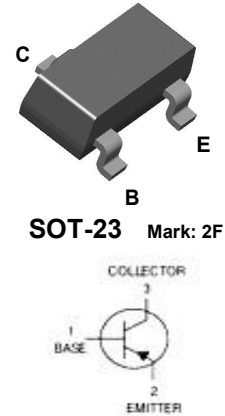


## Silicon Epitaxial Planar Transistor( PNP)

### Features

Epitaxial planar die construction.  
 Complementary NPN Type available(MMBT2222A)



### Absolute Maximum Ratings\*

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

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	- 60	V
$V_{CEO}$	Collector-Emitter Voltage	- 60	V
$V_{EBO}$	Emitter-Base Voltage	- 5	V
$I_C$	Collector Current -Continuous	-600	mA
$P_C$	Collector Dissipation	250	mW
$T_j, T_{stg}$	Junction and Storage Temperature	-55~150	$^\circ\text{C}$

### Electrical Characteristics

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

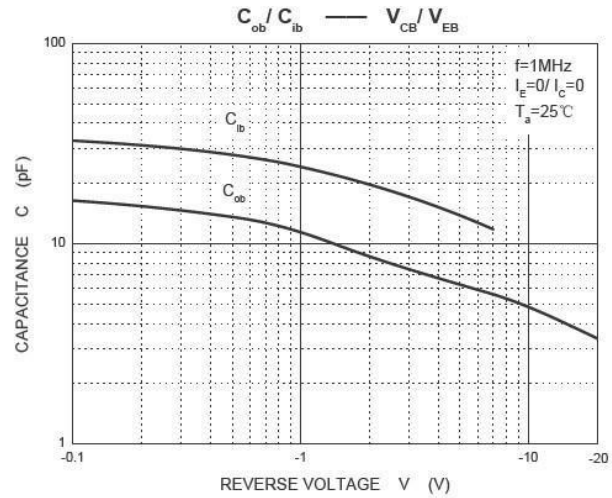
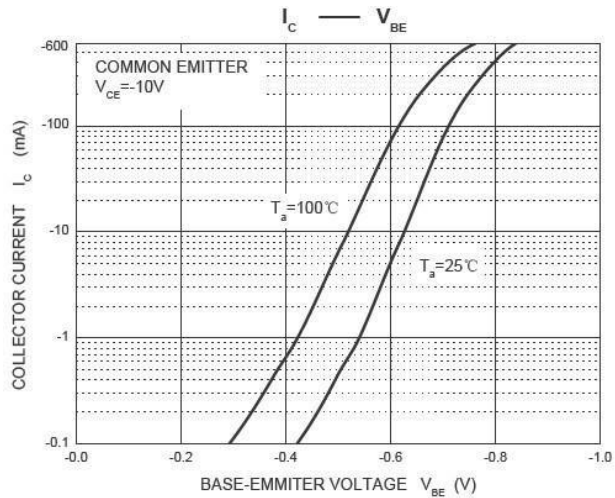
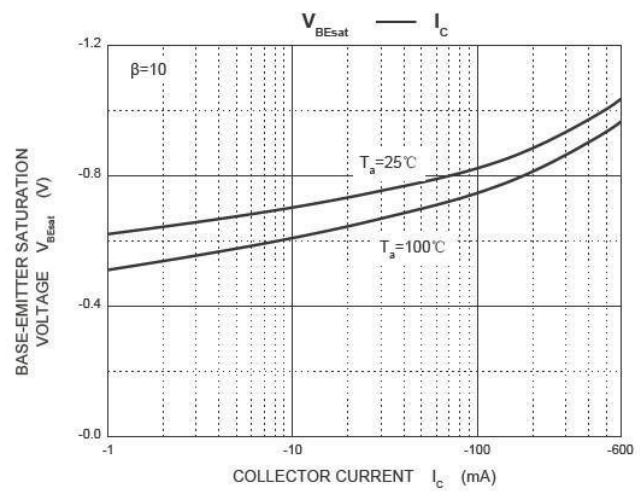
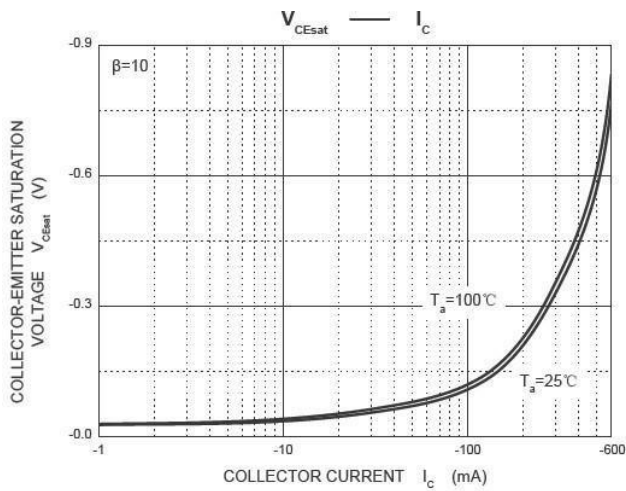
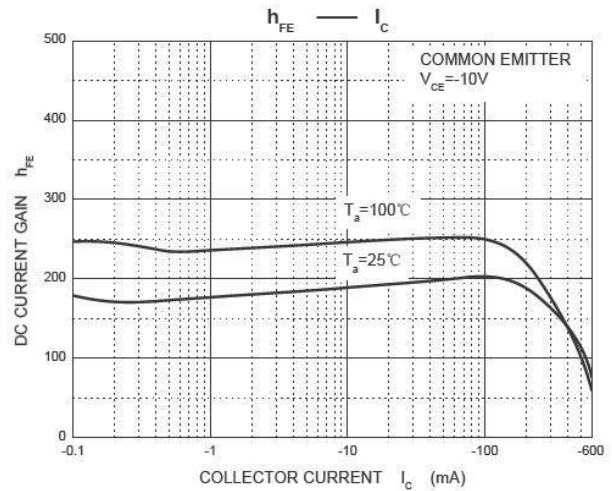
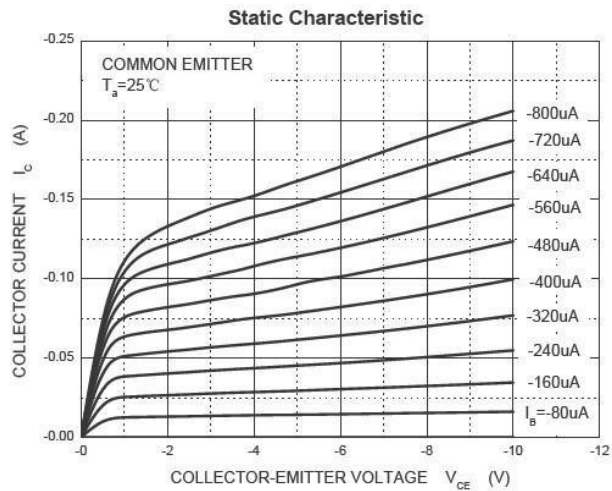
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10 \mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -50\text{V}, I_E = 0$			- 20	nA
Collector cut-off current	$I_{CEX}$	$V_{CE} = -30\text{V}, V_{BE(off)} = -0.5\text{V}$			- 50	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{V}, I_C = 0$			- 10	nA
DC current gain	$h_{FE}$	$V_{CE} = -10\text{V}, I_C = -10\text{mA}$	100			
		$V_{CE} = -10\text{V}, I_C = -150\text{mA}$	100		300	
		$V_{CE} = -10\text{V}, I_C = -500\text{mA}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -150\text{mA}, I_B = -15\text{mA}$			- 0.4	V
Base-emitter voltage	$V_{BE}$	$I_C = -150\text{mA}, I_B = -15\text{mA}$			- 1.3	V
Transition frequency	$f_T$	$V_{CE} = 20\text{V}, I_C = 50\text{mA}$	200			MHz
Collector Output Capacitance	$C_{Ob}$	$V_{CB} = 10\text{V}, I_E = 0$ $f = 1\text{MHz}$			80	PF

**Electrical Characteristics**

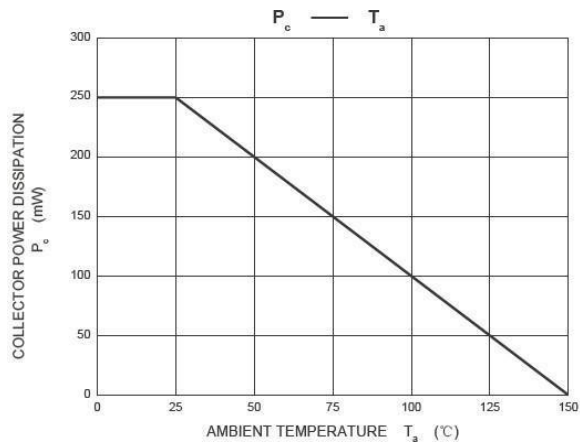
TA = 25°C unless otherwise noted

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Turn-on Time	$t_{on}$	$V_{CE} = -30V$			45	ns
Delay Time	$t_d$	$I_C = -150mA$			10	ns
Rise Time	$t_r$	$I_{B1} = -15mA$			40	ns
Turn-off Time	$t_{off}$	$V_{CE} = -6V$			100	ns
Storage Time	$t_s$	$I_C = -150mA$			80	ns
Fall Time	$t_f$	$I_{B1} = I_{B2} = -15mA$			30	ns

**Typical Characteristics**



**Typical characteristics**



**OUTLINE DRAWING**

SOT-23

