

Driver Transistors

PNP Silicon

MMBTA55L Series, MMBTA56L Series, SMMBTA56L Series

Features

- € S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- € These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

	Rating	Symbol	Value	Unit
Collector I				

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector \bar{i} Emitter Breakdown Voltage (Note 3) ($I_C = \bar{i}1.0\text{ mAdc}$, $I_B = 0$) MMBTA55 MMBTA56, SMMBTA56	$V_{(BR)CEO}$	$\bar{i}60$ $\bar{i}80$	\bar{i} \bar{i}	Vdc
Emitter \bar{i} Base Breakdown Voltage ($I_E = \bar{i}100\text{ Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	$\bar{i}4.0$	\bar{i}	Vdc
Collector Cutoff Current ($V_{CE} = \bar{i}60\text{ Vdc}$, $I_B = 0$)	I_{CES}	\bar{i}	$\bar{i}0.1$	Adc
Collector Cutoff Current ($V_{CB} = \bar{i}60\text{ Vdc}$, $I_E = 0$) MMBTA55 ($V_{CB} = \bar{i}80\text{ Vdc}$, $I_E = 0$) MMBTA56, SMMBTA56	I_{CBO}	\bar{i} \bar{i}	$\bar{i}0.1$ $\bar{i}0.1$	Adc
ON CHARACTERISTICS				
DC Current Gain ($I_C = \bar{i}10\text{ mAdc}$, $V_{CE} = \bar{i}1.0\text{ Vdc}$) ($I_C = \bar{i}100\text{ mAdc}$, $V_{CE} = \bar{i}1.0\text{ Vdc}$)	h_{FE}	100 100	\bar{i} \bar{i}	\bar{i}
Collector \bar{i} Emitter Saturation Voltage ($I_C = \bar{i}100\text{ mAdc}$, $I_B = \bar{i}10\text{ mAdc}$)	$V_{CE(sat)}$	\bar{i}	$\bar{i}0.25$	Vdc
Base \bar{i} Emitter On Voltage ($I_C = \bar{i}100\text{ mAdc}$, $V_{CE} = \bar{i}1.0\text{ Vdc}$)	$V_{BE(on)}$	\bar{i}	$\bar{i}1.2$	Vdc
SMALL \bar{i}SIGNAL CHARACTERISTICS				
Current \bar{i} Gain \bar{i} Bandwidth Product (Note 4) ($I_C = \bar{i}100\text{ mAdc}$, $V_{CE} = \bar{i}1.0\text{ Vdc}$, $f = 100\text{ MHz}$)	f_T	50	\bar{i}	MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

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

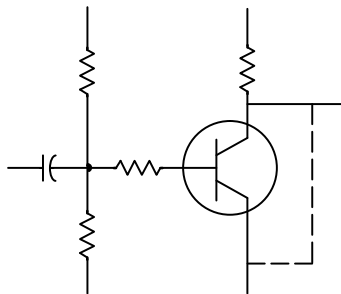


Figure 1. Switching Time Test Circuits

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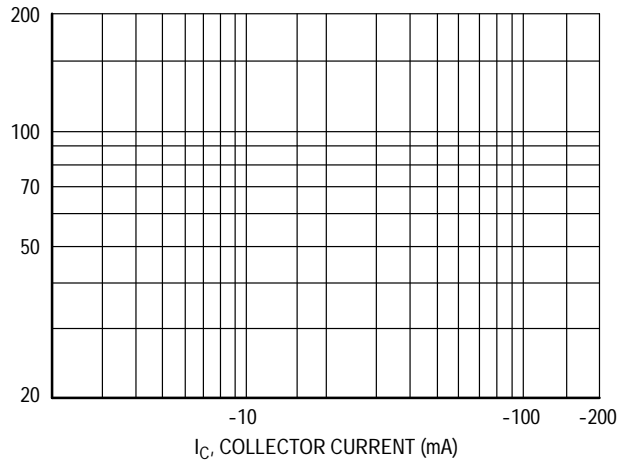


Figure 2. Current β Gain — Bandwidth Product

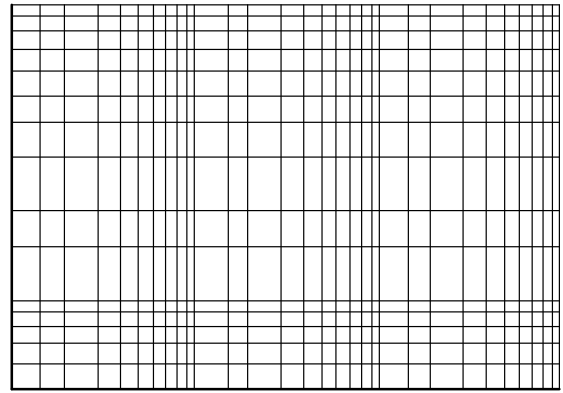


Figure 3. Capacitance

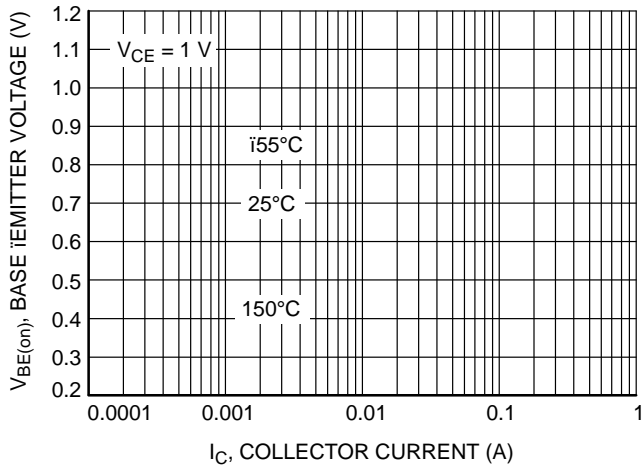


Figure 8. Base-Emitter Voltage vs. Collector Current



Figure 9. Collector Saturation Region

Figure 10. Base-Emitter Temperature Coefficient

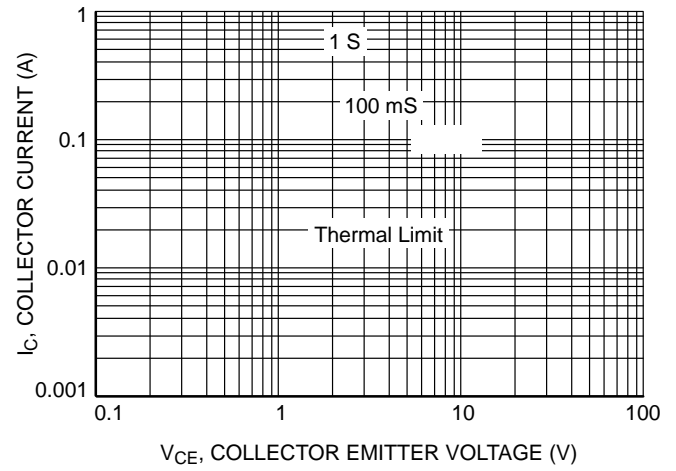


Figure 11. Safe Operating Area

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PACKAGE DIMENSIONS

SOT i23 (TO i236) 2.90x1.30x1.00 1.90P
CASE 318
ISSUE AU

RECOMMEND