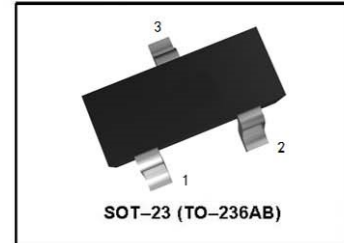
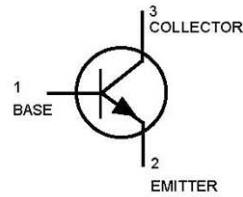


## NPN Silicon



### ● MAXIMUM RATINGS

Rating	Symbol	Value		Unit
		MMBTA05	MMBTA06	
Collector–Emitter Voltage	$V_{CE0}$	60	80	Vdc
Collector–Base Voltage	$V_{CB0}$	60	80	Vdc
Emitter–Base Voltage	$V_{EB0}$	4.0		Vdc
Collector Current — Continuous	$I_C$	500		mAdc

### ● 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

### ● 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	$\mu\text{Adc}$
( $V_{CB} = 80\text{Vdc}, I_E = 0$ )		—	0.1	

1. FR–5 =  $1.0 \times 0.75 \times 0.062\text{ in.}$

2. Alumina =  $0.4 \times 0.3 \times 0.024\text{ in.}$  99.5% alumina.

3. Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

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

Characteristic	Symbol	Min	Max	Unit
<b>ON CHARACTERISTICS</b>				
DC Current Gain ( $I_C = 10\text{ mAdc}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 100\text{ mAdc}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$h_{FE}$	100 100	— —	—
Collector–Emitter Saturation Voltage ( $I_C = 100\text{ mAdc}$ , $I_B = 10\text{ mAdc}$ )	$V_{CE(sat)}$	—	0.25	Vdc
Base–Emitter On Voltage ( $I_C = 100\text{ mAdc}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$V_{BE(sat)}$	—	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.

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