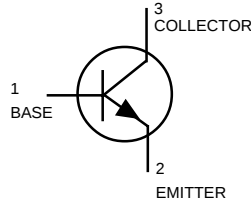


Driver Transistors

NPN Silicon



MMBTA05LT1
MMBTA06LT1



CASE 318-08, STYLE 6
SOT-23 (TO-236AB)

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) $T_A = 25^\circ\text{C}$	P_D	225	mW
Derate above 25°C		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$	P_D	300	mW
Derate above 25°C		2.4	mW/ $^\circ\text{C}$
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

MMBTA05LT1 = 1H, MMBTA06LT1 = 1GM

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

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage(3) ($I_C = 1.0 \text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	60	—	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
	MMBTA05	—	0.1	
	MMBTA06	—	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 $\leq 2.0\%$.

MMBTA05LT1 MMBTA06LT1

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

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

ON CHARACTERISTICS

DC Current Gain ($I_C = 10\text{ mAdc}$, $V_{CE} = 1.0\text{ Vdc}$) ($I_C = 100\text{ mAdc}$, $V_{CE} = 1.0\text{ Vdc}$)	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
---	-------	-----	---	-----

4. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.