



# MMBTA05, MMBTA06, MMBTA55, MMBTA56

## NPN AND PNP HIGH VOLTAGE TRANSISTOR

**VOLTAGE** 60~80 Volts **POWER** 225 mWatts

SOT-23

Unit: inch ( mm )

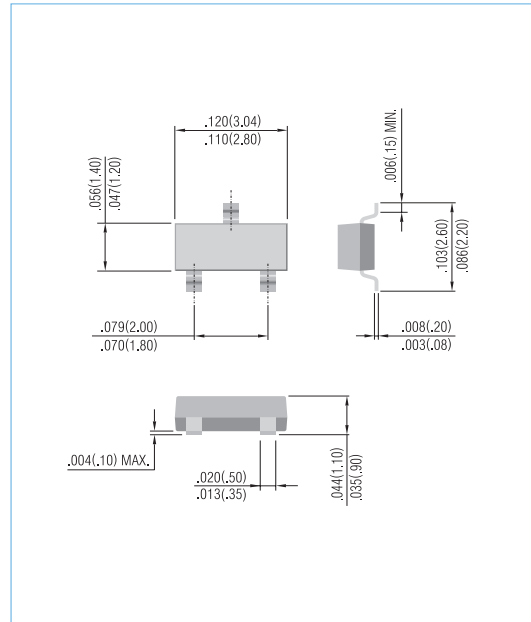
### FEATURES

- NPN and PNP silicon, planar design
- Collector current  $I_C = 100\text{mA}$
- In compliance with EU RoHS 2002/95/EC directives

### MECHANICAL DATA

- Case: SOT-23, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.008 gram
- Marking :

MMBTA05=B05	MMBTA06=B06	MMBTA55=B55	MMBTA56=B56
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### MAXIMUM RATINGS

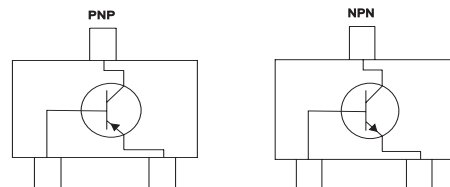
PARAMETER	SYMBOL	MMBTA05	MMBTA55	MMBTA06	MMBTA56	UNITS
Collector-Emitter Voltage	$V_{CE0}$	60		80		V
Collector-Base Voltage	$V_{CBO}$	60		80		V
Emitter-Base Voltage	$V_{EBO}$	4.0				V
Collector Current-Continuous	$I_C$	500				mA
Circuit Figure		NPN	PNP	NPN	PNP	

### THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX	UNIT
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}$
Junction and Storage Temperature	$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$

1.FR-4=70 x 60 x 1mm.

2.Alumina=0.4 x 0.3 x 0.024 in. 99.5 alumina





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

CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT
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### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (Note 3) ( $I_C = 1.0\text{ mA}$ , $I_B = 0$ )	MMBTA05, MMBTA55 MMBTA06, MMBTA56	$V_{(BR)CEO}$	60 80	- -	V
Emitter-Base Breakdown Voltage ( $I_E = 100\ \mu\text{A}$ , $I_C = 0$ )		$V_{(BR)EBO}$	4.0	-	V
Collector Cutoff Current ( $V_{CE} = 60\text{V}$ , $I_B = 0$ )		$I_{CES}$	-	0.1	$\mu\text{A}$
Collector Cutoff Current ( $V_{CB} = 60\text{V}$ , $I_E = 0$ ) ( $V_{CB} = 80\text{V}$ , $I_E = 0$ )	MMBTA05, MMBTA55 MMBTA06, MMBTA56	$I_{CBO}$	- -	0.1 0.1	$\mu\text{A}$

### ON CHARACTERISTICS

DC Current Gain ( $I_C = 10\text{mA}$ , $V_{CE} = 1.0\text{V}$ ) ( $I_C = 100\text{mA}$ , $V_{CE} = 1.0\text{V}$ )		$h_{FE}$	100 100	- -	-
Collector-Emitter Saturation Voltage ( $I_C = 100\text{mA}$ , $I_B = 10\text{mA}$ )		$V_{CE(sat)}$	-	0.25	V
Base-Emitter On Voltage ( $I_C = 100\text{mA}$ , $V_{CE} = 1.0\text{V}$ )		$V_{BE(on)}$	-	1.2	V

### SMALL-SIGNAL CHARACTERISTICS

Current-Gain-Bandwidth Product (Note 4) ( $I_C = 10\text{mA}$ , $V_{CE} = 2.0\text{V}$ , $f = 100\text{MHz}$ )		$f_T$	100	-	MHz
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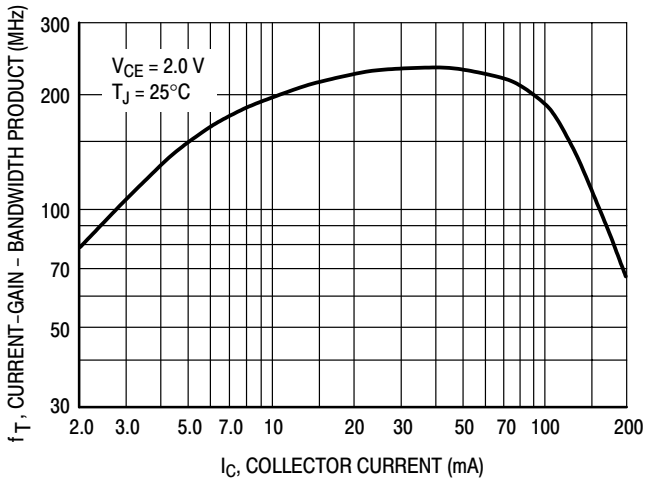


Figure 2. Current-Gain — Bandwidth Product

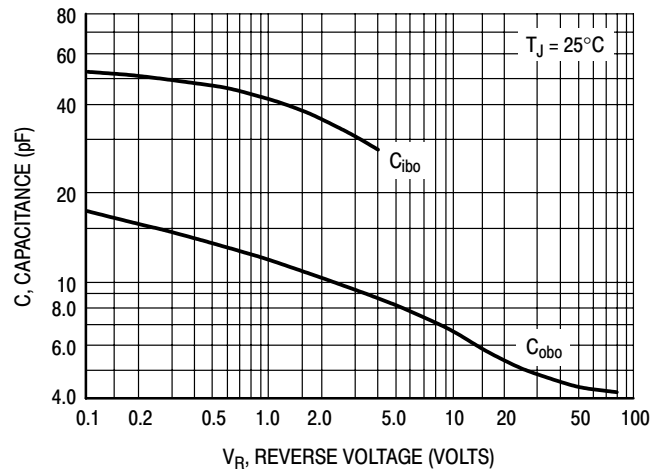


Figure 3. Capacitance

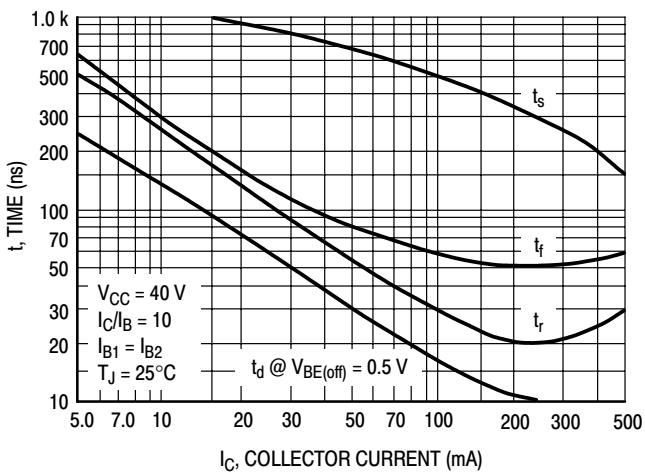


Figure 4. Switching Time

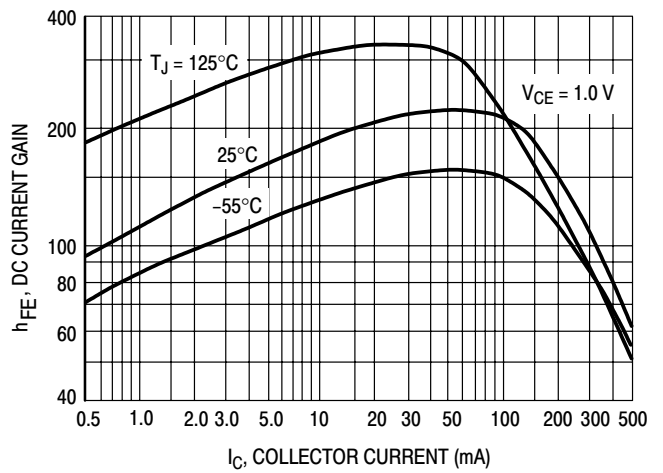


Figure 5. DC Current Gain

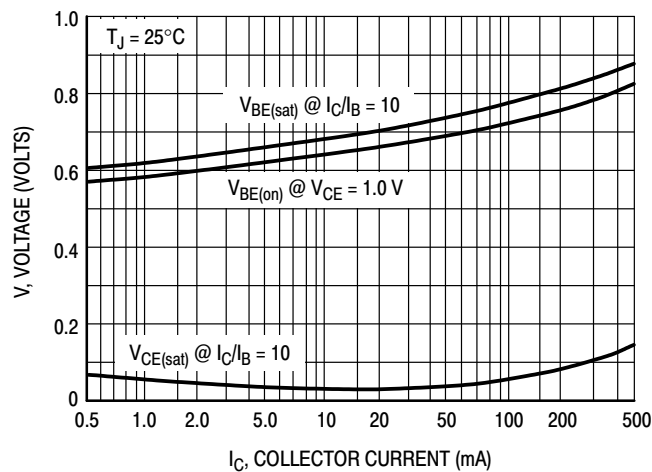


Figure 6. "ON" Voltages



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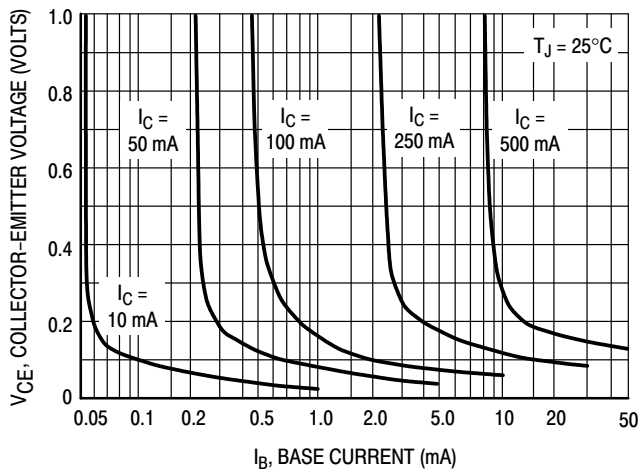


Figure 7. Collector Saturation Region

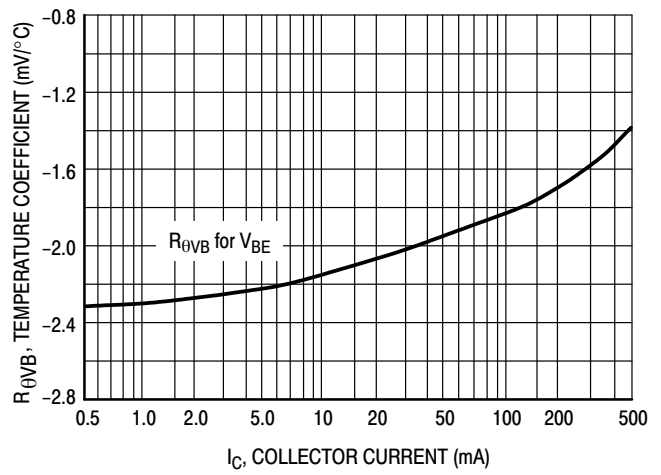
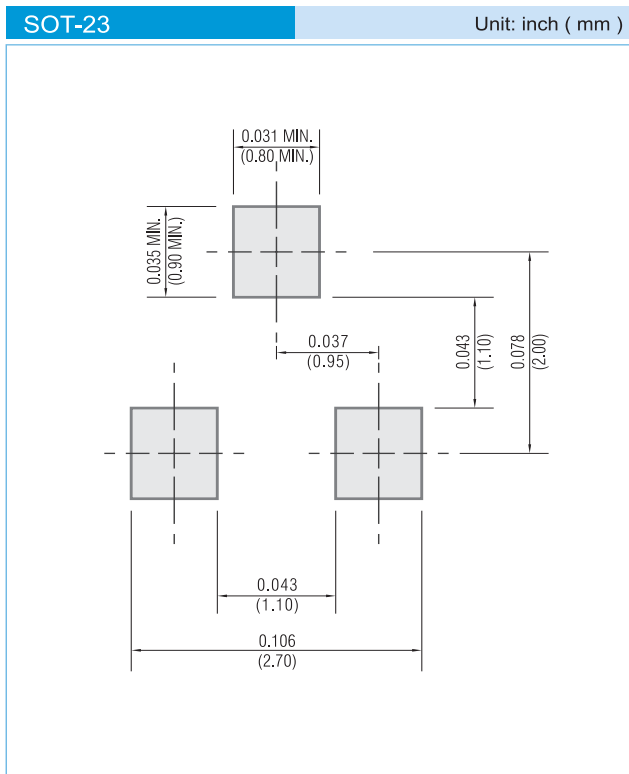


Figure 8. Base-Emitter Temperature Coefficient



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## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information

T/R - 12K per 13" plastic Reel

T/R - 3K per 7" plastic Reel

## LEGAL STATEMENT

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