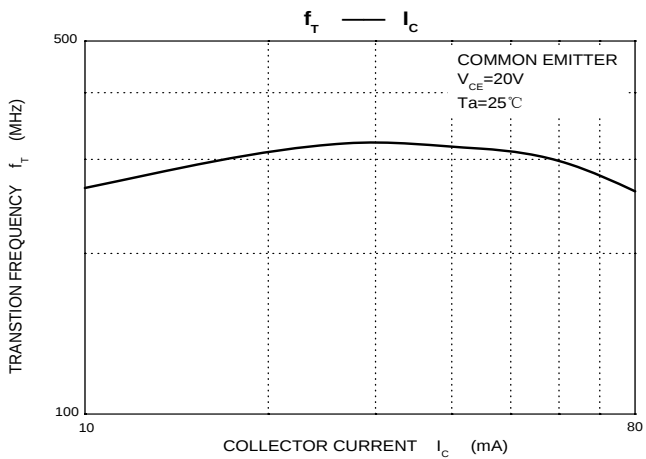
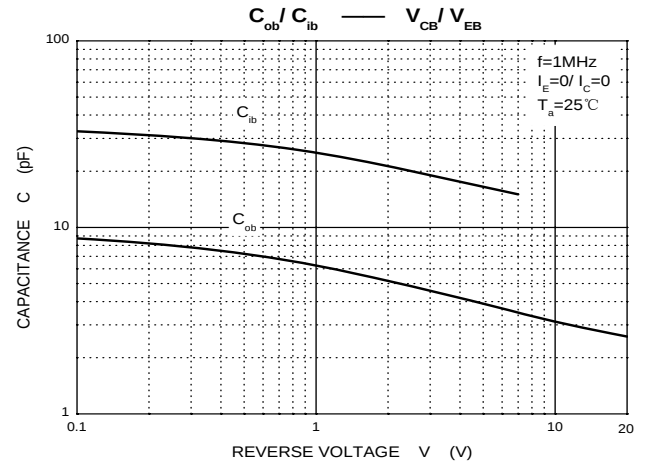
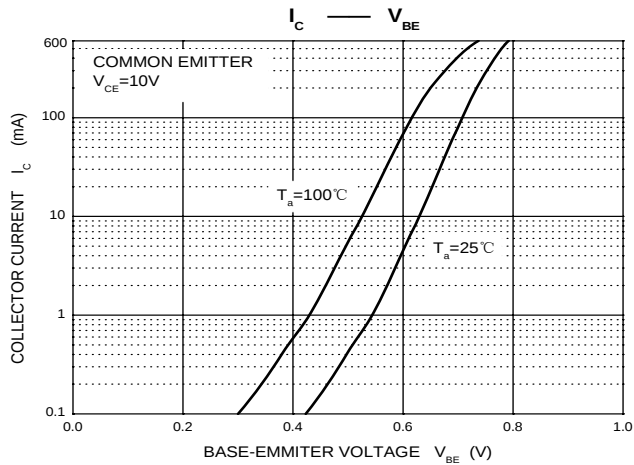
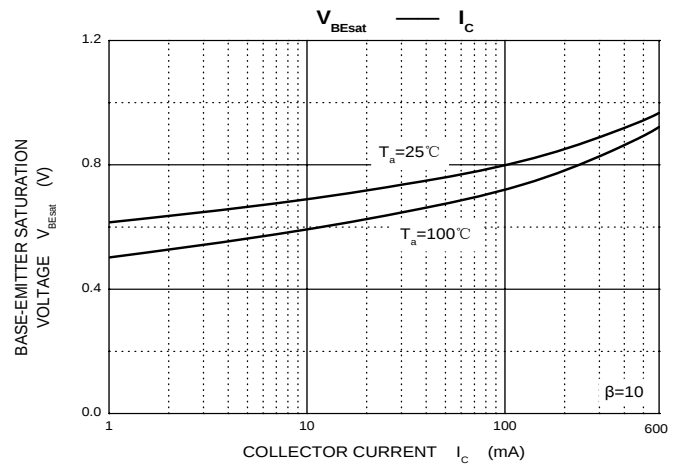
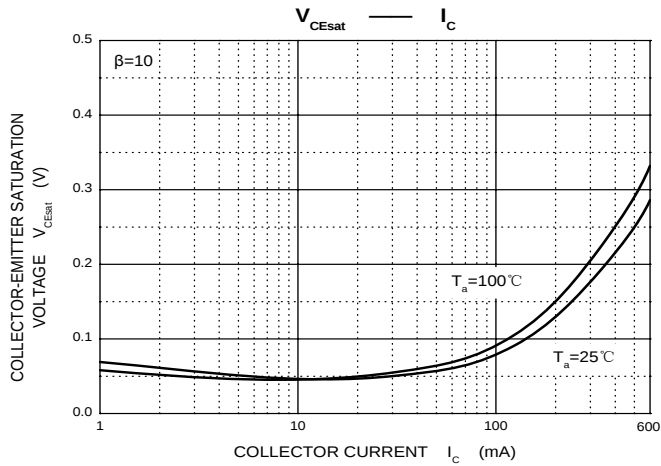
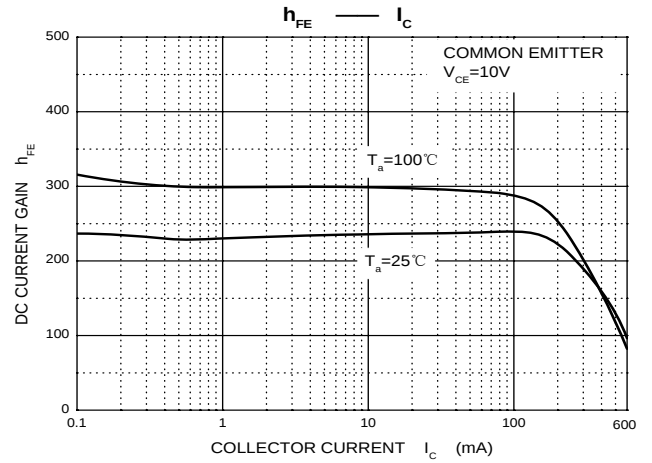
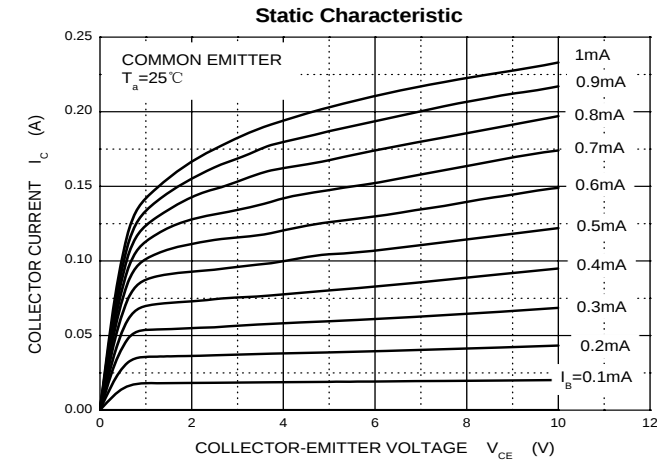
MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	75	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	600	mA
P_C	Collector Power Dissipation	150	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	833	$^{\circ}\text{C}/\text{W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	$-55 \sim +150$	$^{\circ}\text{C}$

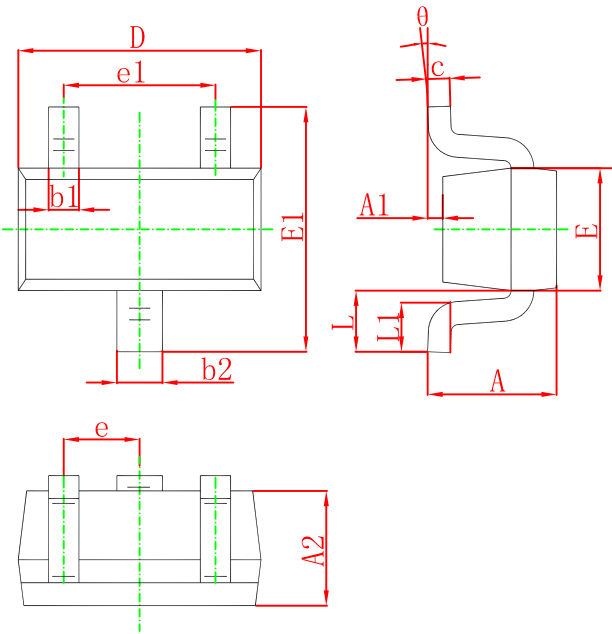
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	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}	$V_{CE}=60\text{V}, V_{EB(off)}=3\text{V}$			10	nA
DC current gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35			
	$h_{FE(2)}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	50			
	$h_{FE(3)}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75			
	$h_{FE(4)}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100		300	
	$h_{FE(5)}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$			0.3	V
		$I_C=500\text{mA}, I_B=50\text{mA}$			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$			1.2	V
		$I_C=500\text{mA}, I_B=50\text{mA}$			2	V
Transition frequency	f_T	$V_{CE}=20\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	300			MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$			8	pF
Delay time	t_d	$V_{CC}=30\text{V}, V_{BE(off)}=-0.5\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$			10	ns
Rise time	t_r	$V_{CC}=30\text{V}, V_{BE(off)}=-0.5\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$			25	ns
Storage time	t_s	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$			225	ns
Fall time	t_f	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$			60	ns

Typical Characteristics

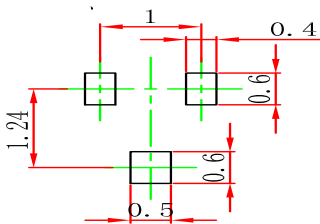


Package Outline Dimensions (SOT-523)



Symbol	Dimensions In Millimeters		Dimensions In 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	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Suggested Pad Layout (SOT-523)



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.