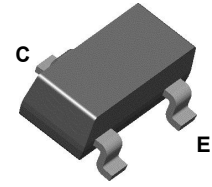
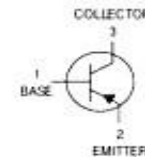


Silicon Epitaxial Planar Transistor(PNP)


SOT-23 Mark: 2F


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

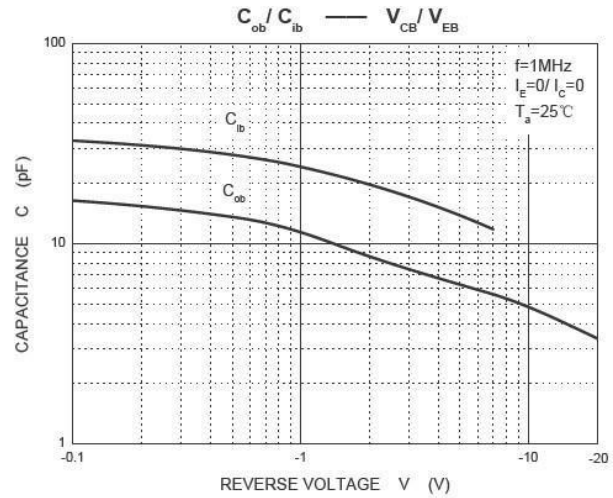
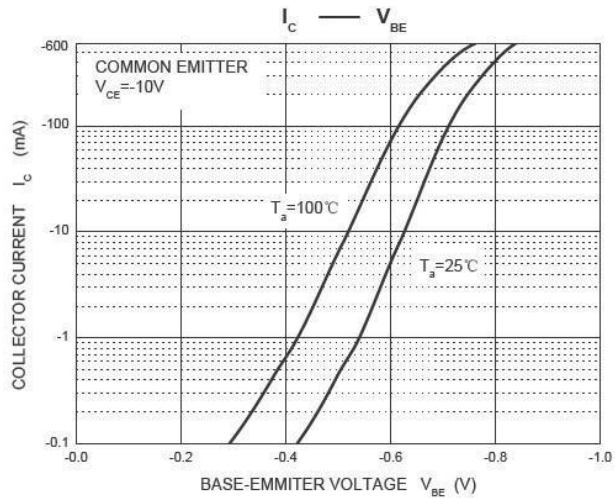
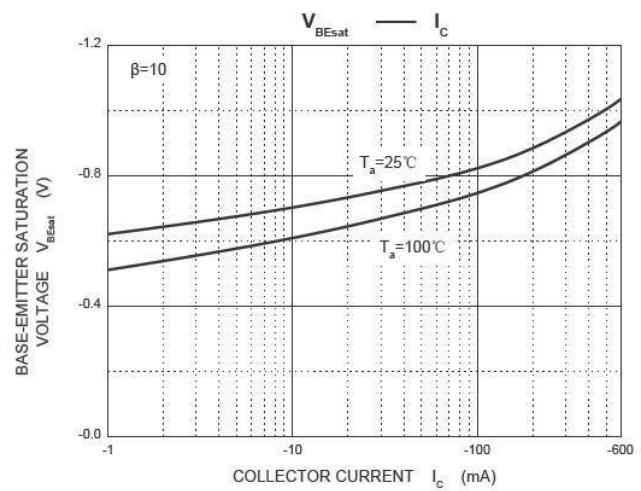
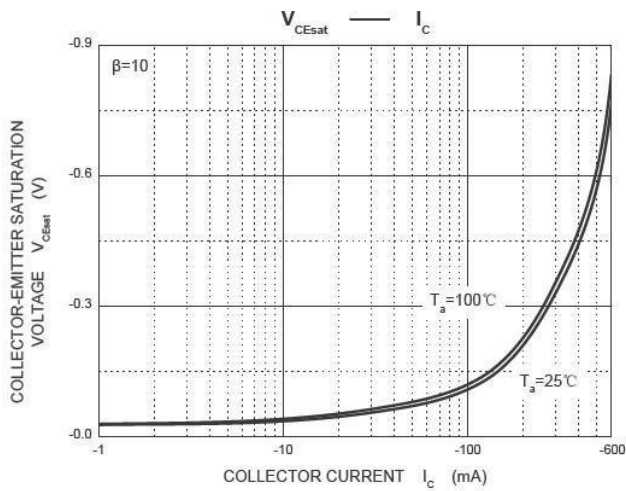
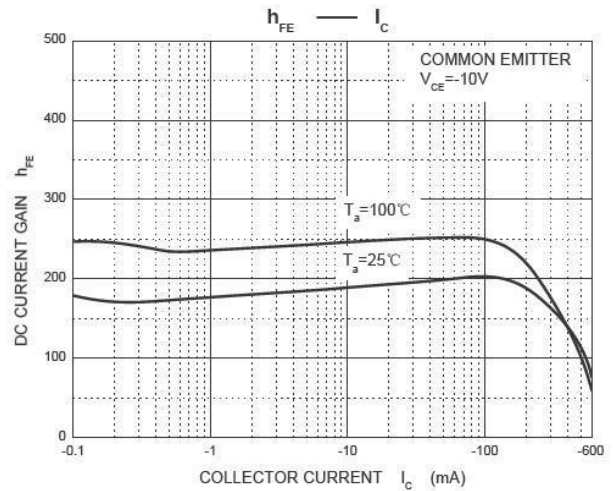
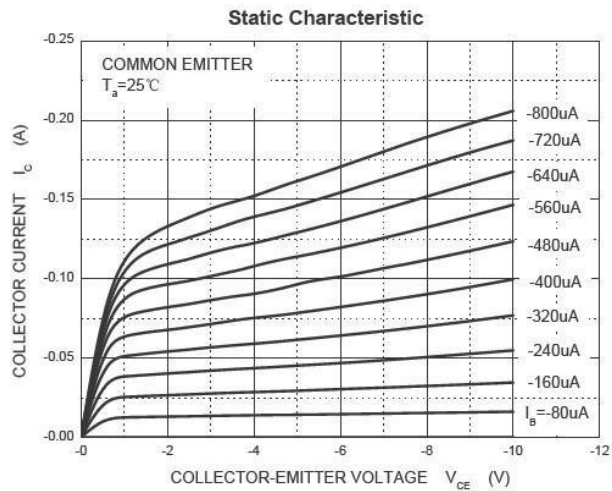
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10 \mu\text{A}, I_C = 0$	-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

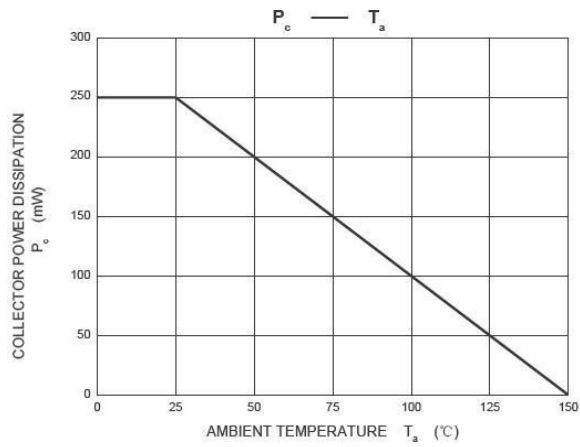
TA = 25°C unless otherwise noted

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

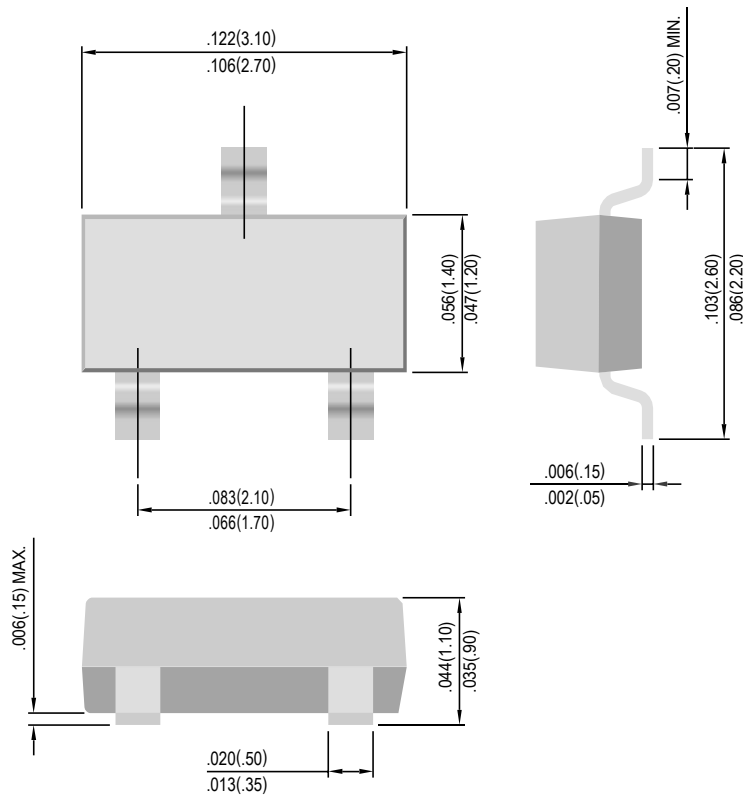


Typical characteristics



OUTLINE DRAWING

SOT-23



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