



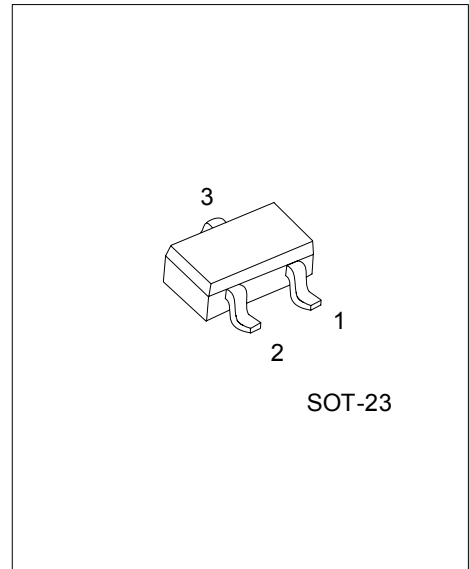
# MMBTA06

## NPN SILICON TRANSISTOR

### AMPLIFIER TRANSISTOR

#### FEATURES

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



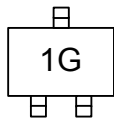
\*Pb-free plating product number: MMBTA06L

#### ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
MMBTA06-AE3-R	MMBTA06L-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) L: Lead Free Plating, Blank: Pb/Sn</p>
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#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25$  )

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 1) Derate Above 25	$P_D$	350 2.8	mW mW/
Junction Temperature	$T_J$	+150	
Storage Temperature	$T_{STG}$	-55 ~ +150	

Note 1. Device mounted on FR-4=1.6×1.6×0.06 in

2. 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.

■ THERMAL DATA

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance, Junction to Ambient	$\theta_{JA}$	357	/W

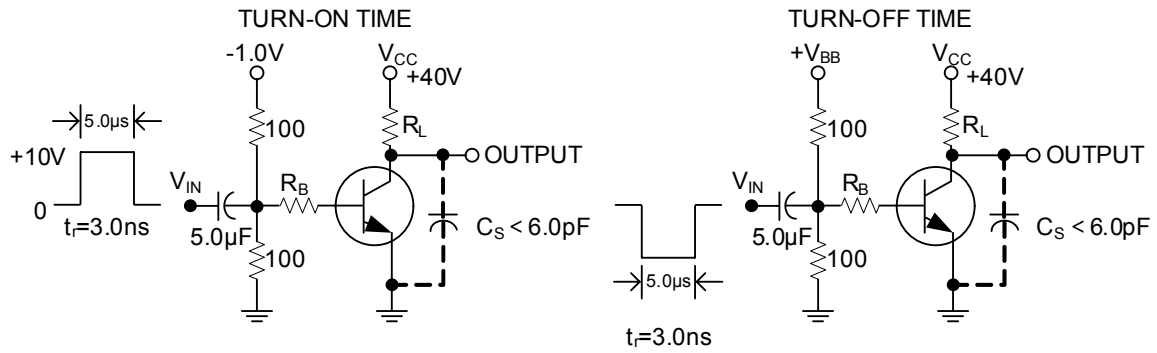
■ ELECTRICAL CHARACTERISTICS ( $T_A=25$  , unless otherwise specified)

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

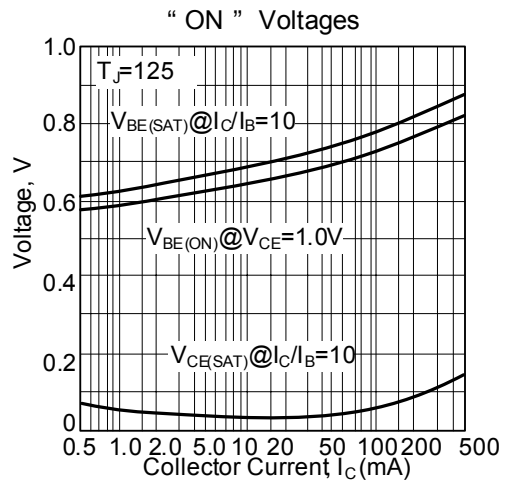
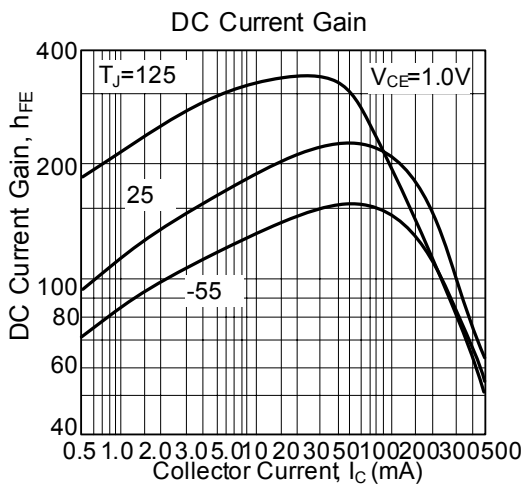
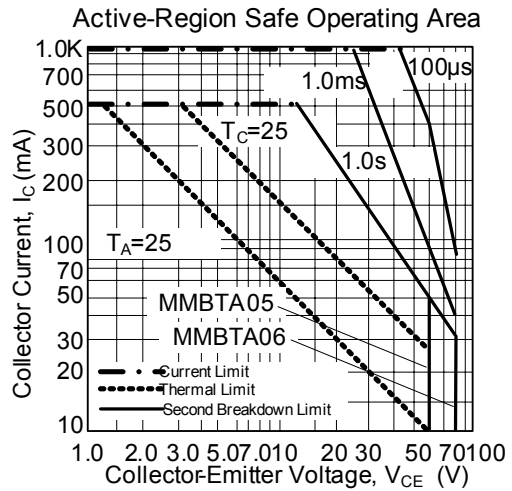
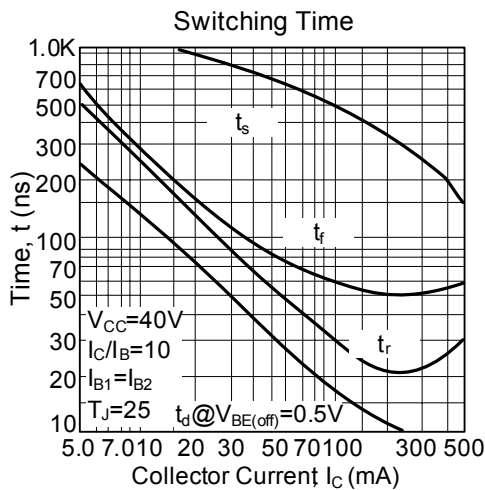
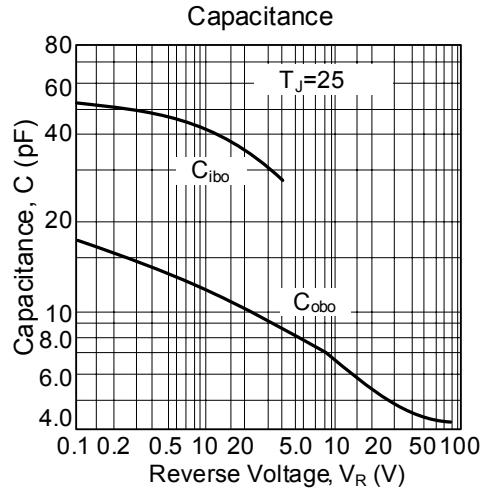
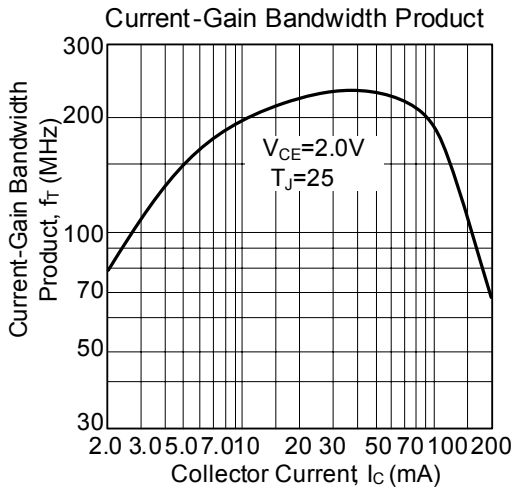
Note 1: Pulse test:  $PW \leq 300\mu s$ , Duty Cycle  $\leq 2\%$

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

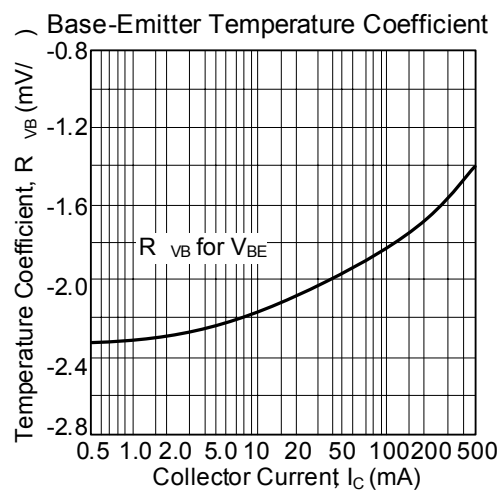
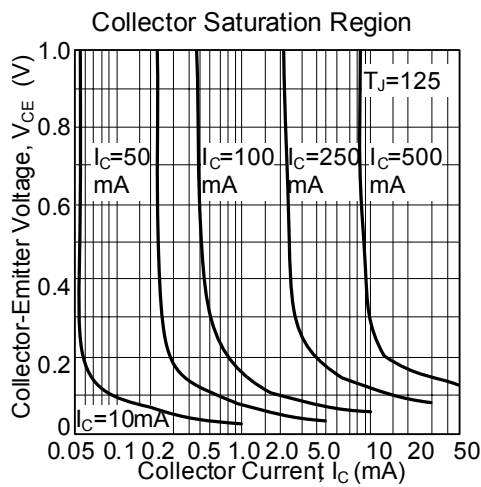
## SWITCHING TIME TEST CIRCUITS



### TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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