



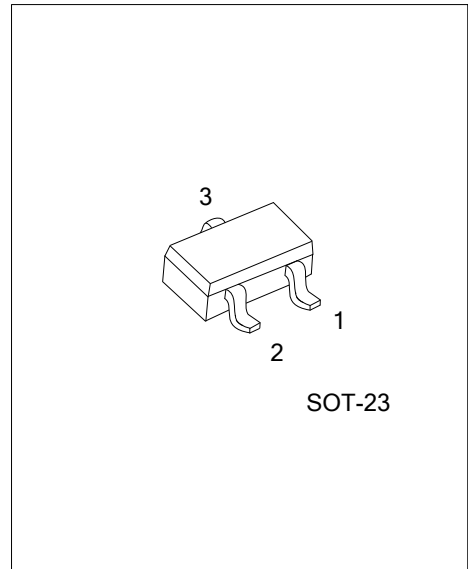
MMBTA56

PNP SILICON TRANSISTOR

AMPLIFIER TRANSISTOR

■ FEATURES

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

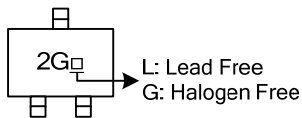


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBTA56L-AE3-R	MMBTA56G-AE3-R	SOT-23	E	B	C	Tape Reel

<p>MMBTA56L-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</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

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)	P_D	350	mW
Derate Above 25°C		2.8	mW/ $^\circ\text{C}$
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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	θ_{JA}	357	$^\circ\text{C}/\text{W}$

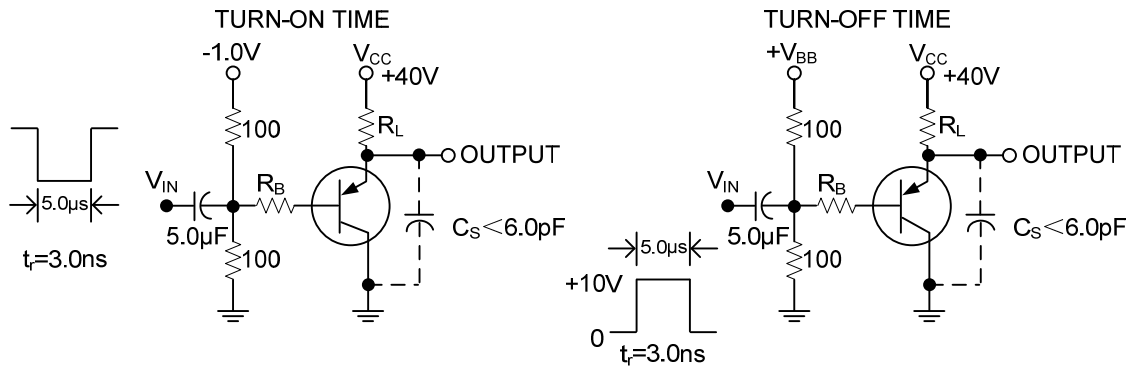
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
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	μA
Collector Cutoff Current	I_{CBO}	$V_{CB}=-80\text{V}, I_E=0$			-0.1	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	$I_C=-10\text{mA}, V_{CE}=-1\text{V}$ $I_C=-100\text{mA}, V_{CE}=-1\text{V}$	100 100			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-100\text{mA}, I_B=-10\text{mA}$			-0.25	V
Base-Emitter on Voltage	$V_{BE(ON)}$	$I_C=-100\text{mA}, V_{CE}=-1\text{V}$			-1.2	V
SMALL-SIGNAL CHARACTERISTICS						
Current Gain Bandwidth Product (Note2)	f_T	$I_C=-10\text{mA}, V_{CE}=-2\text{V},$ $f=100\text{MHz}$	100			MHz

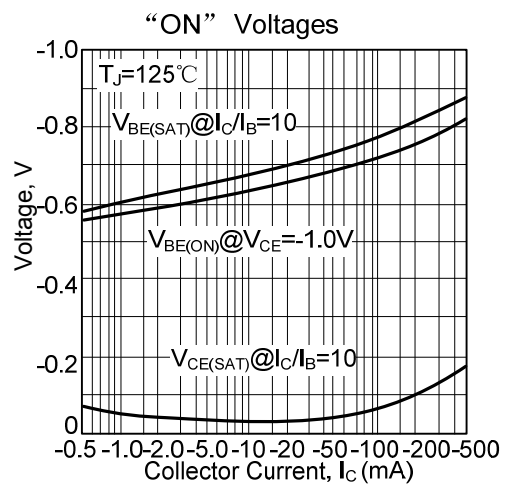
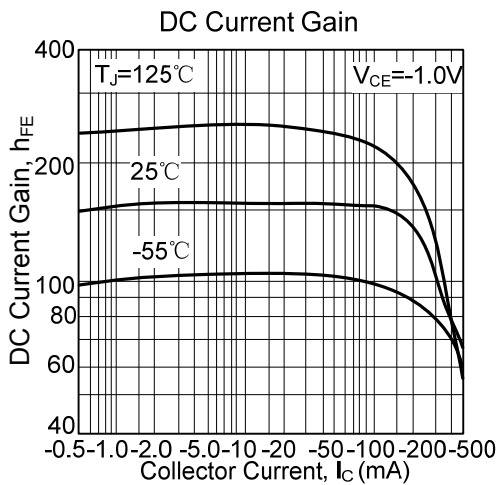
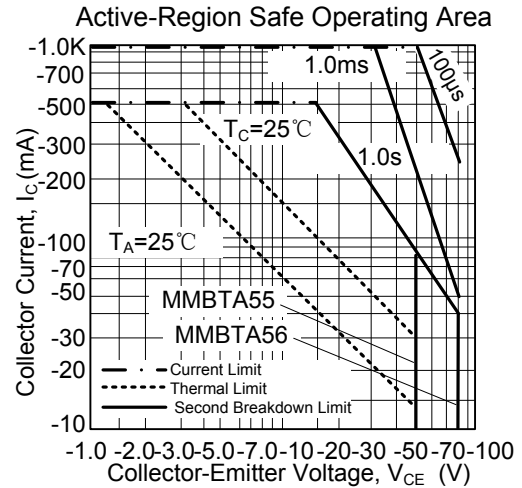
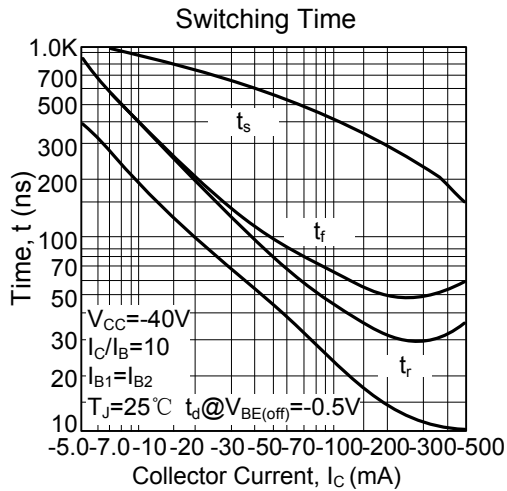
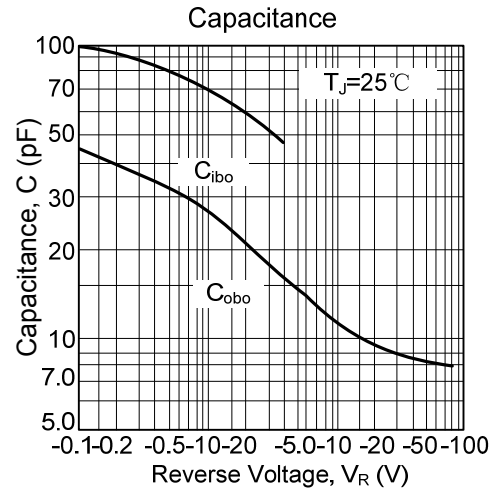
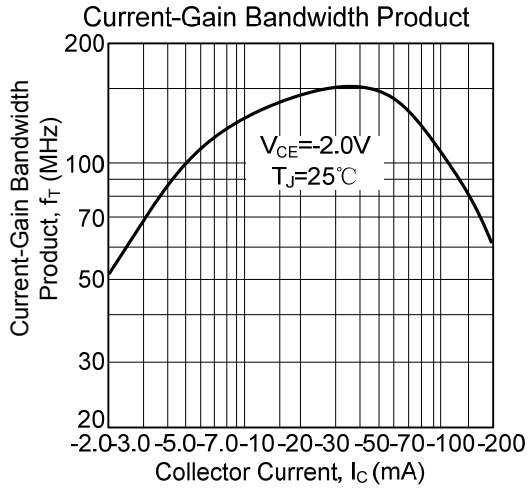
Note 1: Pulse test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

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

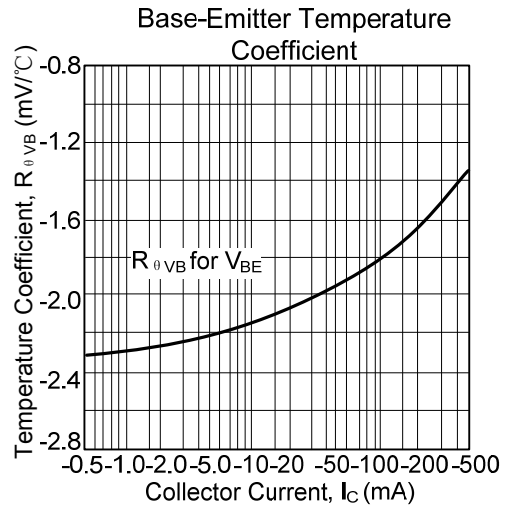
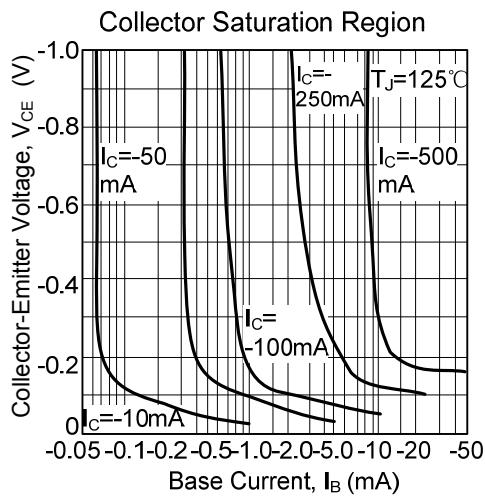
SWITCHING TIME TEST CIRCUITS



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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