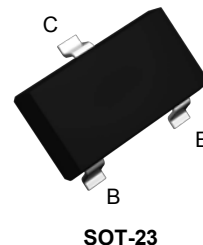


Features

- High DC current gain
- Low saturation voltage
- NPN Complementary MMBT2222A



Applications

- General purpose amplifier
- Small load switch

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 ¹	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-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 ¹	h_{FE}	$V_{CE}=-10\text{V}, I_C=-150\text{mA}$	100	300	-
		$V_{CE}=-10\text{V}, I_C=-0.1\text{mA}$	75	-	
		$V_{CE}=-10\text{V}, I_C=-1\text{mA}$	100	-	
		$V_{CE}=-10\text{V}, I_C=-10\text{mA}$	100	-	
		$V_{CE}=-10\text{V}, I_C=-500\text{mA}$	50	-	
Collector-Emitter Saturation Voltage ¹	$V_{CE(sat)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-	-0.4	V
		$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-1.6	V
Base-Emitter Saturation Voltage ¹	$V_{BE(sat)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-	-1.3	V
		$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-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	$V_{CE}=-30\text{V}, I_C=-150\text{mA}, I_{B1}=-15\text{mA}$	-	10	nS
Rise Time	t_r		-	25	nS
Storage Time	t_s	$V_{CE}=-6\text{V}, I_C=-150\text{mA}, I_{B1}=I_{B2}=-15\text{mA}$	-	225	nS
Fall Time	t_f		-	60	nS

Note: 1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$

Electrical Characteristic Curves

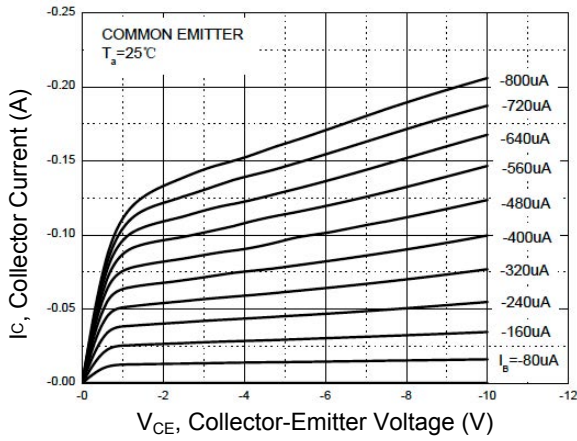


Figure 1. Static Characteristic

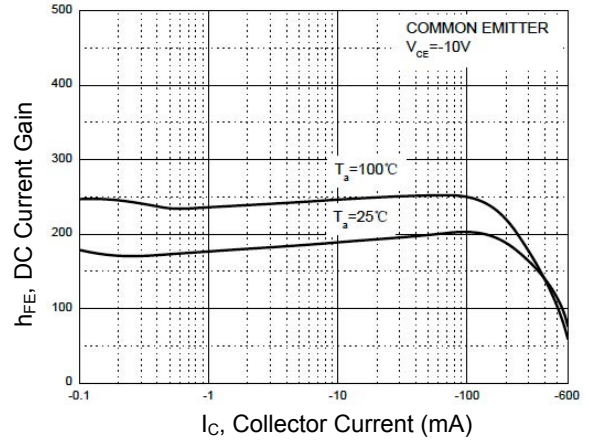


Figure 2. DC Current Gain VS. Collector Current

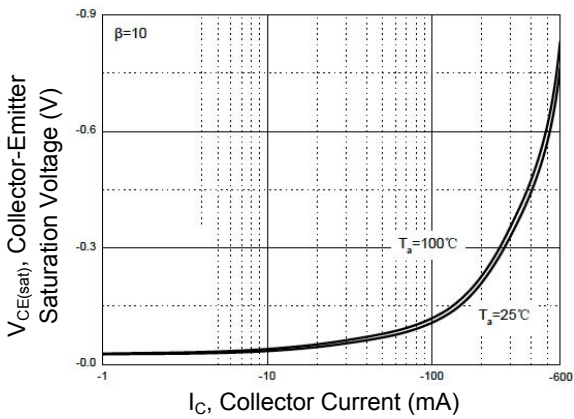


Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current

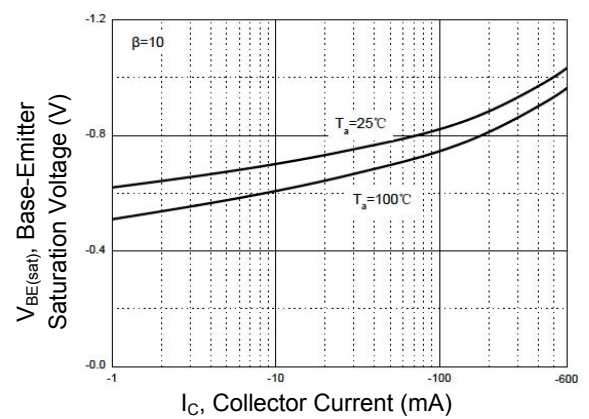


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

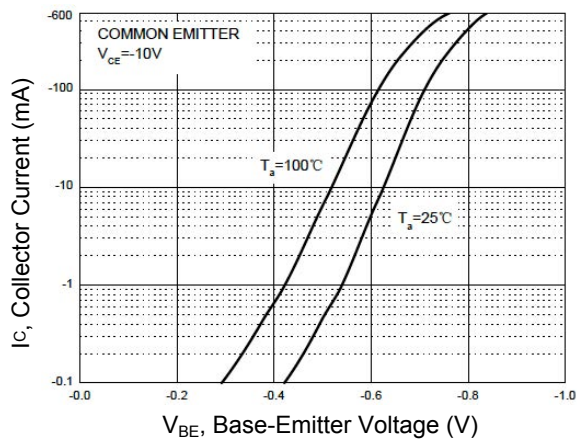


Figure 5. Collector Current vs. Base-Emitter Voltage

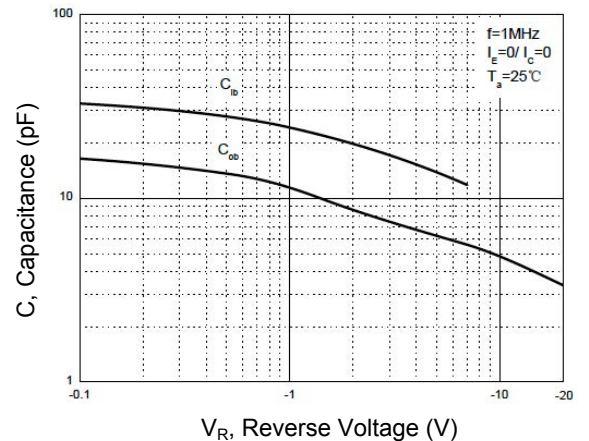


Figure 6. C_{cb}/C_{ce} vs. V_{cb}/V_{eb}

Electrical Characteristic Curves

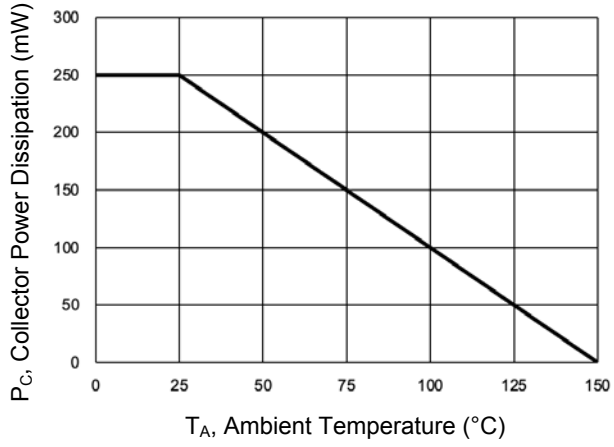
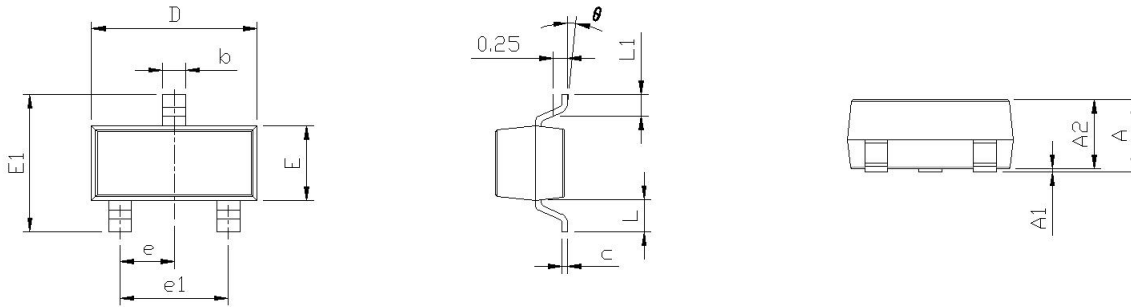


Figure 7. Power Dissipation vs. Ambient Temperature

Package Outline Dimensions (SOT-23)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.043
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°

Order Information

Device	Package	Marking	Carrier	Quantity
MMBT2907A	SOT-23	2F	Tape & Reel	3,000 pcs / Reel