

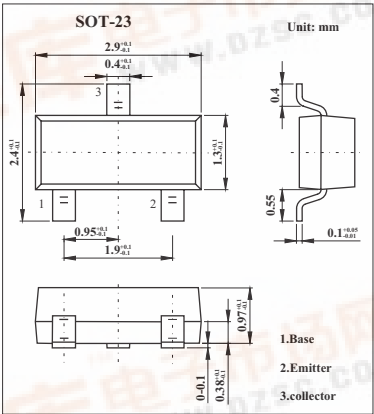
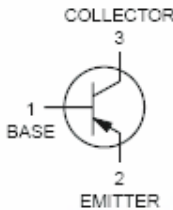
SMD Type

Transistors

Driver Transistors
MMBTA05, MMBTA06

■ Features

- Driver transistors.
- NPN silicon.



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	MMBTA05	MMBTA06	Unit
Collector-emitter voltage	V_{CEO}	60	80	V
Collector-base voltage	V_{CBO}	60	80	V
Emitter-base voltage	V_{EBO}	4.0		V
Collector current	I_C	500		mA
Total Device Dissipation FR-5 Board (* 1) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8		mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556		$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (* 2) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4		mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417		$^\circ\text{C}/\text{W}$
Junction temperature	T_j	150		$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150		$^\circ\text{C}$

* 1. FR-5 = 1.0 X 0.75 X 0.062 in.

* 2. Alumina = 0.4X 0.3 X 0.024 in. 99.5% alumina.

MMBTA05, MMBTA06

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage* MMBTA05 MMBTA06	$V_{(BR)CEO}$	$I_C = 1.0\text{ mA}, I_B = 0$	60			V
			80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100\text{ }\mu\text{A}, I_C = 0$	4			V
Base cutoff current	I_{CES}	$V_{CE} = 60\text{ V}, I_B = 0$			0.1	μA
Collector cutoff current MMBTA05 MMBTA06	I_{CBO}	$V_{CB} = 60\text{ V}, I_E = 0$			0.1	μA
		$V_{CB} = 80\text{ V}, I_E = 0$			0.1	μA
DC current gain	h_{FE}	$I_C = 10\text{ mA}, V_{CE} = 1.0\text{ V}$	100			
		$I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$	100			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$			0.25	V
Base-emitter saturation voltage	$V_{BE(on)}$	$I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$			1.2	V
Current-gain-bandwidth product	f_T	$I_C = 10\text{ mA}, V_{CE} = 2.0\text{ V}, f = 100\text{ MHz}$	100			MHz

* Pulse test: pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2.0\%$.

■ hFE Classification

TYPE	MMBTA05	MMBTA06
Marking	1H	1GM