



# MMBTA05-AU, MMBTA06-AU, MMBTA55-AU, MMBTA56-AU

## NPN AND PNP HIGH VOLTAGE TRANSISTOR

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

**SOT-23** Unit : inch(mm)

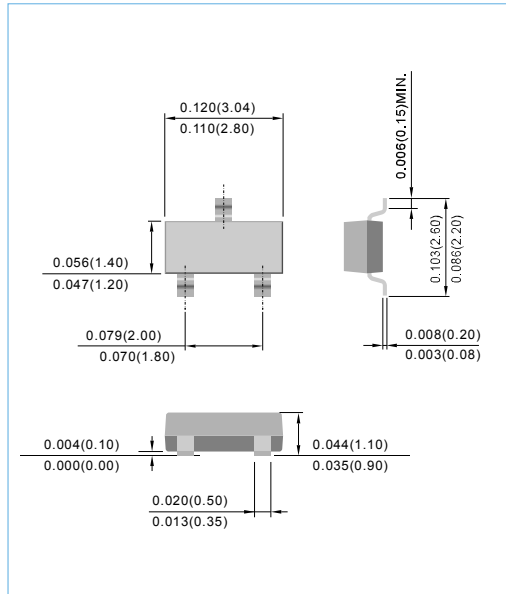
### FEATURES

- NPN and PNP silicon, planar design
- Collector current  $I_C = 500\text{mA}$
- Acquire quality system certificate : TS16949
- 符合欧盟 RoHS 2002/95/EC 指令
- Lead free in comply with EU RoHS 2002/95/EC directives.
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### MECHANICAL DATA

- Case: SOT-23, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0003 ounces, 0.0084 grams
- Marking :

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

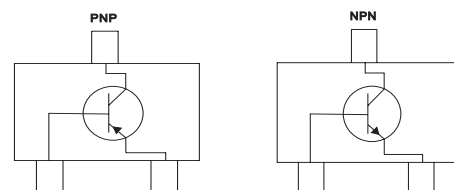
PARAMETER	SYMBOL	MMBTA05-AU	MMBTA55-AU	MMBTA06-AU	MMBTA56-AU	UNITS
Collector-Emitter Voltage	$V_{CEO}$	60		80		V
Collector-Base Voltage	$V_{CBO}$	60		80		V
Emitter-Base Voltage	$V_{EBO}$		4.0			V
Collector Current-Continuous	$I_C$		500			mA
Circuit Figure		NPN	PNP	NPN	PNP	

### 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-AU, MMBTA55-AU MMBTA06-AU, MMBTA56-AU	$V_{(BR)CEO}$	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-AU, MMBTA55-AU MMBTA06-AU, MMBTA56-AU	$I_{CBO}$	- -	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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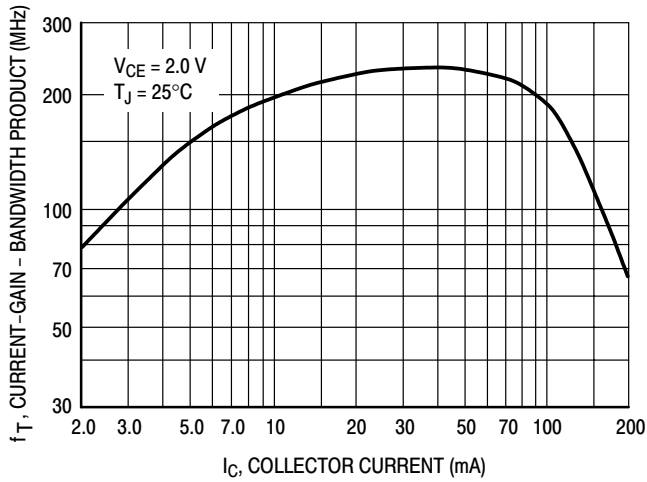


Figure 2. Current-Gain — Bandwidth Product

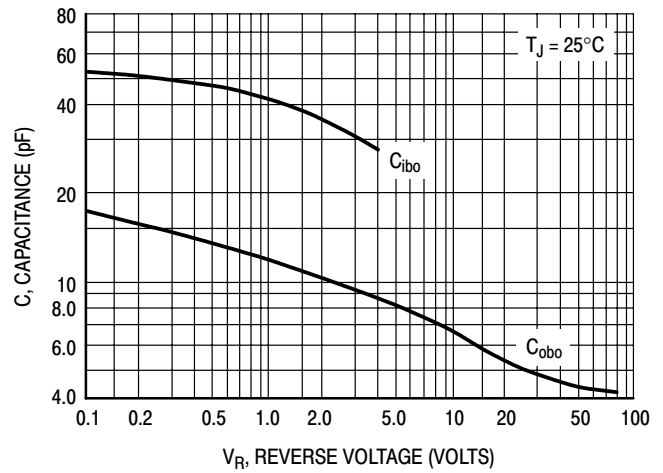


Figure 3. Capacitance

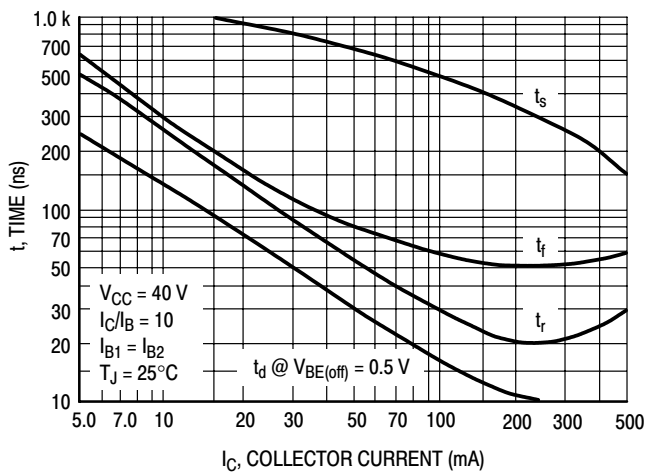


Figure 4. Switching Time

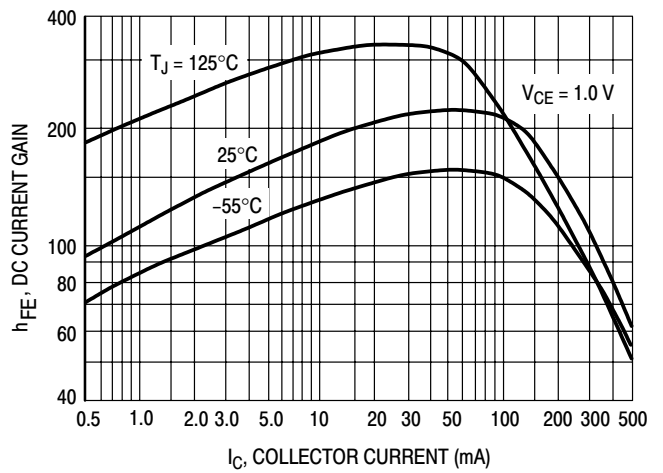


Figure 5. DC Current Gain

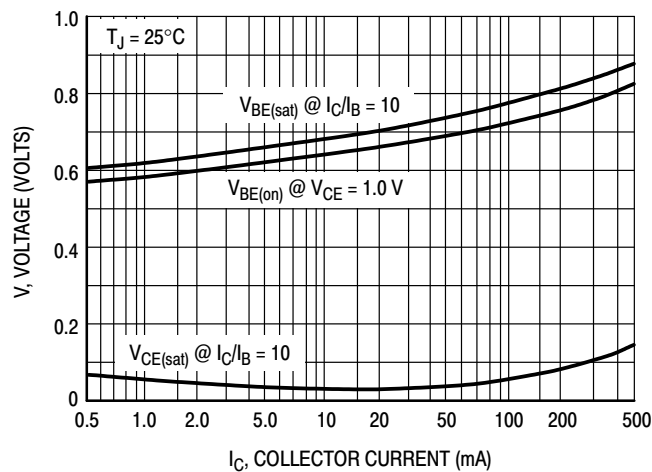
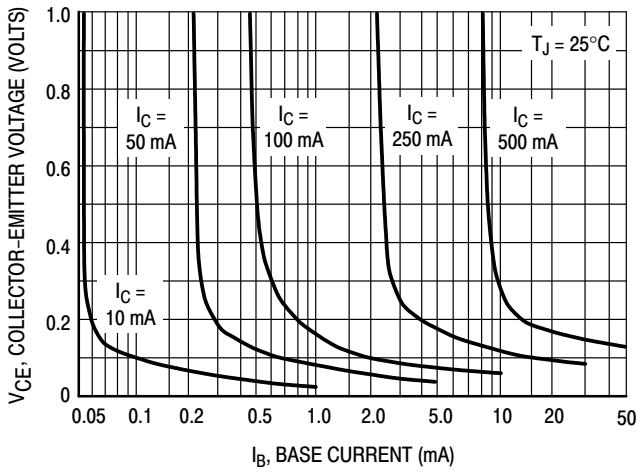


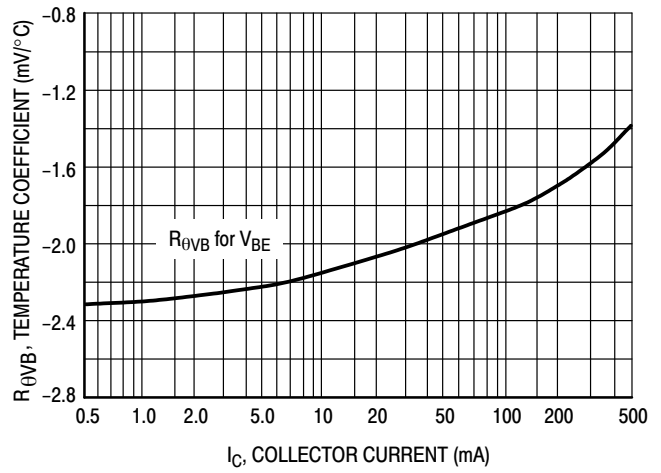
Figure 6. "ON" Voltages



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**Figure 7. Collector Saturation Region**

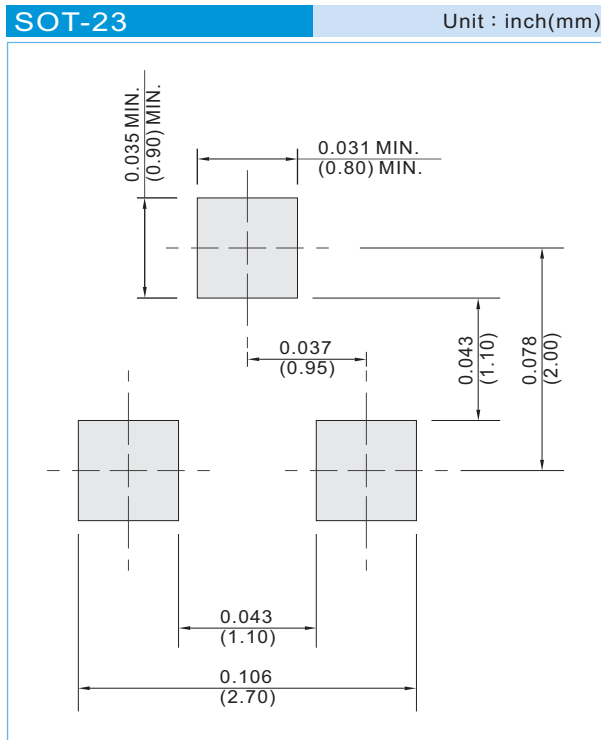


**Figure 8. Base-Emitter Temperature Coefficient**



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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



## MMBTA05-AU, MMBTA06-AU, MMBTA55-AU, MMBTA56-AU

### Part No\_packing code\_Version

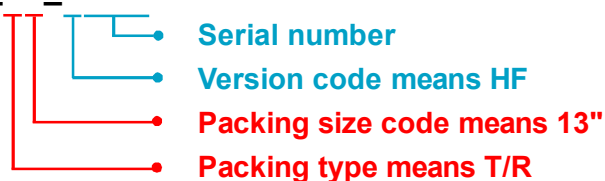
MMBTA05-AU\_R1\_000A1

MMBTA05-AU\_R2\_000A1

For example :

**RB500V-40\_R2\_00001**

Part No.



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	<b>A</b>	N/A	<b>0</b>	<b>HF</b>	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	<b>RoHS</b>	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			



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