

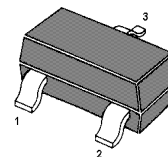
MMBT2222A TRANSISTOR (NPN)

FEATURES

Epitaxial planar die construction

Complementary PNP Type available(MMBT2907A)

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

MARKING: 1P

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

Symbol	Parameter	Value	Units
V_{CB0}	Collector-Base Voltage	75	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA
P_C	Collector Dissipation	250	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	500	$^\circ\text{C}/\text{W}$
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55to+150	$^\circ\text{C}$

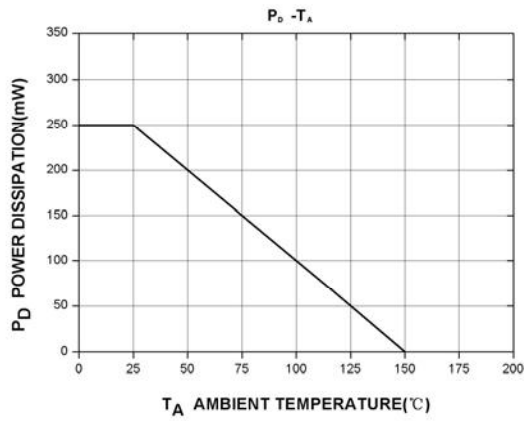
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless otherwise specified)

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_{CBO}	$V_{CB}=60\text{V}$, $I_E=0$			0.01	μA
Collector cut-off current	I_{CEX}	$V_{CE}=30\text{V}$, $V_{BE(off)}=3\text{V}$			0.01	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=3\text{V}$, $I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=10\text{V}$, $I_C=150\text{mA}$	100		300	
	$h_{FE(2)}$	$V_{CE}=10\text{V}$, $I_C=0.1\text{mA}$	40			
	$h_{FE(3)}^*$	$V_{CE}=10\text{V}$, $I_C=500\text{mA}$	42			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=500\text{mA}$, $I_B=50\text{mA}$ $I_C=150\text{mA}$, $I_B=15\text{mA}$			1 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=500\text{mA}$, $I_B=50\text{mA}$ $I_C=150\text{mA}$, $I_B=15\text{mA}$			2.0 1.2	V
Transition frequency	f_T	$V_{CE}=20\text{V}$, $I_C=20\text{mA}$, $f=100\text{MHz}$	300			MHz
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				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				60	nS

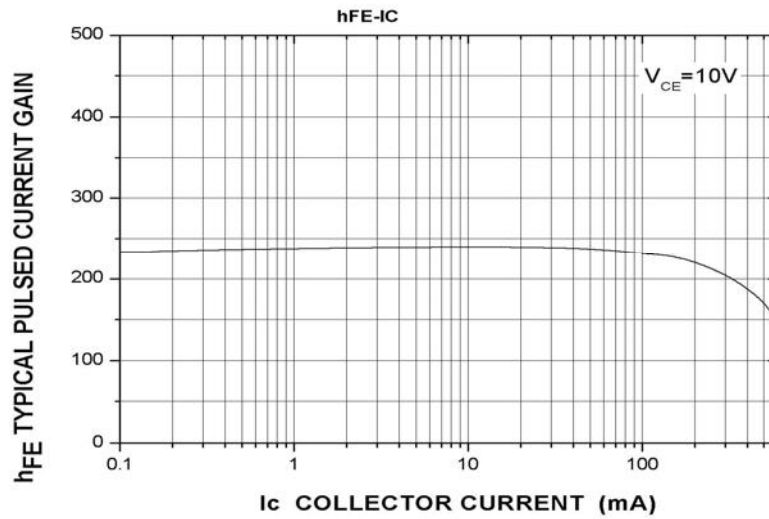
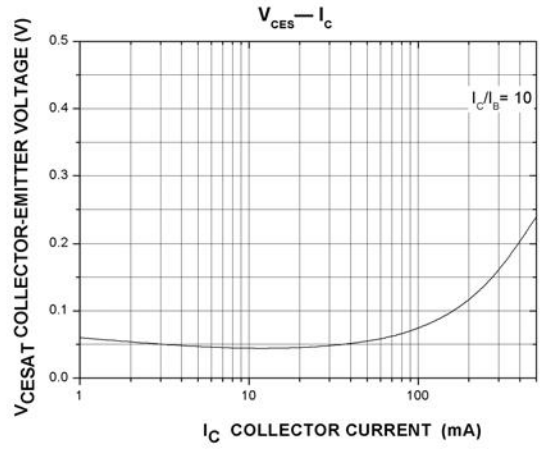
*pulse test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.



Typical Characteristics



MMBT2222A

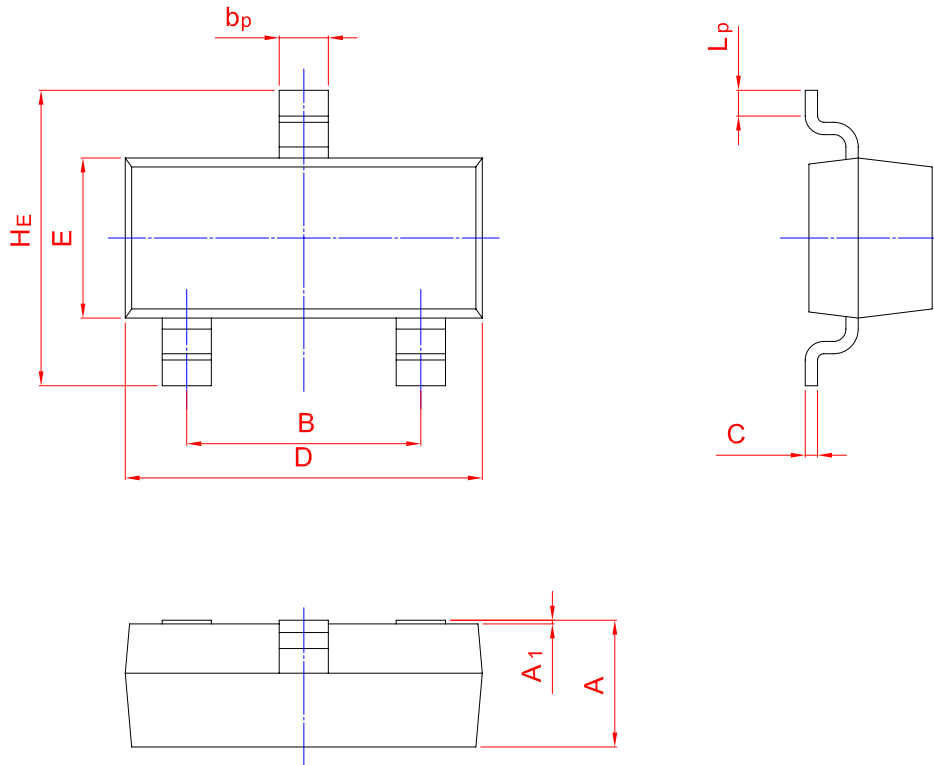
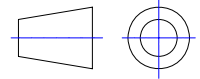




PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20