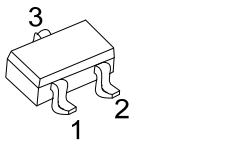
MMBTA05

NPN SILICON TRANSISTOR

AMPLIFIER TRANSISTOR



SOT-323

■ FEATURES

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

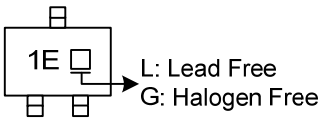
■ ORDERING INFORMATION

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

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

MMBTA05G-AL3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AL3: SOT-323 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°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℃	P_D	150	mW
Junction Temperature	T_J	+125	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

Note: 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	°C/W
junction to case	θ_{JC}	347	°C/W

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

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1.0mA, I_B=0(Note 1)	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA, Ic=0	4			V
Collector cutoff current	I_{CEO}	V_{CE}=60V, I_B=0			0.1	μA
Collector cutoff current	I_{CBO}	V_{CB}=60V, I_E=0			0.1	μA
ON CHARACTERISTICS						
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
SMALL-SIGNAL CHARACTERISTICS						
Current gain bandwidth product	f_T	I_C=10mA, V_{CE}=2V, f=100MHz(Note 2)	100			MHz

Notes: 1. Pulse test: PW<=300μs, Duty Cycle<=2%.
2. f_T is defined as the frequency at which Ihfel extrapolates to unity.

■ SWITCHING TIME TEST CIRCUIT

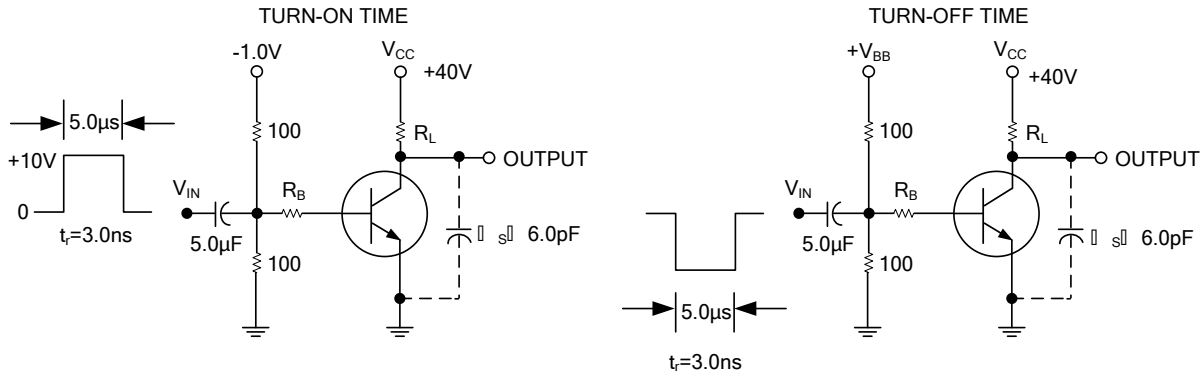


Figure 1. (Note: Total shunt capacitance of test jig and connectors for PNP test circuits, reverse all voltage polarities.)