



# MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56

## NPN AND PNP HIGH VOLTAGE TRANSISTOR

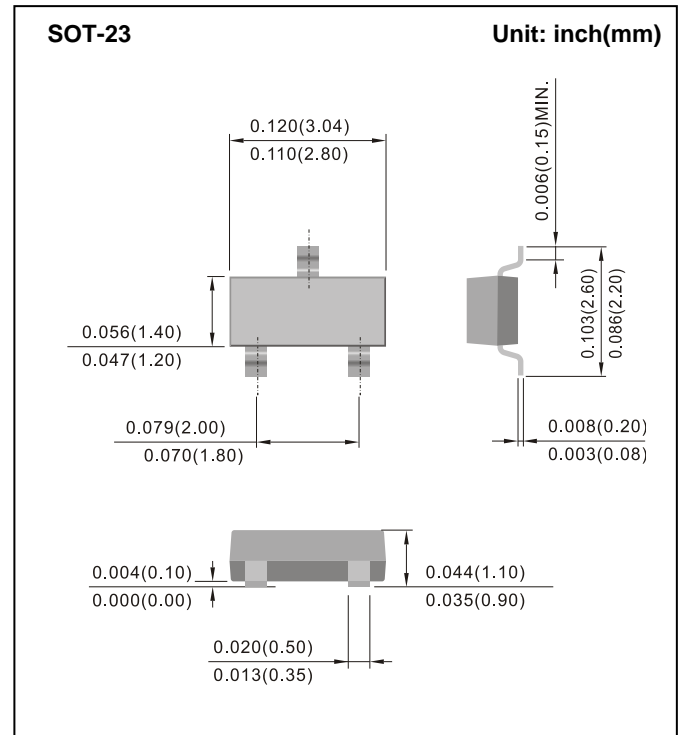
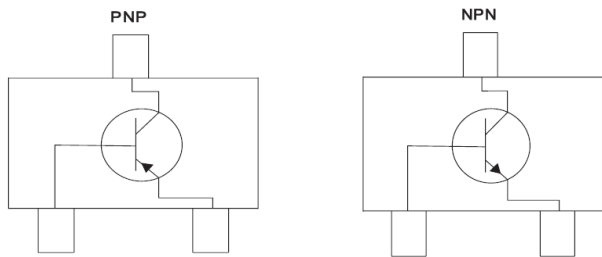
**Voltage** 60~80V **Power** 225mW

### Features

- NPN and PNP silicon, planar design
- Collector current  $I_C = 500\text{mA}$
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

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



### Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MMBTA05	MMBTA55	MMBTA06	MMBTA56	UNITS
Marking		B05	B55	B06	B56	
Collector-Emitter Voltage	$V_{CEO}$	60		80		V
Collector-Base Voltage	$V_{CBO}$	60		80		V
Emitter-Base Voltage	$V_{EBO}$	4				V
Collector Current-Continuous	$I_C$	500				mA
Circuit Figure		NPN	PNP	NPN	PNP	

### Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

CHARACTERISTIC	SYMBOL	MAX.	UNITS
Total device dissipation FR-4 board (Note 1) $T_A=25^\circ\text{C}$	$P_D$	225	mW
derate above $25^\circ\text{C}$		1.8	mW/ $^\circ\text{C}$
Typical thermal resistance	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total device dissipation alumina substrate (Note 2) $T_A=25^\circ\text{C}$	$P_D$	300	mW
derate above $25^\circ\text{C}$		2.4	mW/ $^\circ\text{C}$
Typical thermal resistance	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$

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

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



## MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56

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

PARAMETER	SYMBOL	MIN.	MAX.	UNITS	
<b>OFF Characteristics</b>					
Collector-Emitter Breakdown Voltage ( $I_C=1.0\text{mA}$ , $I_B=0$ )	MMBTA05, MMBTA55 MMBAT06, MMBTA56	$V_{(BR)CEO}$	60	-	V
			80	-	
Emitter-Base Breakdown Voltage ( $I_E=100\mu\text{A}$ , $I_C=0$ )		$V_{(BR)EBO}$	4	-	V
Collector Cutoff Current ( $V_{CE}=60\text{V}$ , $I_B=0$ )		$I_{CES}$	-	0.1	$\mu\text{A}$
Collector Cutoff Current ( $V_{CB}=60\text{V}$ , $I_E=0$ )	MMBTA05, MMBTA55 MMBAT06, MMBTA56	$I_{CBO}$	-	0.1	$\mu\text{A}$
( $V_{CB}=80\text{V}$ , $I_E=0$ )			-	0.1	
<b>ON characteristics</b>					
DC Current Gain ( $I_C=10\text{mA}$ , $V_{CE}=1\text{V}$ ) ( $I_C=100\text{mA}$ , $V_{CE}=1\text{V}$ )		$f_{FE}$	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 ( $I_C=100\text{mA}$ , $V_{CE}=1\text{V}$ )		$V_{BE(ON)}$	-	1.2	V
<b>Small-signal characteristics</b>					
Current-Gain-Bandwidth Product ( $I_C=10\text{mA}$ , $V_{CE}=2\text{V}$ , $f=100\text{MHz}$ )		$f_T$	100	-	MHz



**MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56**

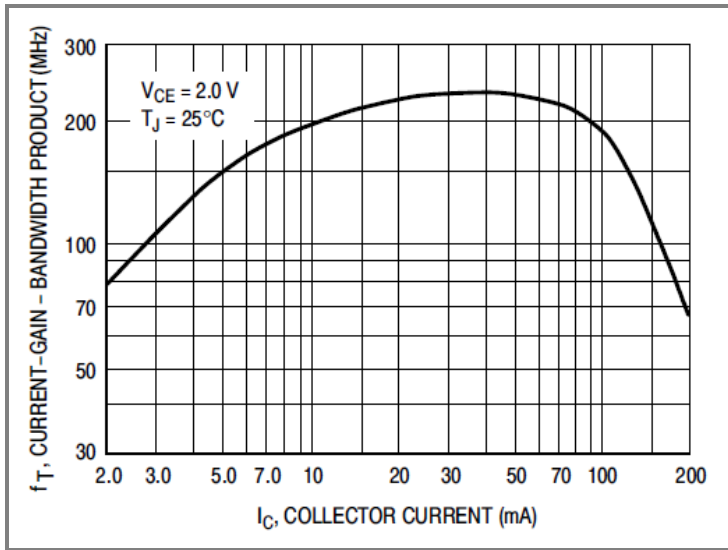


Fig.1 Current-Gain—Bandwidth Product

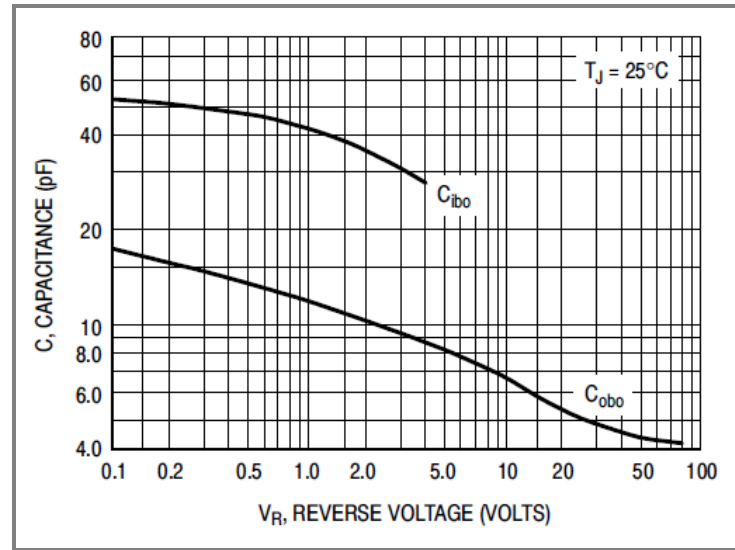


Fig.2 Capacitance

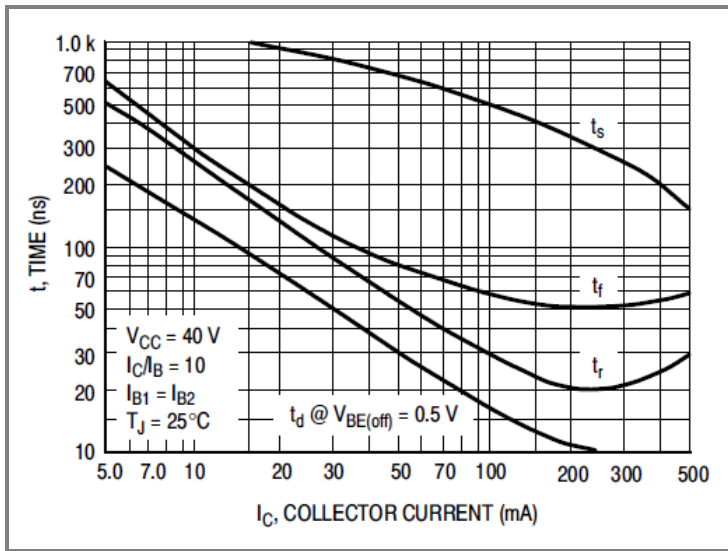


Fig.3 Switching Time

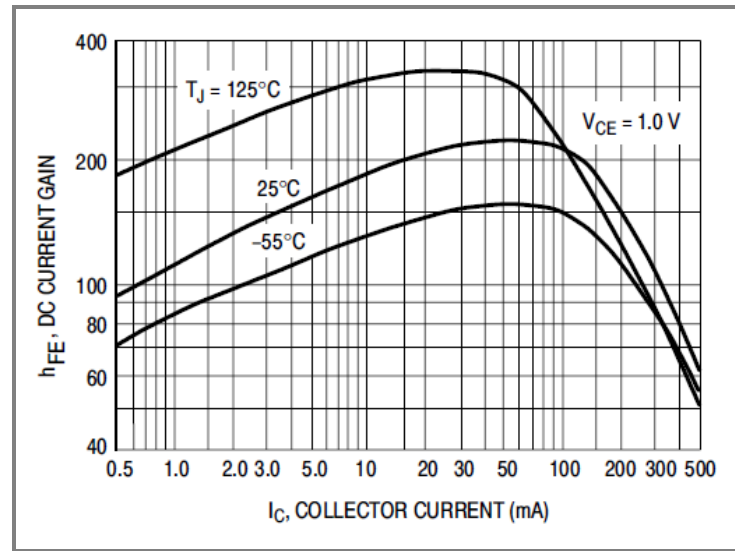


Fig.4 DC Current Gain

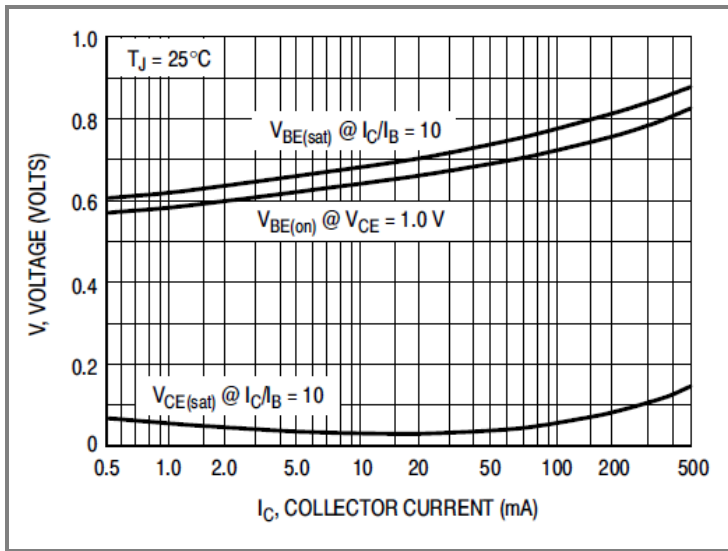


Fig.5 ON Voltages

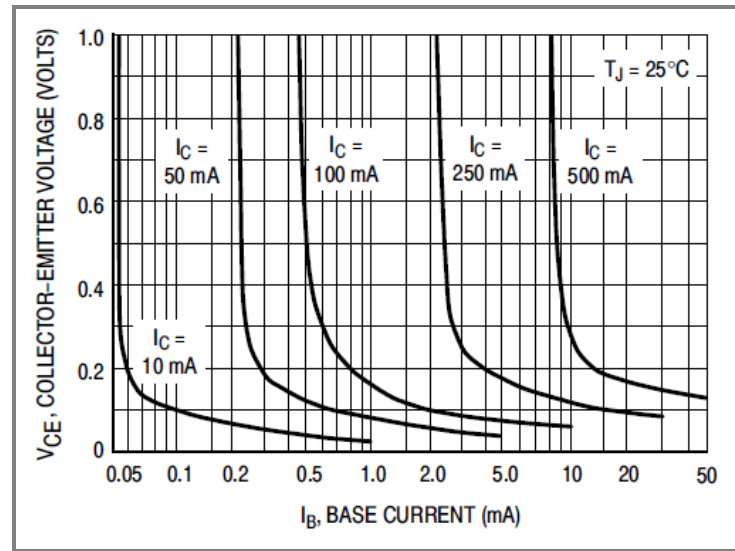
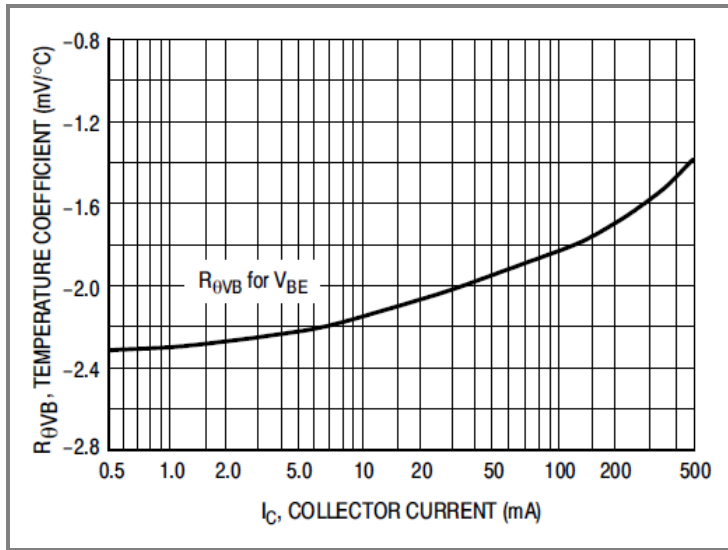


Fig.6 Collector Saturation Region



**MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56**



**Fig.7 Base-Emitter Temperature Coefficient**

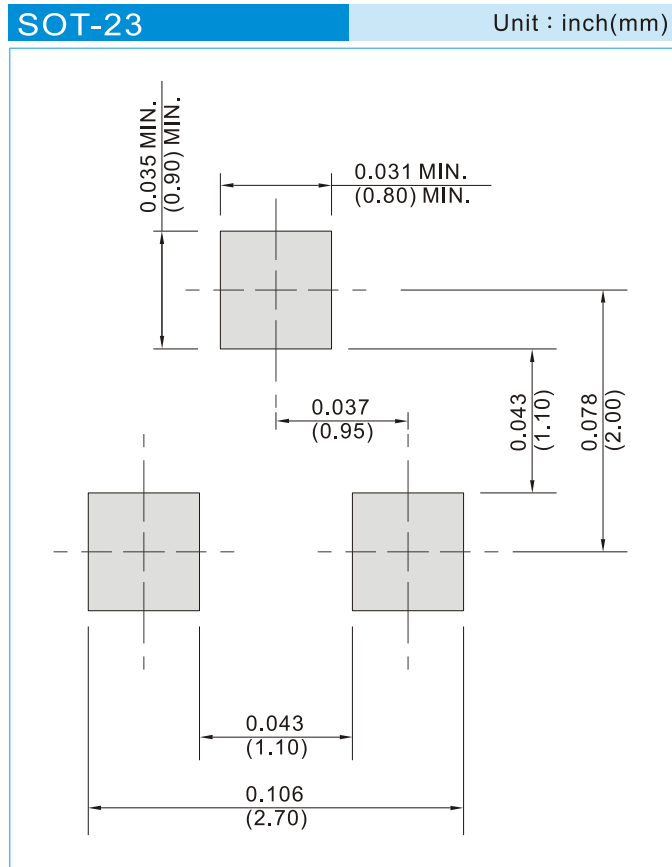


# MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56

## Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
MMBTA05_R1_00001	SOT-23	3K / 7" Reel	B05	Halogen Free
MMBTA05_R2_00001	SOT-23	12K / 13" Reel	B05	Halogen Free

## Mounting Pad Layout





## MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56

### Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.