

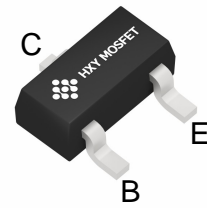


## Features

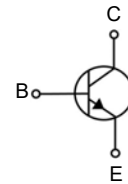
- Collector Current:  $I_C=0.6A$
- Power Dissipation of 300mW

## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
SMMBT2222ALT1G	SOT-23	1P	3000



SOT-23



## Maximum Ratings ( $T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	75	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	600	mA
Collector Power Dissipation	$P_C$	300	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	417	$^{\circ}C/W$
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55~+150	$^{\circ}C$

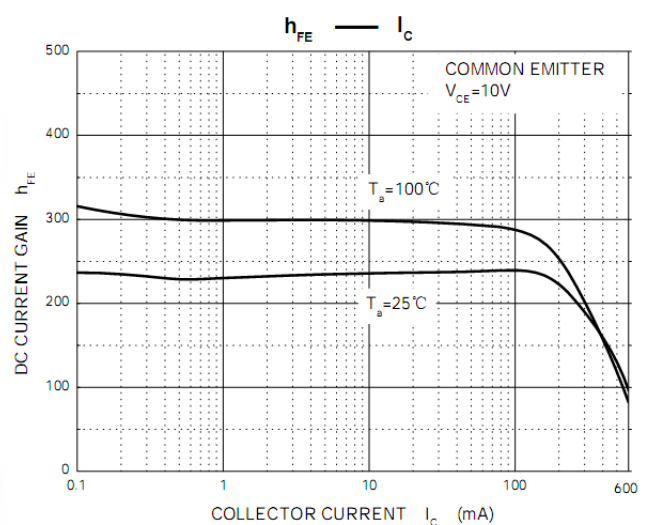
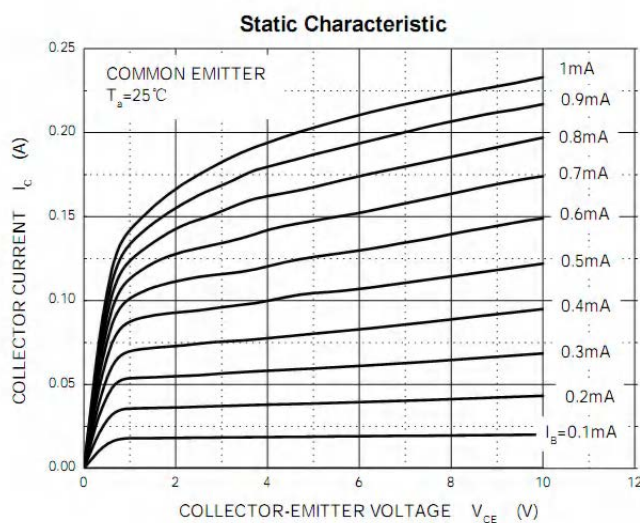


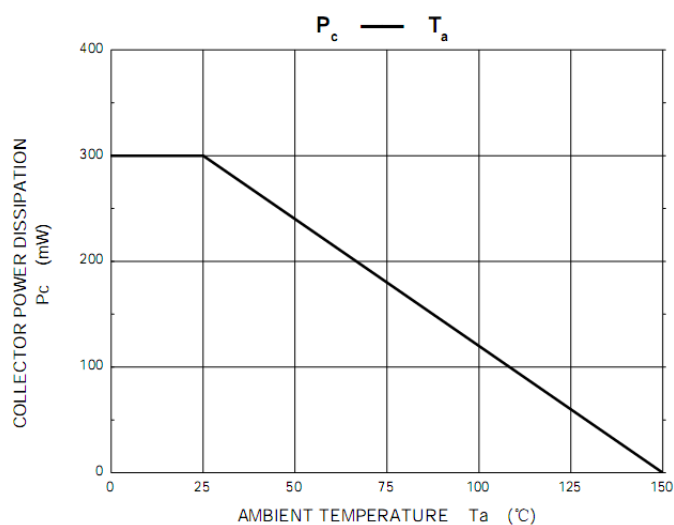
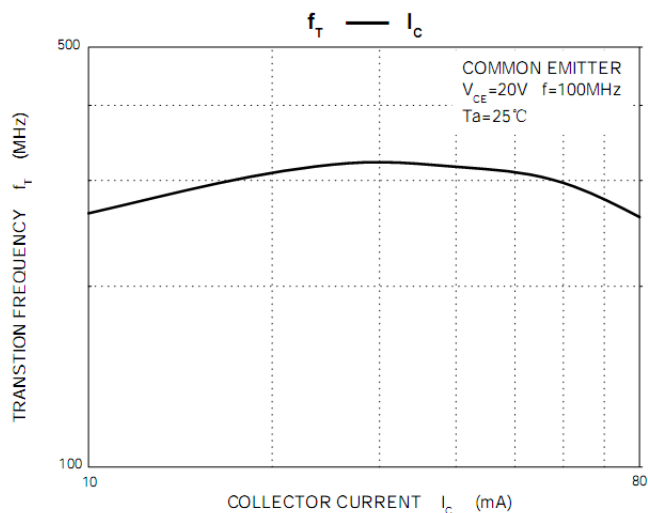
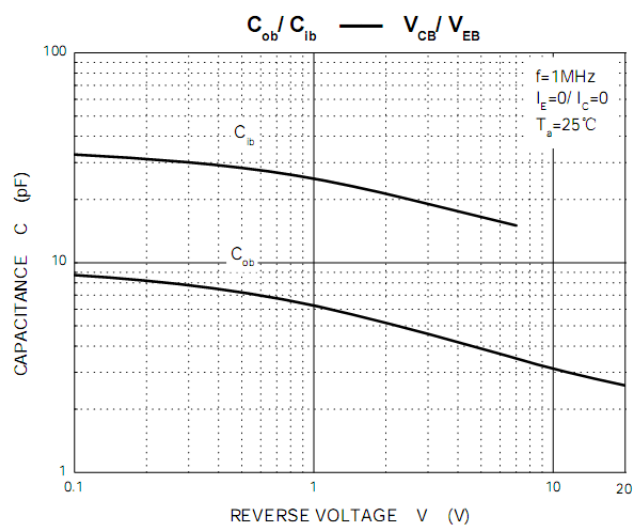
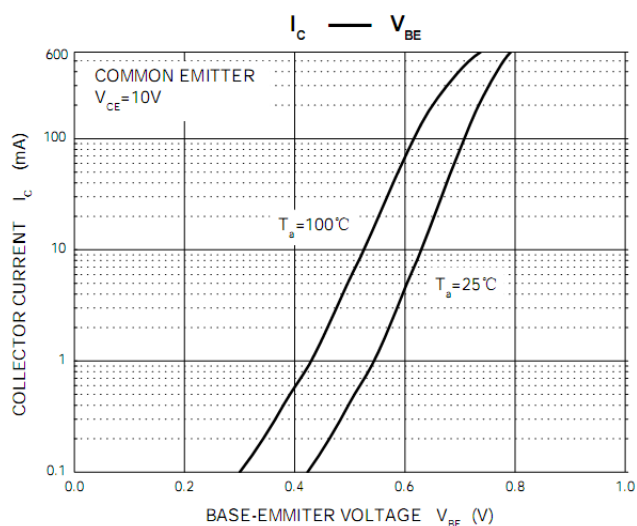
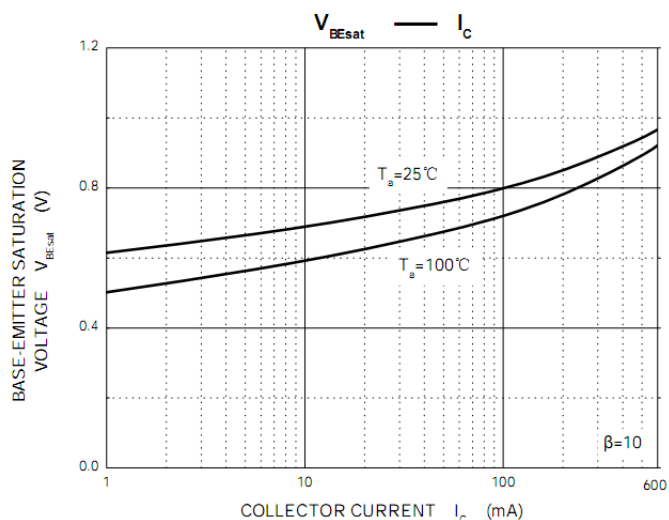
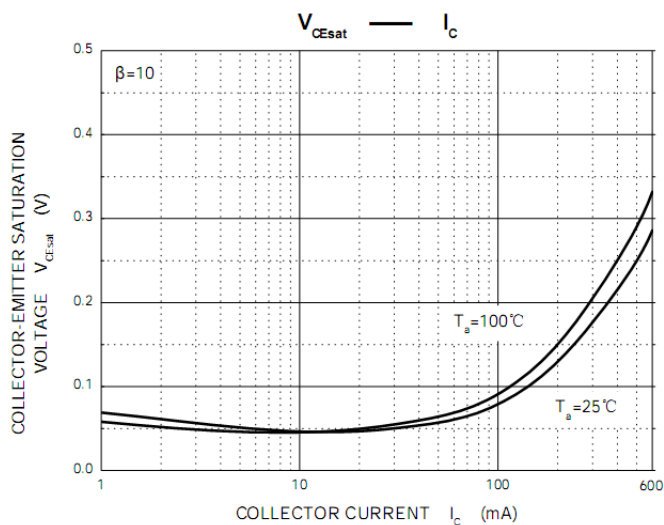
### Electrical Charaacteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C = 10mA, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$			0.01	$\mu A$
Collector cut-off current	$I_{CEX}$	$V_{CE} = 30V, V_{BE(off)} = 3V$			0.01	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 3V, I_C = 0$			0.1	$\mu A$
DC current gain	$h_{FE(1)}^*$	$V_{CE} = 10V, I_C = 150mA$	200		300	
	$h_{FE(2)}$	$V_{CE} = 10V, I_C = 0.1mA$	40			
	$h_{FE(3)}^*$	$V_{CE} = 10V, I_C = 500mA$	42			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C = 500mA, I_B = 50mA$ $I_C = 150mA, I_B = 15mA$			1 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C = 500mA, I_B = 50mA$ $I_C = 150mA, I_B = 15mA$			2.0 1.2	V
Transition frequency	$f_T$	$V_{CE} = 20V, I_C = 20mA,$ $f = 100MHz$	300			MHz
Delay time	$t_d$	$V_{CC} = 30V, V_{BE(off)} = -0.5V$ $I_C = 150mA, I_{B1} = 15mA$			10	ns
Rise time	$t_r$				25	ns
Storage time	$t_s$	$V_{CC} = 30V, I_C = 150mA$			225	ns
Fall time	$t_f$	$I_{B1} = -I_{B2} = 15mA$			60	ns

\*pulse test: Pulse Width  $\leq 300\mu s$ , Duty Cycles  $\leq 2.0\%$ .

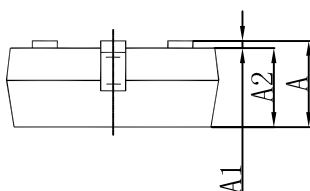
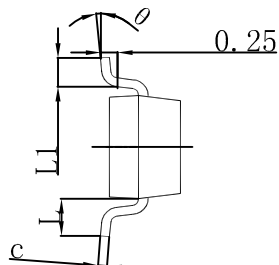
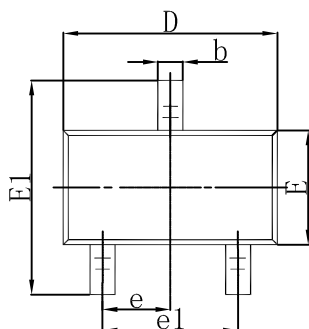
### Typical Characteristics





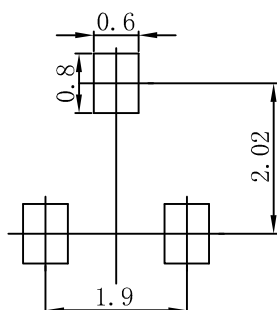


## SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

## SOT-23 Suggested Pad Layout



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



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