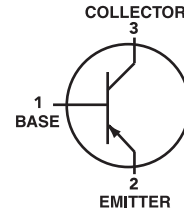


Driver PNP Transistors

 Lead(Pb)-Free



MAXIMUM RATINGS

Rating	Symbol	MMBTA55	MMBTA56	Unit
Collector-Emitter Voltage	V_{CE0}	-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	-500		mAdc

THERMAL CHARACTERISTICS

Characteristics	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	$R_{\theta JA}$	1.8	$\text{mW}/^\circ\text{C}$
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	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	2.4	$\text{mW}/^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage, Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

DEVICE MARKING

MMBTA55=2H, MMBTA56=2GM

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (3) ($I_C = -1.0 \text{ mAdc}, I_E = 0$) MMBTA55 MMBTA56	$V_{(BR)CEO}$	-60 -80	-	Vdc
Collector-Base Breakdown Voltage ($I_C = -100 \mu\text{Adc}, I_E = 0$) MMBTA55 MMBTA56	$V_{(BR)CBO}$	-60 -80	-	Vdc
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
Collector Cutoff Current ($V_{CB} = -60 \text{ Vdc}, I_E = 0$) ($V_{CB} = -80 \text{ Vdc}, I_E = 0$)	I_{CBO}	-	-0.1 -0.1	μAdc

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 $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$

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

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

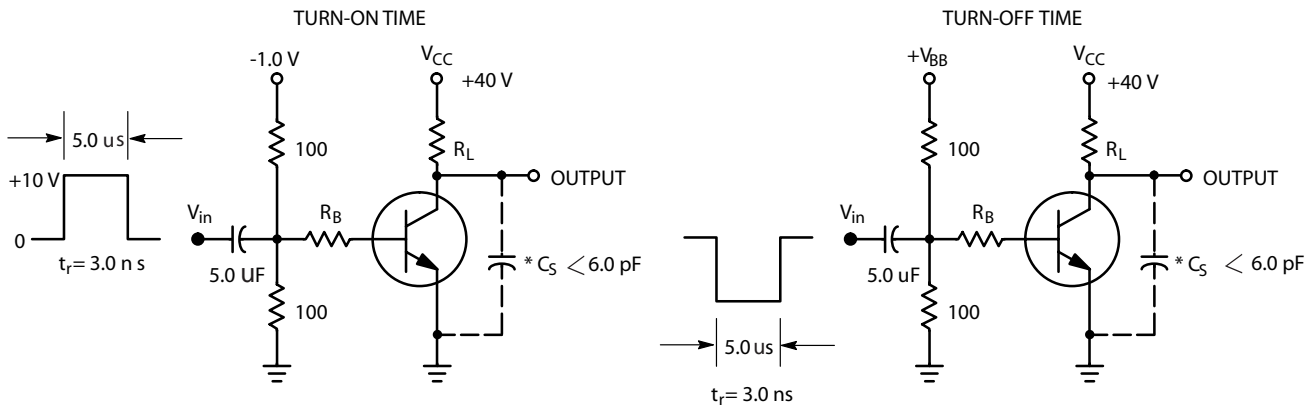
Characteristic	Symbol	Min	Max	Unit
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ON CHARACTERISTICS

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 = -100 mA, V _{CE} = -1.0 V, f = 100 MHz)	f _T	50	-	MHz
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*Total Shunt Capacitance of Test Jig and Connectors
For PNP Test Circuits, Reverse All Voltage Polarities

FIG1. Switching Time Test Circuits

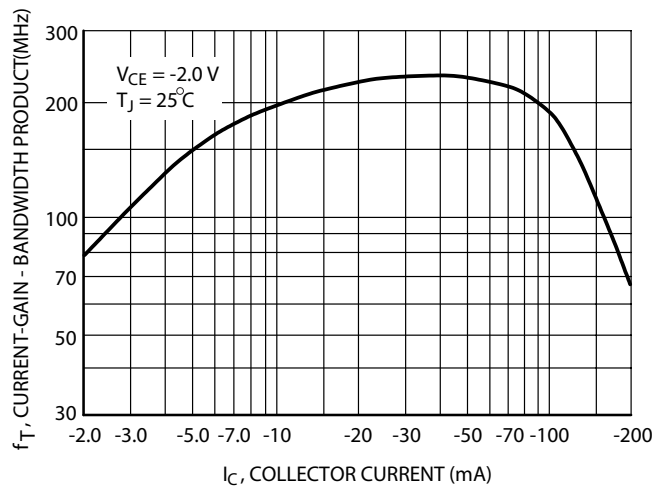


FIG2. Current-Gain - Bandwidth Product

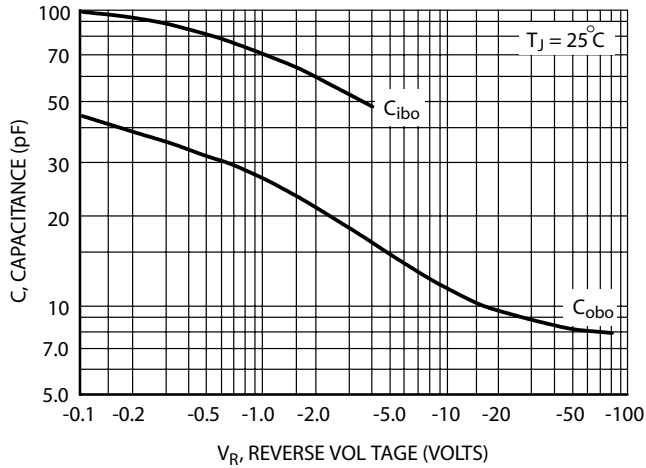


FIG.3 Capacitance

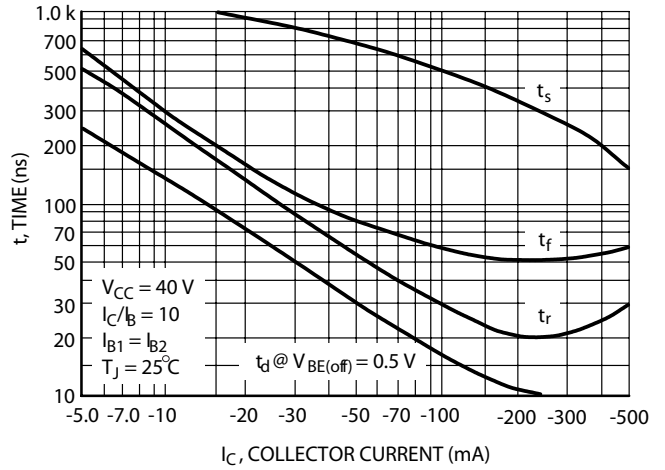


FIG4. Switching Time

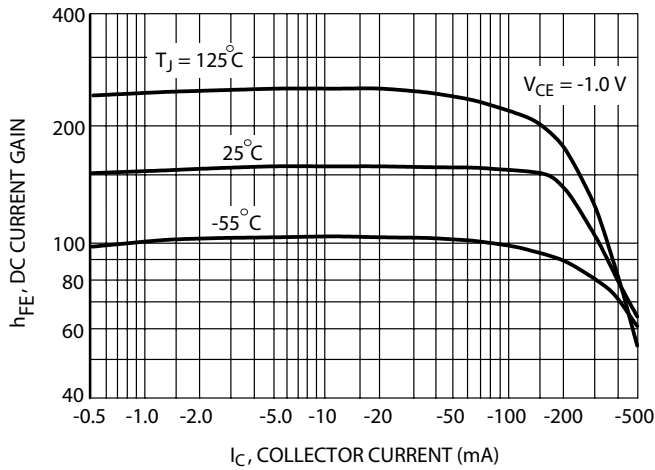


FIG.5 DC Current Gain

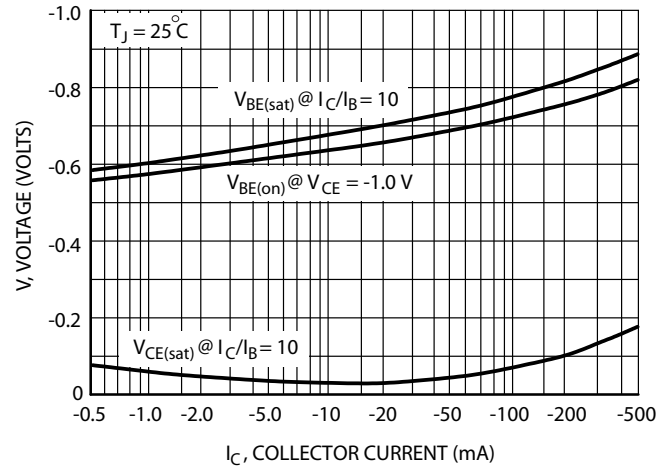


FIG6. "ON" Voltages

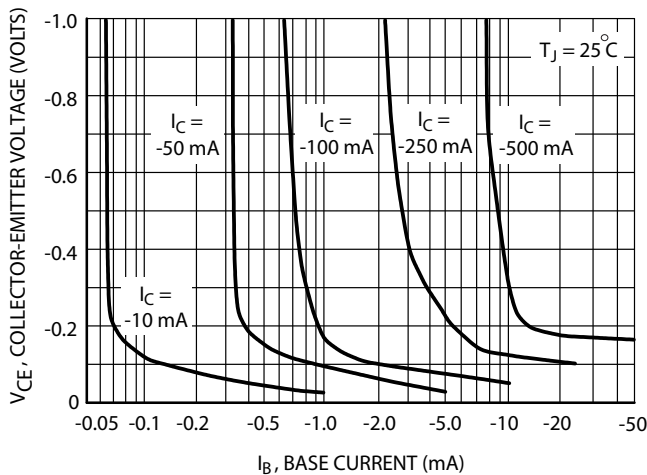


FIG7. Collector Saturation Region

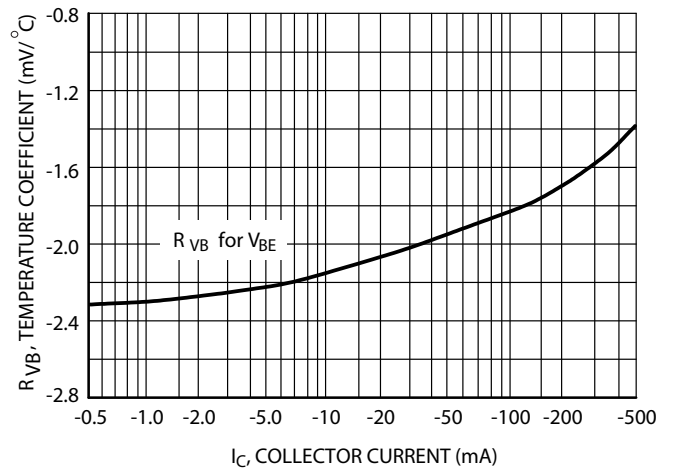
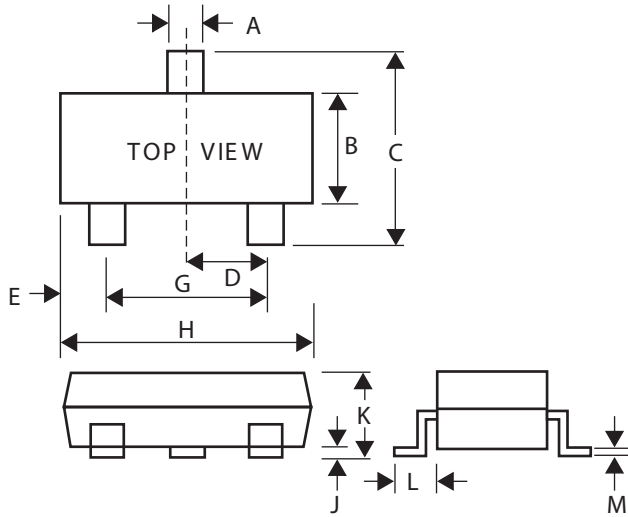


FIG8. Base-Emitter Temperature Coefficient

SOT-23 Package Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.80
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.60
L	0.30	0.61
M	0.076	0.25