



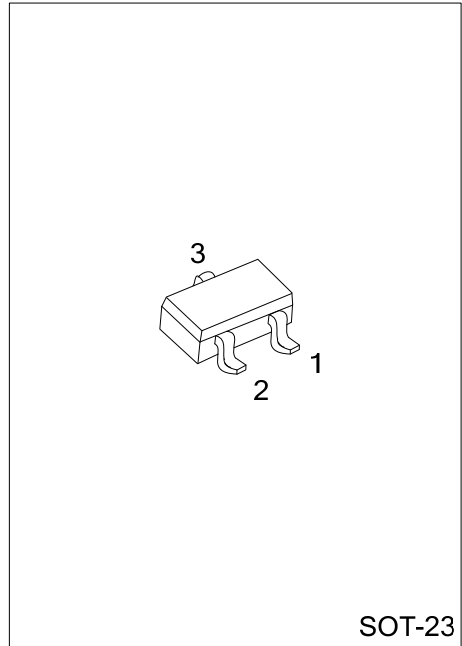
## MMBTA06

**NPN SILICON TRANSISTOR**

### AMPLIFIER TRANSISTOR

#### ■ FEATURES

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



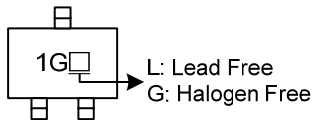
Lead-free: MMBTA06L  
 Halogen-free: MMBTA06G

#### ■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
MMBTA06-AE3-R	MMBTA06L-AE3-R	MMBTA06G-AE3-R	SOT-23	E	B	C	Tape Reel

<p>MMBTA06L-AE3-R</p> <p>(1) Packing Type        (2) Package Type        (3) Lead Plating</p>	<p>(1) R: Tape Reel        (2) AE3: SOT-23        (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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#### ■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector Base Voltage	V <sub>CBO</sub>	80	V
Collector Emitter Voltage	V <sub>CEO</sub>	80	V
Emitter Base Voltage	V <sub>EBO</sub>	4	V
Collector Current - Continuous	I <sub>C</sub>	500	mA
Total Device Dissipation(Note 2)	P <sub>D</sub>	350	mW
Derate Above 25°C		2.8	mW/°C
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

Note 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	MIN	TYP	MAX	UNIT
Junction to Ambient	θ <sub>JA</sub>		357		°C/W

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

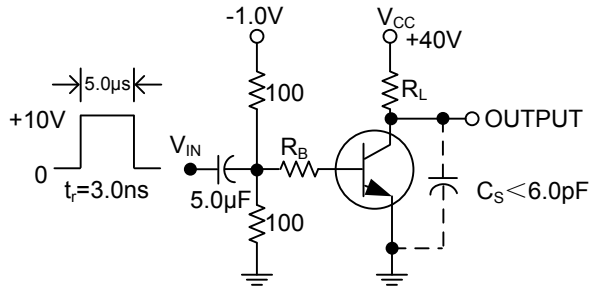
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Collector Emitter Breakdown Voltage (Note 1)	BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA, I <sub>B</sub> =0	80			V
Emitter Base Breakdown Voltage	BV <sub>EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0	4			V
Collector Cutoff Current	I <sub>CES</sub>	V <sub>CE</sub> =60V, I <sub>B</sub> =0			0.1	μA
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =80V, I <sub>E</sub> =0			0.1	μA
<b>ON CHARACTERISTICS</b>						
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =10mA,	100			
		V <sub>CE</sub> =1V, I <sub>C</sub> =100mA,	100			
Collector Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA			0.25	V
Base Emitter on Voltage	V <sub>BE(ON)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =100mA,			1.2	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Current Gain Bandwidth Product (Note2)	f <sub>T</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =10mA, f=100MHz	100			MHz

Note 1: Pulse test: PW≤300μs, Duty Cycle≤2%

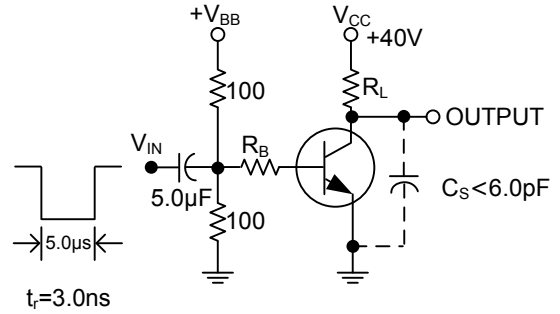
2: f<sub>T</sub> is defined as the frequency at which I<sub>hfe</sub> extrapolates to unity.

## SWITCHING TIME TEST CIRCUITS

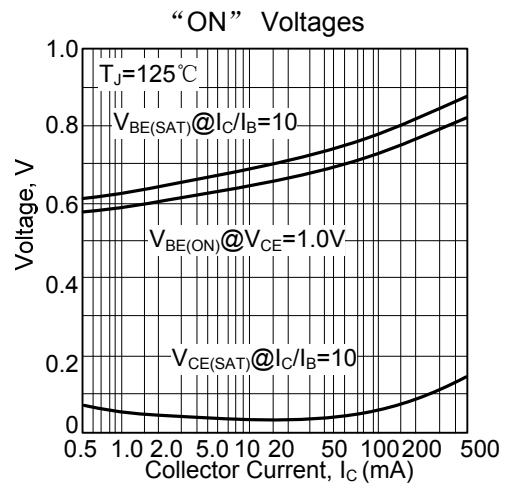
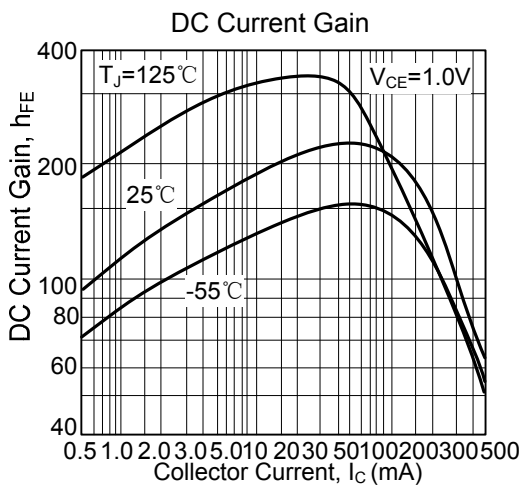
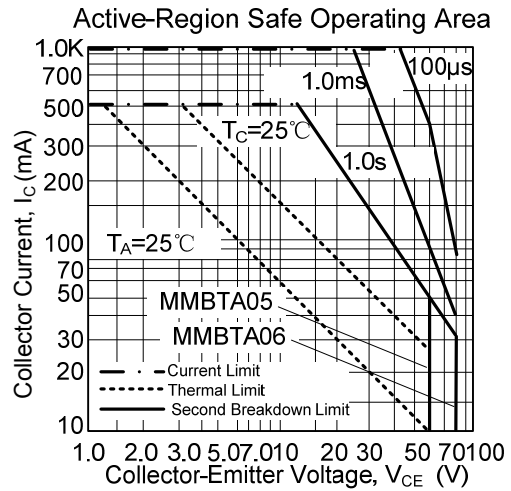
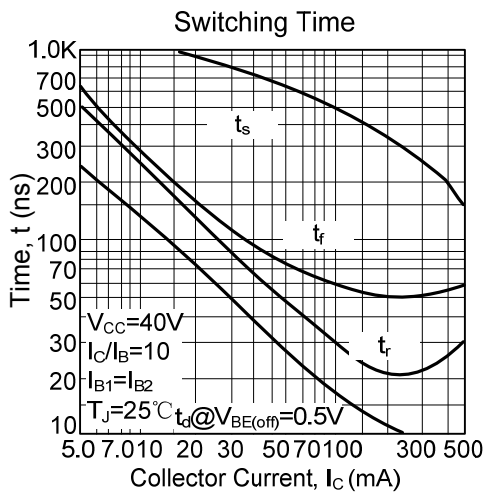
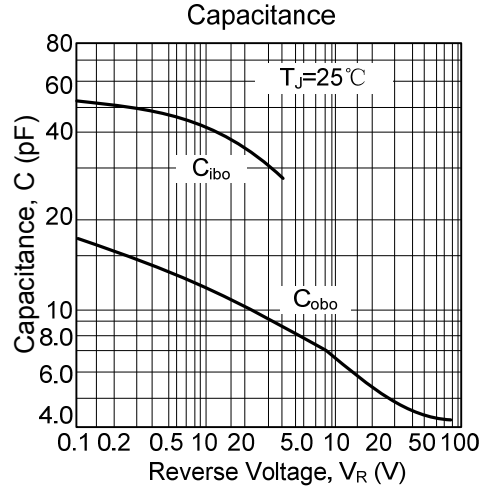
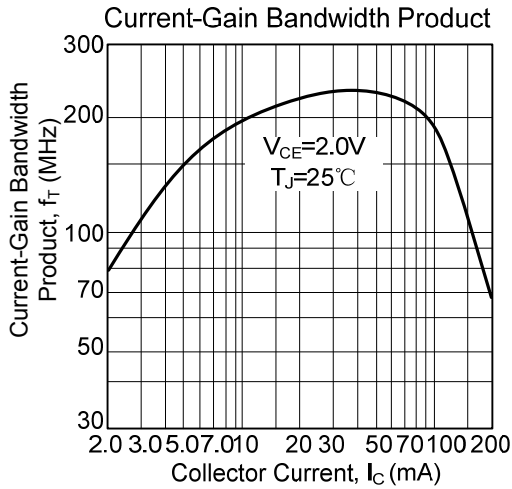
### TURN-ON TIME



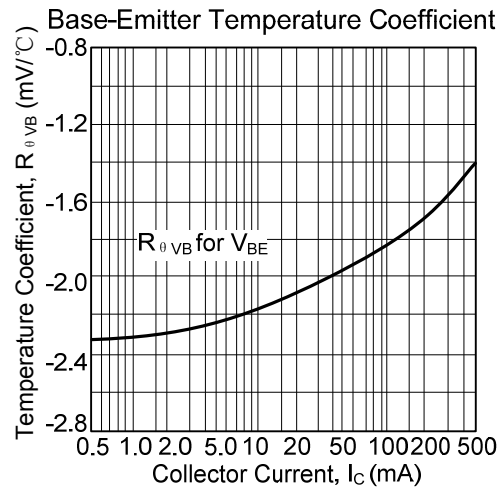
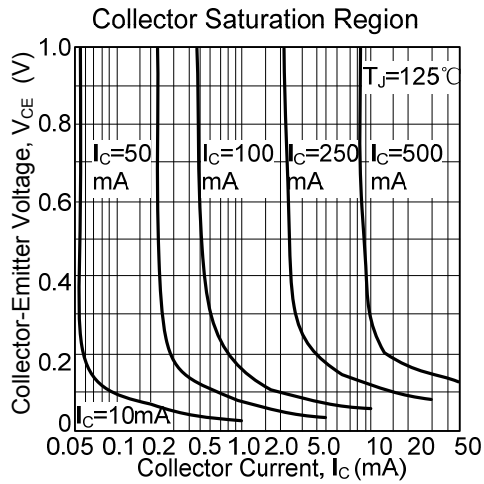
### TURN-OFF TIME



## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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