



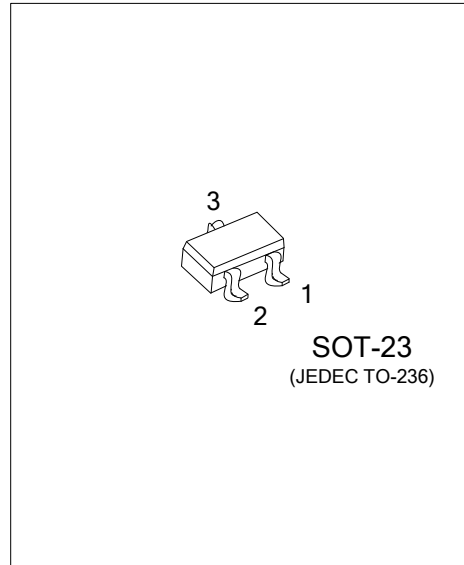
# MMBTA06

## NPN SILICON TRANSISTOR

### AMPLIFIER TRANSISTOR

#### ■ FEATURES

- \* Collector-Emitter Voltage:  $V_{CE0}=80V$
- \* Collector Dissipation:  $P_D=350mW$



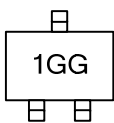
#### ■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
MMBTA06G-AE3-R	SOT-23	E	B	C	Tape Reel

Note: Pin Assignment: E: Emitter    B: Base    C: Collector

<p>MMBTA06G-AE3-R</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free</p>
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#### ■ MARKING



# MMBTA06

## NPN SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector Base Voltage	$V_{CBO}$	80	V
Collector Emitter Voltage	$V_{CEO}$	80	V
Emitter Base Voltage	$V_{EBO}$	4	V
Collector Current - Continuous	$I_C$	500	mA
Total Device Dissipation(Note 2)	$P_D$	350	mW
Derate Above $25^{\circ}\text{C}$		2.8	$\text{mW}/^{\circ}\text{C}$
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Device mounted on FR-4=1.6×1.6×0.06 in

### ■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	357	$^{\circ}\text{C}/\text{W}$

### ■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

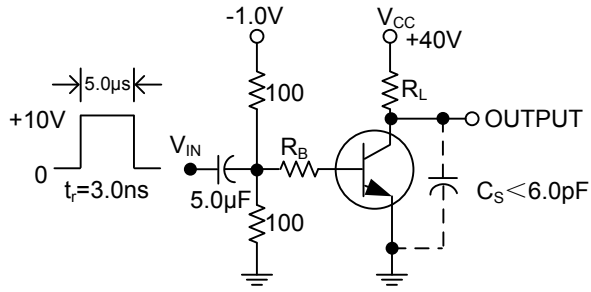
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Collector Emitter Breakdown Voltage (Note 1)	$BV_{CEO}$	$I_C=1.0\text{mA}, I_B=0$	80			V
Emitter Base Breakdown Voltage	$BV_{EBO}$	$I_E=100\mu\text{A}, I_C=0$	4			V
Collector Cutoff Current	$I_{CES}$	$V_{CE}=60\text{V}, I_B=0$			0.1	$\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=80\text{V}, I_E=0$			0.1	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
DC Current Gain	$h_{FE}$	$V_{CE}=1\text{V}, I_C=10\text{mA}$ ,	100			
		$V_{CE}=1\text{V}, I_C=100\text{mA}$ ,	100			
Collector Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$			0.25	V
Base Emitter on Voltage	$V_{BE(ON)}$	$V_{CE}=1\text{V}, I_C=100\text{mA}$ ,			1.2	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Current Gain Bandwidth Product (Note2)	$f_T$	$V_{CE}=2\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100			MHz

Notes: 1. Pulse test:  $P_w \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

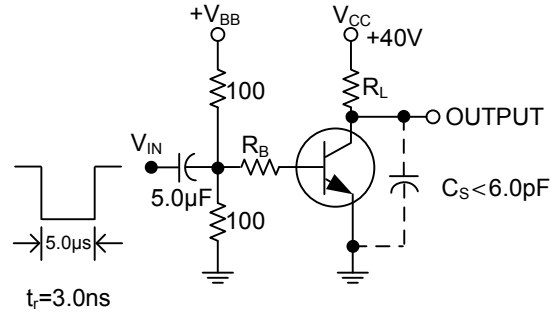
2.  $f_T$  is defined as the frequency at which  $I_{hfe}$  extrapolates to unity.

## SWITCHING TIME TEST CIRCUITS

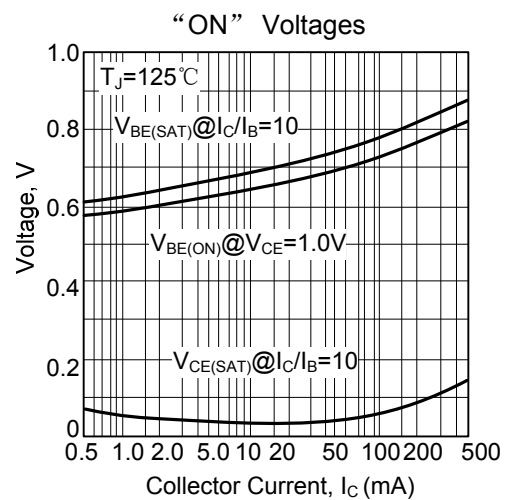
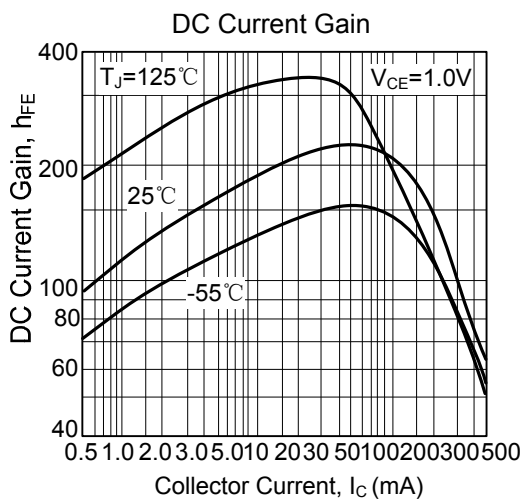
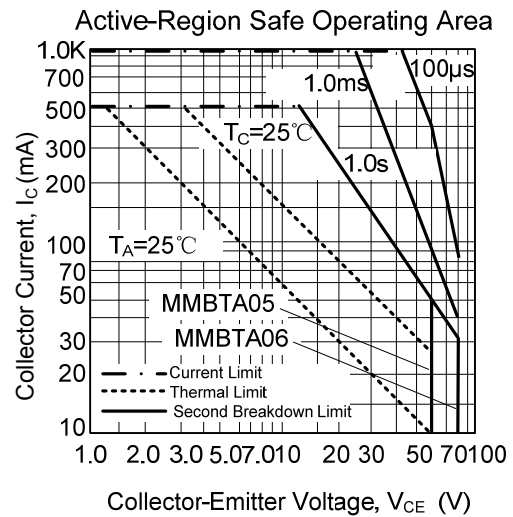
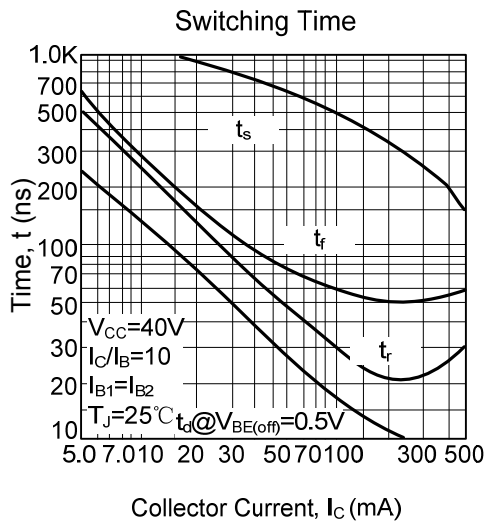
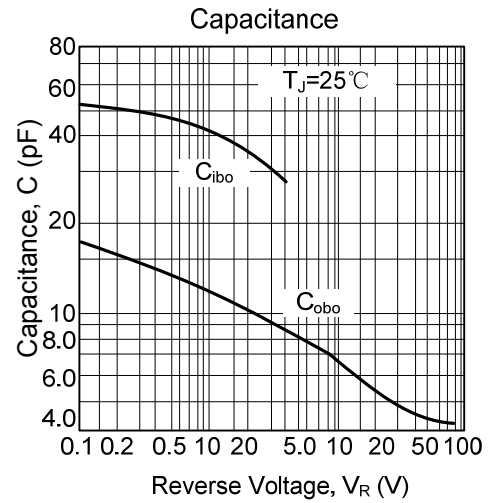
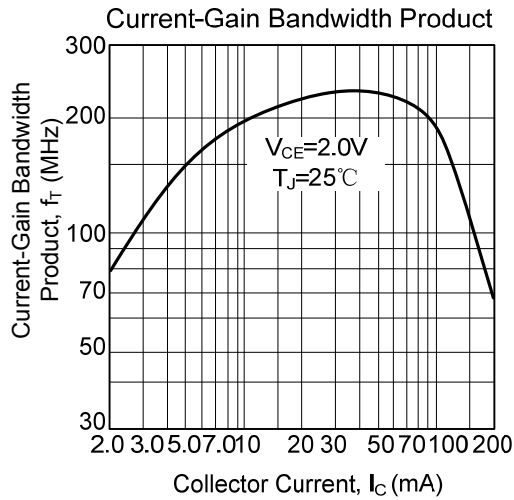
### TURN-ON TIME



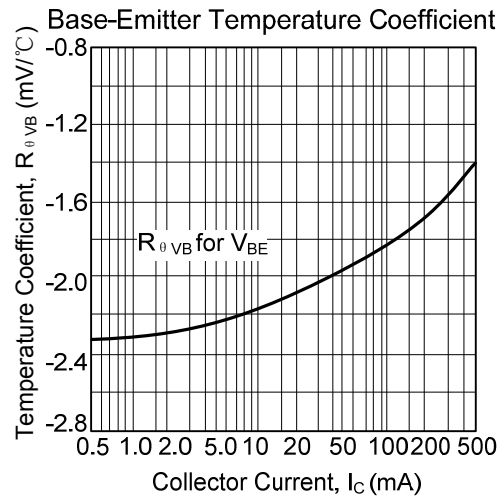
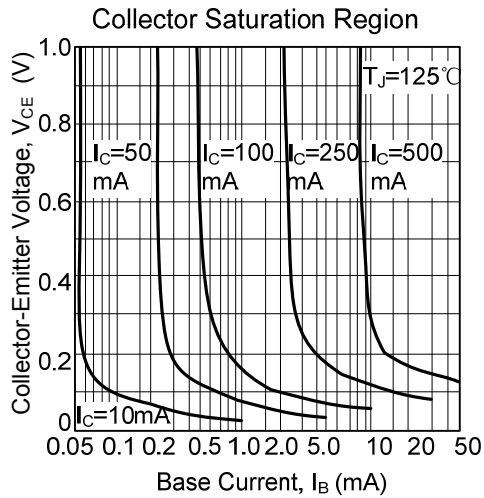
### TURN-OFF TIME



## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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