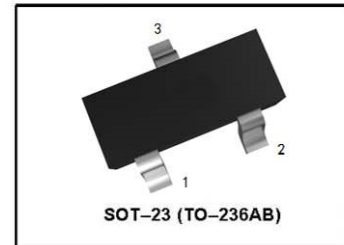
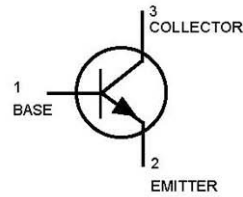


NPN Silicon



● 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°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°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	μAdc
Emitter Cutoff Current ($V_{CB} = 60\text{Vdc}, I_E = 0$)	I_{CBO}	—	0.1	μAdc
($V_{CB} = 80\text{Vdc}, I_E = 0$)		—	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
ON CHARACTERISTICS				
DC Current Gain ($I_C = 10\text{ mA dc}$, $V_{CE} = 1.0\text{ V dc}$)	h_{FE}	100	—	—
($I_C = 100\text{ mA dc}$, $V_{CE} = 1.0\text{ V dc}$)		100	—	
Collector–Emitter Saturation Voltage ($I_C = 100\text{ mA dc}$, $I_B = 10\text{ mA dc}$)	$V_{CE(sat)}$	—	0.25	Vdc
Base–Emitter On Voltage ($I_C = 100\text{ mA dc}$, $V_{CE} = 1.0\text{ V dc}$)	$V_{BE(sat)}$	—	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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