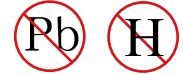




# Driver Transistors

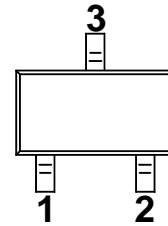


## NPN Silicon

### MAXIMUM RATINGS

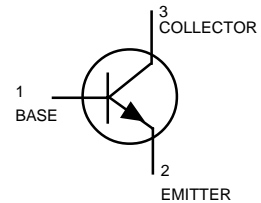
Rating	Symbol	Value		Unit
		MMBTA05	MMBTA06	
Collector–Emitter Voltage	$V_{CEO}$	60	80	Vdc
Collector–Base Voltage	$V_{CBO}$	60	80	Vdc
Emitter–Base Voltage	$V_{EBO}$	4.0		Vdc
Collector Current — Continuous	$I_C$	500		mAdc

SOT-23 (TO-236AB)



### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$



### DEVICE MARKING

MMBTA05= 1H, MMBTA06= 1GM
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### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
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### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage(3) ( $I_C = 1.0 \text{ mAdc}, I_B = 0$ )	$V_{(BR)CEO}$			Vdc
MMBTA05		60	—	
MMBTA06		80	—	
Emitter–Base Breakdown Voltage ( $I_E = 100 \mu\text{Adc}, I_C = 0$ )	$V_{(BR)EBO}$	4.0	—	Vdc
Collector Cutoff Current ( $V_{CE} = 60\text{Vdc}, I_B = 0$ )	$I_{CES}$	—	0.1	$\mu\text{Adc}$
Emitter Cutoff Current ( $V_{CB} = 60\text{Vdc}, I_E = 0$ )	$I_{CBO}$	—	0.1	$\mu\text{Adc}$
MMBTA05		—	0.1	
MMBTA06		—	0.1	

- FR-5 = 1.0 x 0.75 x 0.062 in.
- Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.
- Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

# ELECTRICAL CHARACTERISTICS

## MMBTA05/06

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
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#### DC CHARACTERISTICS

DC Current Gain ( $I_C = 10\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$h_{FE}$	100 100	— —	—
Collector–Emitter Saturation Voltage ( $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$ )	$V_{CE(sat)}$	—	0.25	Vdc
Base–Emitter On Voltage ( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$V_{BE(sat)}$	—	1.2	Vdc

#### SMALL-SIGNAL CHARACTERISTICS

Current –Gain – Bandwidth Product(4) ( $V_{CE} = 2.0\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$ )	$f_T$	100	—	MHz
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4.  $f_T$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.

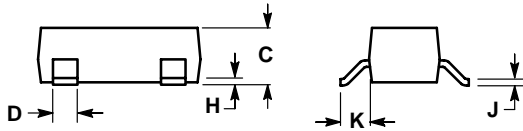
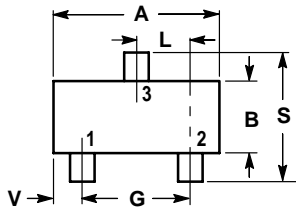
# PACKAGE OUTLINE & DIMENSIONS

## MMBTA05/06

### SOT-23

**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

