



MMBTA05

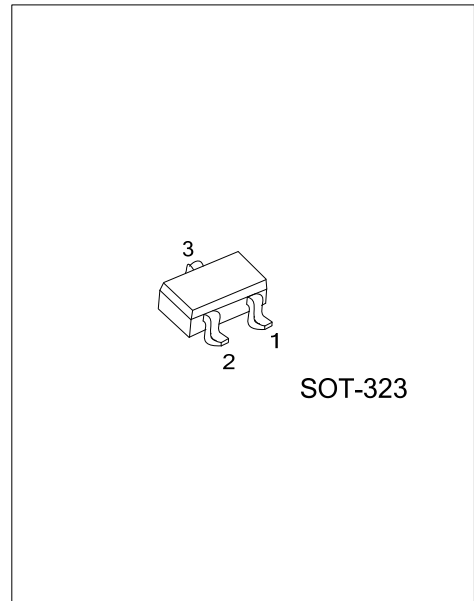
Preliminary

AMPLIFIER TRANSISTOR

NPN MMBTA05

■ **FEATURES**

* Collector-Emitter Voltage: $V_{CE0}=60V$



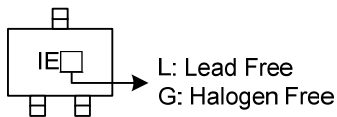
■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBTA05L-AL3-R	MMBTA05G-AL3-R	SOT-323	B	E	C	Tape Reel

Note: Pin assignment: E: EMITTER, C: COLLECTOR, B: BASE

<p>MMBTA05L-AL3-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) R: Tape Reel (2) AL3: SOT-323 (3) G: Halogen Free, L: Lead Free</p>
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■ **MARKING**



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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	60	V
Emitter-base voltage	V_{EBO}	4	V
Collector current - Continuous	I_C	500	mA
Power Dissipation, @ $T_A=25^\circ\text{C}$	P_D	150	mW
Junction Temperature	T_J	125	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 ~ +150	$^\circ\text{C}$

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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
junction to ambient (Note)	θ_{JA}	833	$^\circ\text{C}/\text{W}$
junction to case	θ_{JC}	347	$^\circ\text{C}/\text{W}$

Note: θ_{JA} is measured with the device soldered into a typical printed circuit board.

■ 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	$V_{(BR)CEO}$	$I_C=1.0\text{mA}$, $I_B=0$ (Note 1)	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$, $I_C=0$	4			V
Collector cutoff current	I_{CEO}	$V_{CE}=60\text{V}$, $I_B=0$			0.1	μA
Collector cutoff current	I_{CBO}	$V_{CB}=60\text{V}$, $I_E=0$			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	f_T	$I_C=10\text{mA}$, $V_{CE}=2\text{V}$, $f=100\text{MHz}$ (Note 2)	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 CIRCUIT

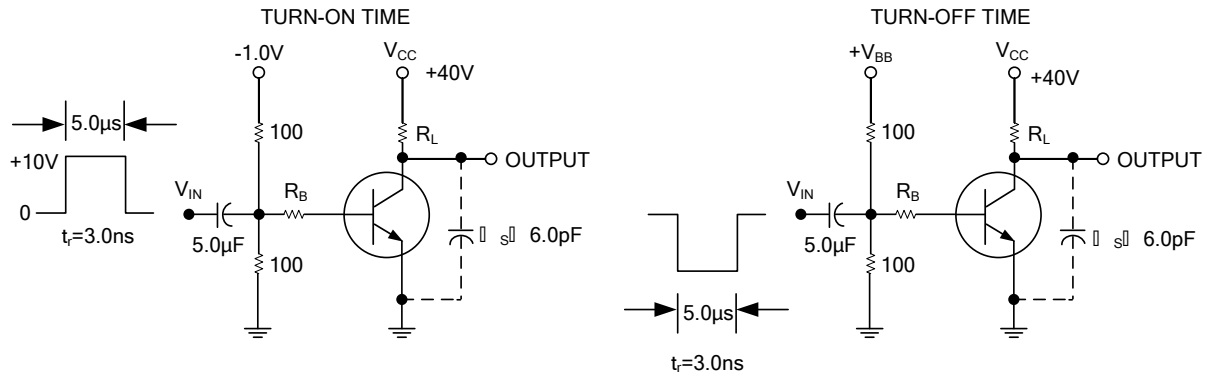


Figure 1. (Note: Total shunt capacitance of test jig and connectors for PNP test circuits, reverse all voltage polarities.)

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