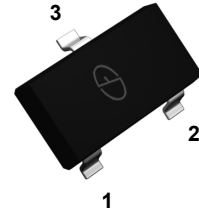


Features

- High DC Current Gain
- Low Saturation Voltage
- NPN Complementary MMBT2222A



SOT-23

Applications

- General Purpose Amplifier
- Small Load Switch

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

Absolute Maximum Ratings

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

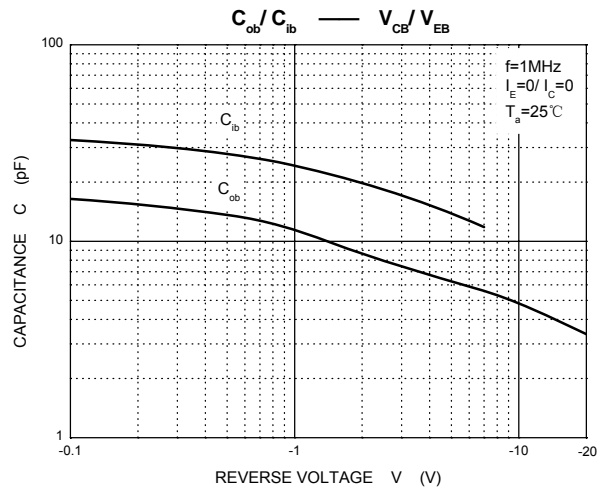
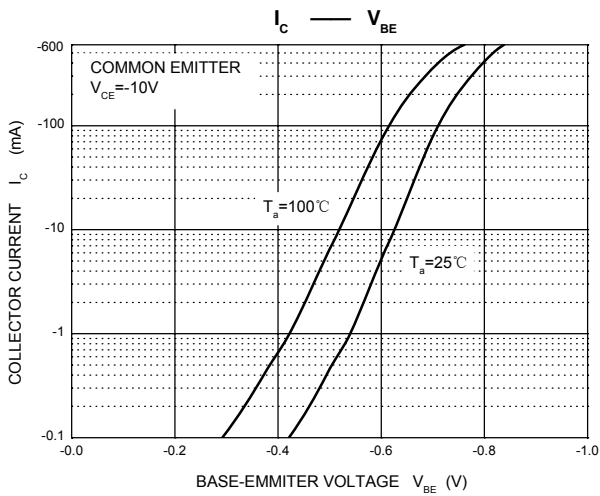
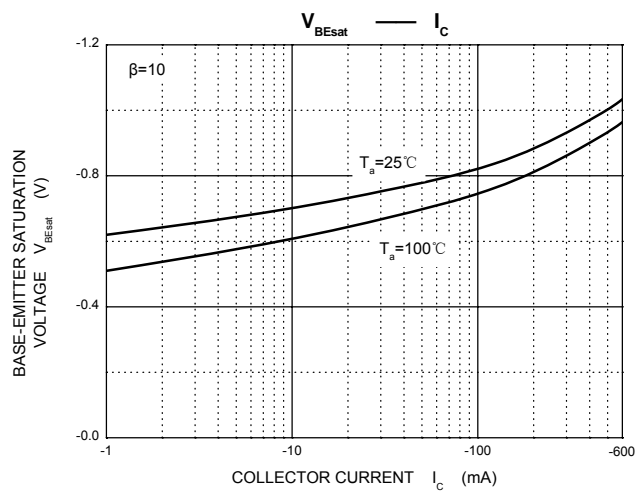
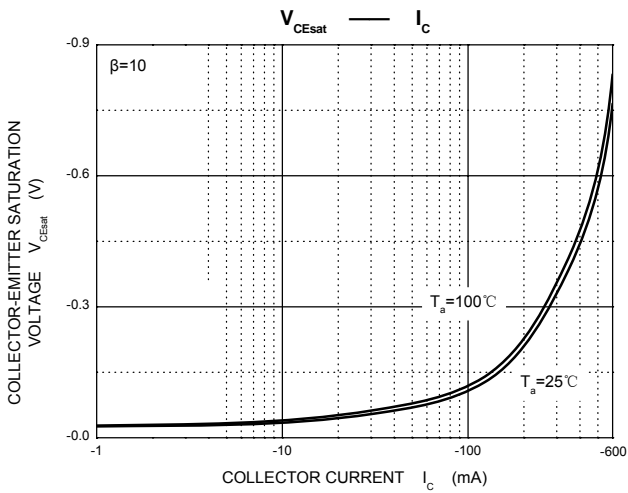
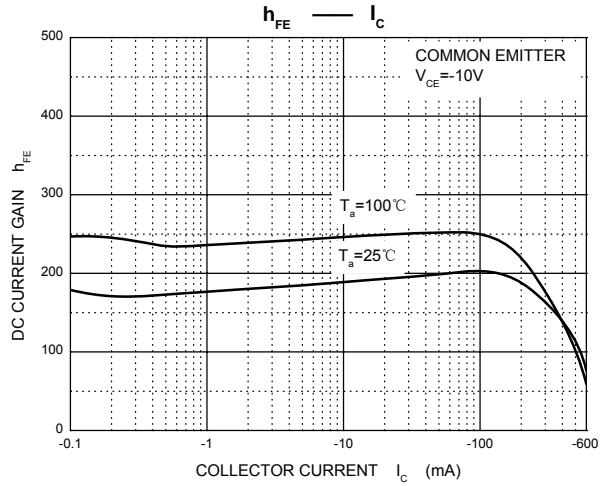
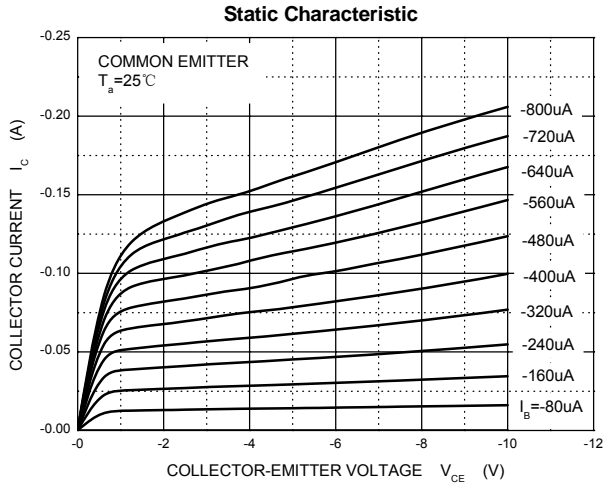
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-60	V
Collector to Emitter Voltage	V_{CEO}	-60	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current	I_C	-600	mA
Collector Power Dissipation	P_D	250	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	500	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

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

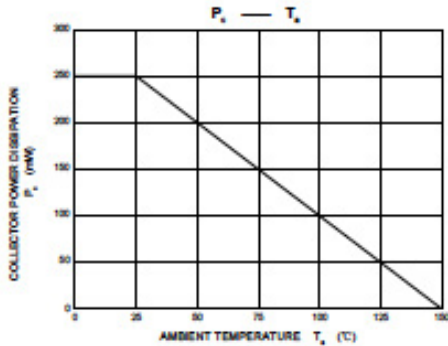
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-60	-	V
Collector-emitter Breakdown Voltage	$V_{(BR)CEO}^*$	$I_C=-10\text{mA}, I_B=0$	-60	-	V
Emitter-base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB}=-50\text{V}, I_E=0$	-	-20	nA
Base Cut-off Current	I_{EBO}	$V_{EB}=-3\text{V}, I_C=0$	-	-10	nA
Collector Cut-off Current	I_{CEX}	$V_{CE}=-30\text{V}, V_{BE(off)}=-0.5\text{V}$	-	-50	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-10\text{V}, I_C=-150\text{mA}$	100	300	-
	$h_{FE(2)}$	$V_{CE}=-10\text{V}, I_C=-0.1\text{mA}$	75	-	
	$h_{FE(3)}$	$V_{CE}=-10\text{V}, I_C=-1\text{mA}$	100	-	
	$h_{FE(4)}$	$V_{CE}=-10\text{V}, I_C=-10\text{mA}$	100	-	
	$h_{FE(5)}$	$V_{CE}=-10\text{V}, I_C=-500\text{mA}$	50	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}^*$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-	-0.4	V
	$V_{CE(sat)}^*$	$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-1.6	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}^*$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-	-1.3	V
	$V_{BE(sat)}^*$	$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-2.6	V
Transition Frequency	f_T	$V_{CE}=-20\text{V}, I_C=-50\text{mA}, f=100\text{MHz}$	200	-	MHz
Delay Time	t_d	-	-	10	nS
Rise Time	t_r	$V_{CE}=-30\text{V}, I_C=-150\text{mA}, I_{B1}=-15\text{mA}$	-	25	nS
Storage Time	t_s	$V_{CE}=-6\text{V}, I_C=-150\text{mA}, I_{B1}=-$	-	225	nS
Fall Time	t_f	$I_{B2}=-15\text{mA}$	-	60	nS

Pulse test: $t_p \leq 300\mu\text{s}$, $\delta \leq 0.02$.

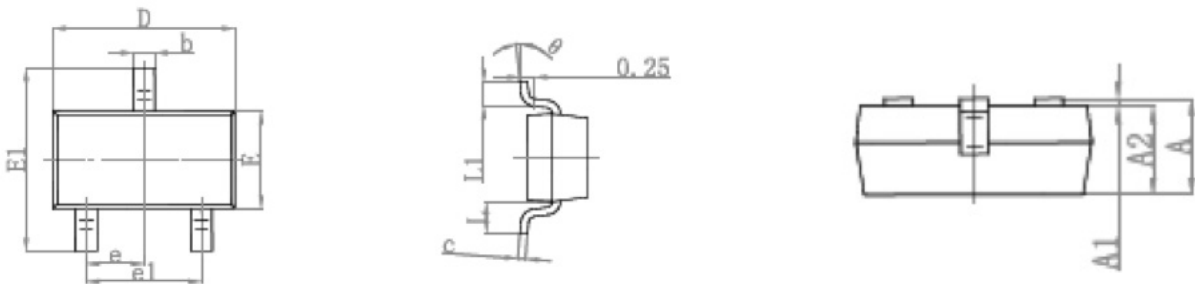
Electrical Characteristic Curves



Electrical Characteristic Curves

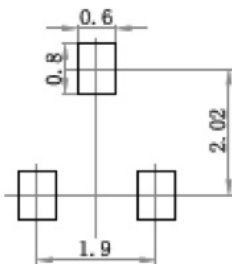


Package Outline Dimensions (SOT-23)



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°

Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.