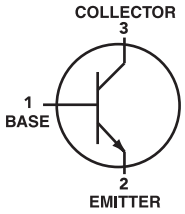
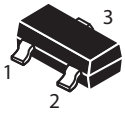
MMBTA05/06

Driver Transistors NPN Silicon





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MAXIMUM RATINGS

Rating	Symbol	MMBTA05	MMBTA06	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base VOltage	V_{EBO}	4.0	4.0	Vdc
Collector Current-Continuous	I_C	600		mAdc

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (1) TA=25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (2) TA=25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage, Temperature	$T_{J,Tstg}$	-55 to +150	°C

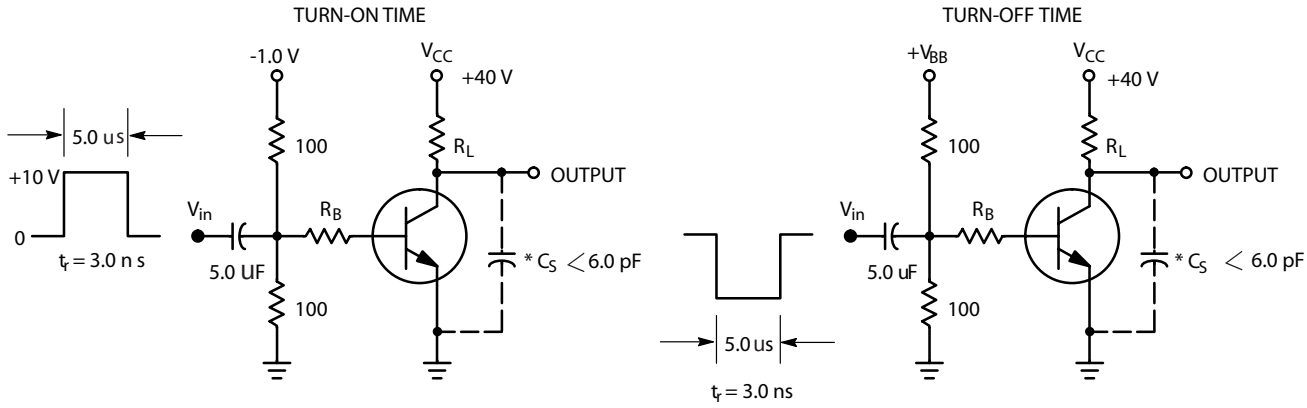
ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (3) (I_C=1.0 mAdc.I_B=0) MMBTA05 MMBTA06	$V_{(BR)CEO}$	 **60** **80**	 - -	Vdc
Collector-Base Breakdown Voltage (I_C=10**0** μAdc.I_E=0) MMBTA05 MMBTA06	$V_{(BR)CBO}$	 **60** **80**	 - -	Vdc
Emitter-Base Breakdown Voltage (I_E=10**0** μAdc.I_C=0)	$V_{(BR)EBO}$	**4.0**	-	Vdc
Collector Cutoff Current (V_{CE}=60 Vdc, **I_B=0)**	I_{CES}	-	**0.1**	**u**Adc
Collector Cutoff Current (V_{CB}=**6**0Vdc, I_E=0) MMBTA05 (V_{CB}=**8**0Vdc, I_E=0) MMBTA06	I_{CBO}	 - -	 **0.1** **0.1**	**u**Adc

1.FR-5=1.0 x 0.75 x 0.062 in
2.Alumina=0.4 x 0.3 x 0.024 in. 99.5% alumina
3.Pulse Test:Pulse Width ≤300us, Duty Cycle ≤2.0%
4. f_T is defined as the freguency at which hfeextrapolates to unity

ELECTRICAL CHARACTERISTICS (T_A= 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain (I_C = 10 mAdc, V_{CE} = 1.0 Vdc) (I_C = 100 mAdc, V_{CE} = 1.0 Vdc)	h_{FE}	100 100	- -	- -
Collector- Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 10 mAdc)	$V_{CE(sat)}$	-	0.25	Vdc
Base- Emitter On Voltage (I_C = 100 mAdc, V_{CE} = 1.0 Vdc)	$V_{BE(on)}$	-	1.2	Vdc
SMALL- SIGNAL CHARACTERISTICS				
Current- Gain - Bandwidth Product (4) (I_C = 10 mA, V_{CE} = 2.0 V, f = 100 MHz)	f_T	100	-	MHz



*Total Shunt Capacitance of Test Jig and Connectors
For PNP Test Circuits, Reverse All Voltage Polarities

FIG1. Switching Time Test Circuits

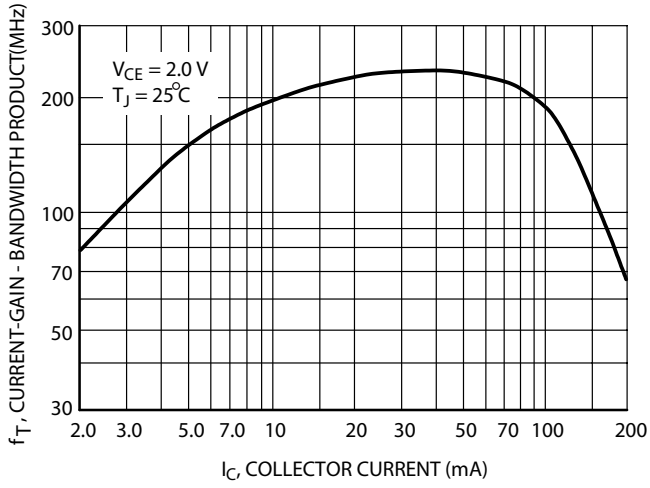


FIG2. Current-Gain ÐBandwidth Product

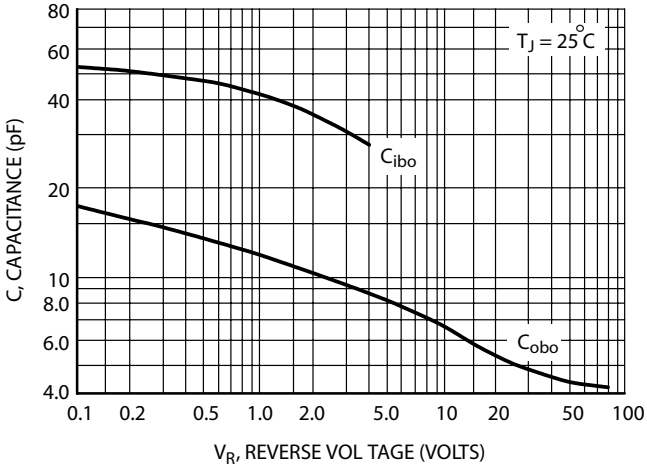


FIG3. Capacitance

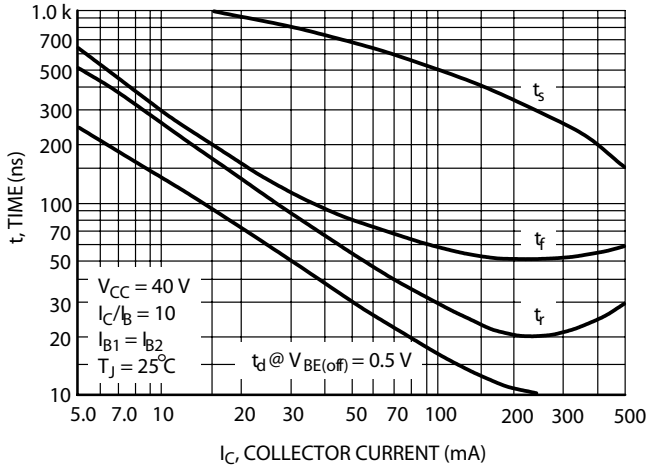


FIG4. Switching Time

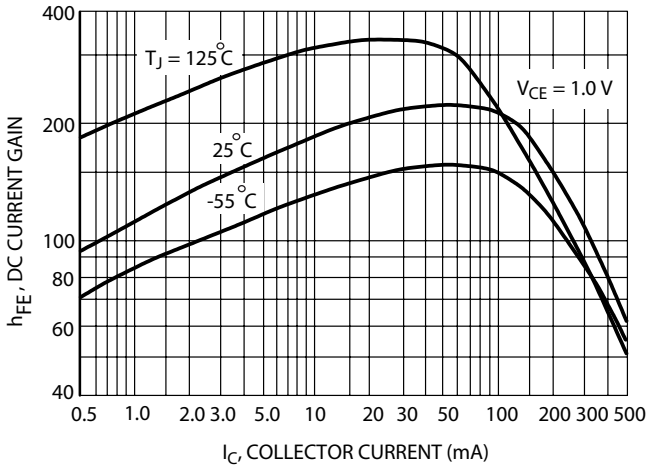


FIG5. DC Current Gain

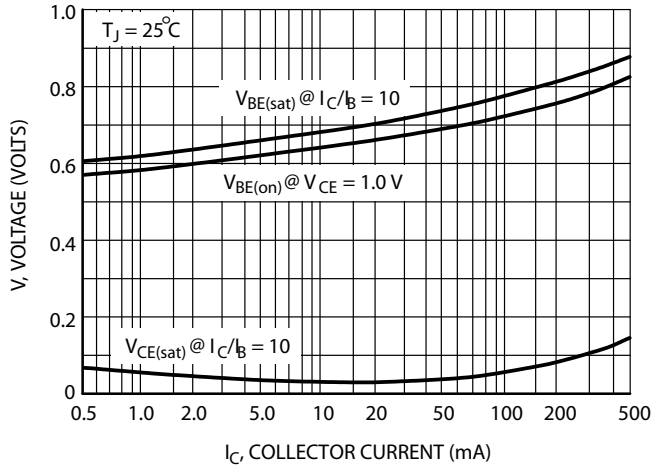


FIG6. "ON" Voltages

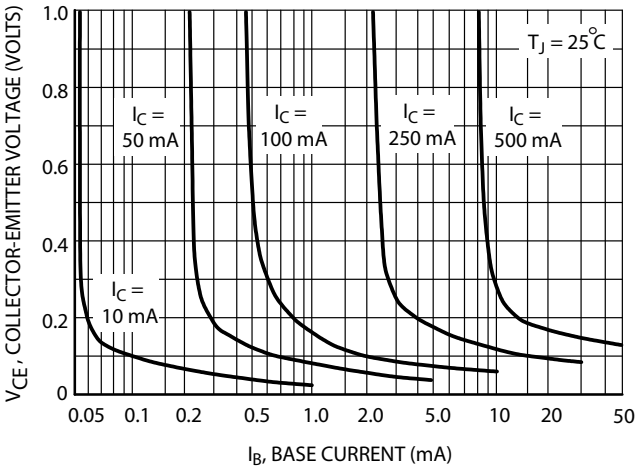


FIG7. Collector Saturation Region

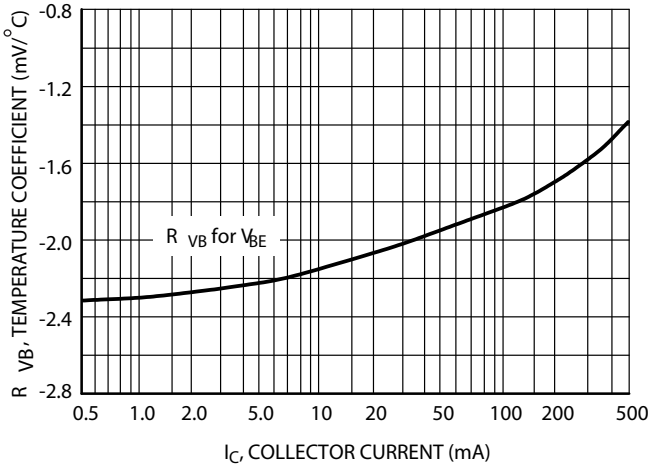


FIG8. Base-Emitter Temperature Coefficient

Dimensions in inch (mm)

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