

MMBTA05-AU / MMBTA06-AU / MMBTA55-AU / MMBTA56-AU

NPN AND PNP HIGH VOLTAGE TRANSISTOR

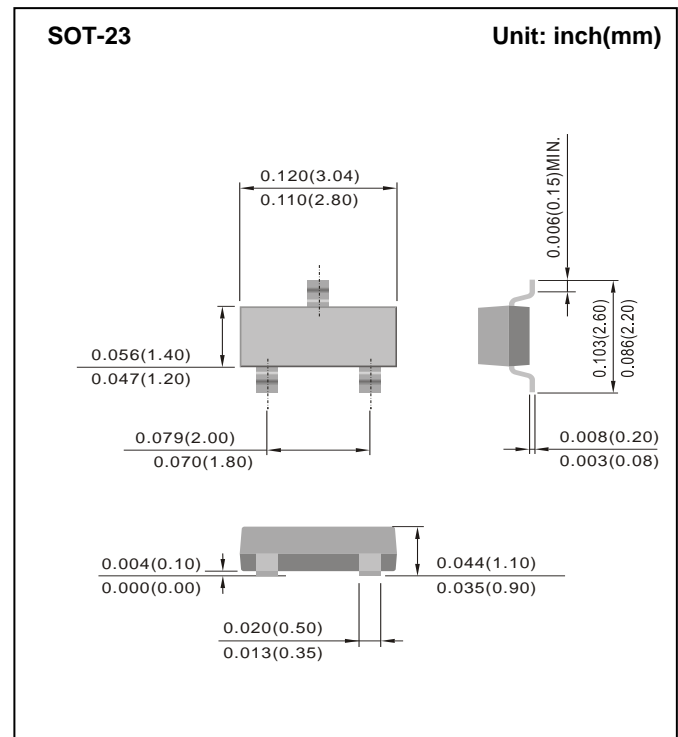
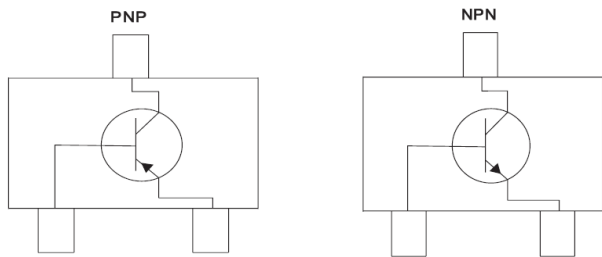
Voltage 60~80V **Power** 225mW

Features

- NPN and PNP silicon, planar design
- Collector current $I_C = 500\text{mA}$
- AEC-Q101 qualified
- 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-AU	MMBTA55-AU	MMBTA06-AU	MMBTA56-AU	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°C		1.8	mW/ $^\circ\text{C}$
Typical thermal resistance	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total device dissipation alumina substrate (Note 2) $T_A=25^\circ\text{C}$	P_D	300	mW
derate above 25°C		2.4	mW/ $^\circ\text{C}$
Typical thermal resistance	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
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-AU / MMBTA06-AU / MMBTA55-AU / MMBTA56-AU

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

PARAMETER	SYMBOL	MIN.	MAX.	UNITS
OFF Characteristics				
Collector-Emitter Breakdown Voltage ($I_C=1.0\text{mA}$, $I_B=0$)	$V_{(BR)CEO}$	60	-	V
MMBTA05-AU, MMBTA55-AU MMBTA06-AU, MMBTA56-AU		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	μA
Collector Cutoff Current ($V_{CB}=60\text{V}$, $I_E=0$)	I_{CBO}	-	0.1	μA
($V_{CB}=80\text{V}$, $I_E=0$)		MMBTA05-AU, MMBTA55-AU MMBTA06-AU, MMBTA56-AU	-	0.1
ON characteristics				
DC Current Gain ($I_C=10\text{mA}$, $V_{CE}=1\text{V}$)	h_{FE}	100	-	-
($I_C=100\text{mA}$, $V_{CE}=1\text{V}$)		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
Small-signal characteristics				
Current-Gain-Bandwidth Product ($I_C=10\text{mA}$, $V_{CE}=2\text{V}$, $f=100\text{MHz}$)	f_T	100	-	MHz

MMBTA05-AU / MMBTA06-AU / MMBTA55-AU / MMBTA56-AU

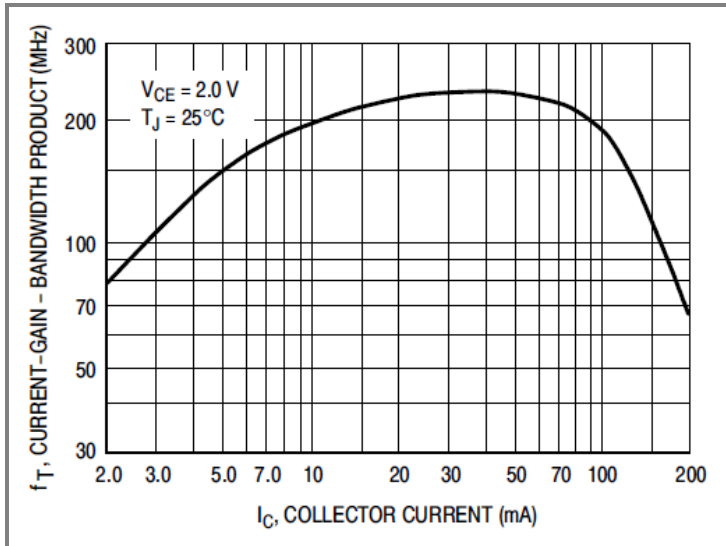


Fig.1 Current-Gain—Bandwidth Product

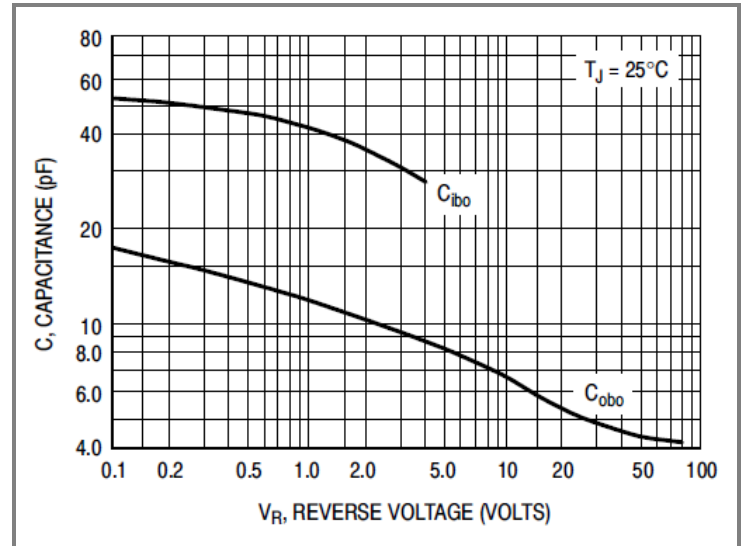


Fig.2 Capacitance

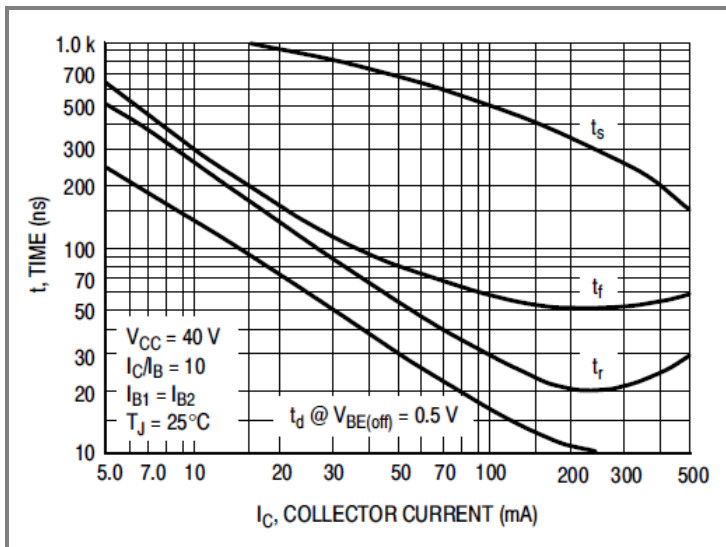


Fig.3 Switching Time

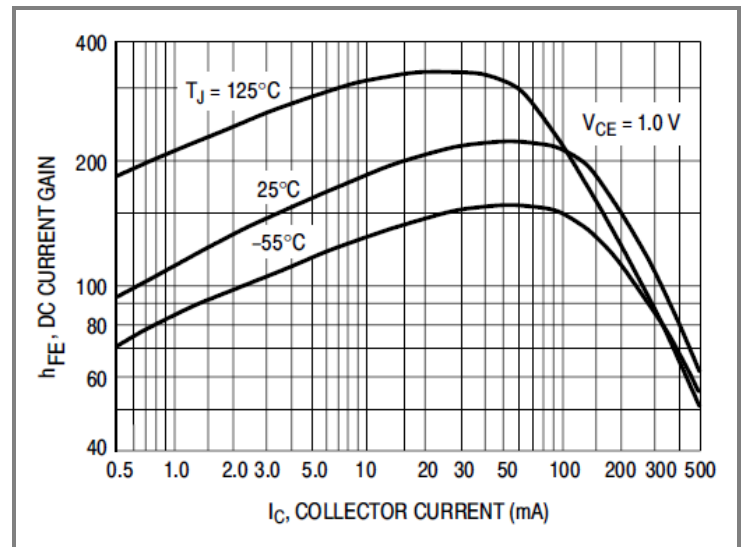


Fig.4 DC Current Gain

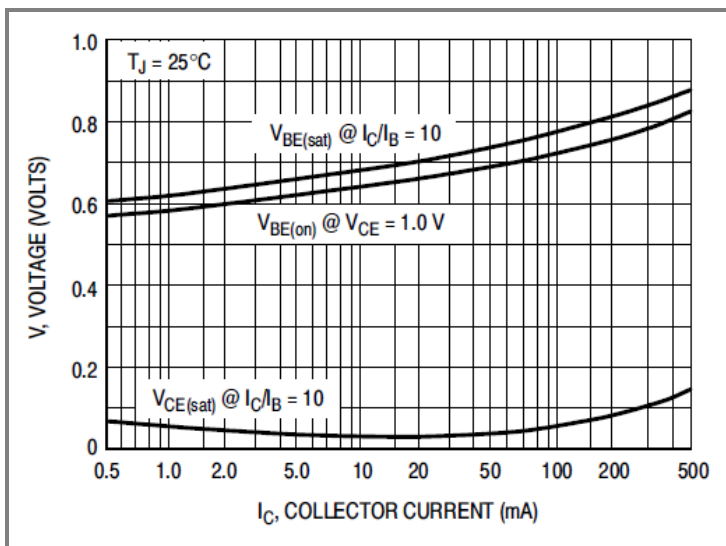


Fig.5 ON Voltages

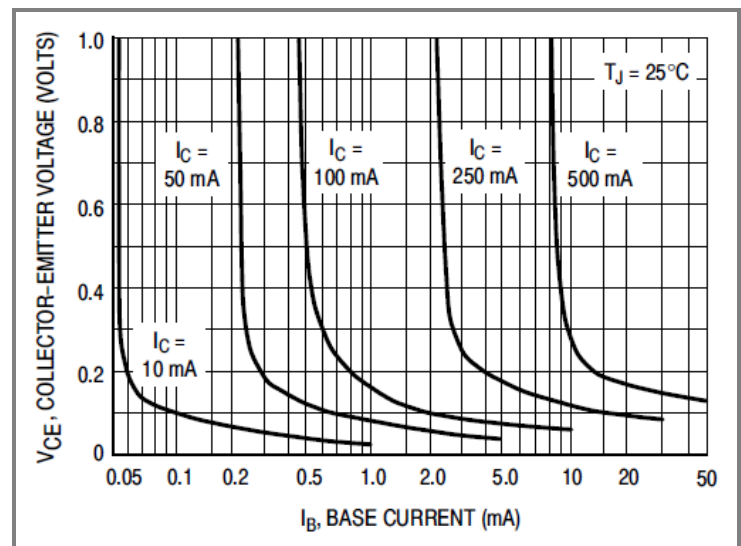


Fig.6 Collector Saturation Region

MMBTA05-AU / MMBTA06-AU / MMBTA55-AU / MMBTA56-AU

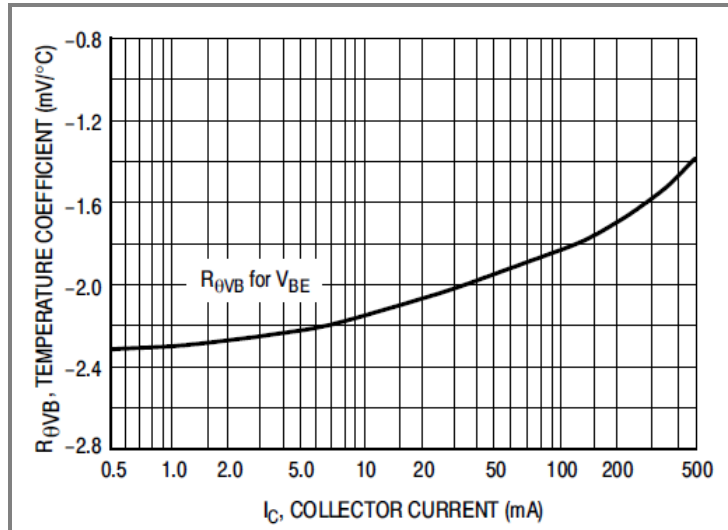


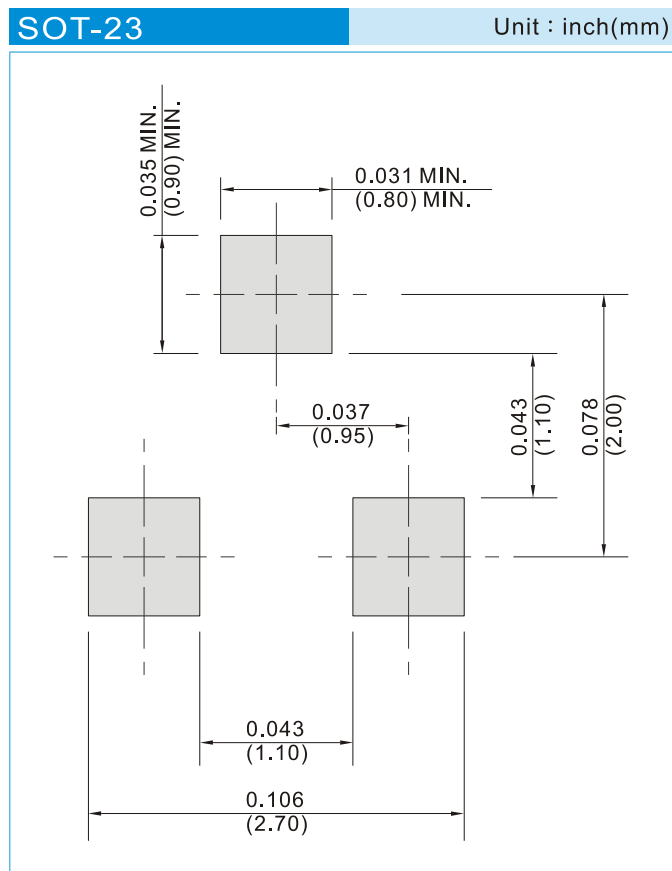
Fig.7 Base-Emitter Temperature Coefficient

MMBTA05-AU / MMBTA06-AU / MMBTA55-AU / MMBTA56-AU

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
MMBTA05-AU	SOT-23	3K / 7" Reel	B05
MMBTA05-AU	SOT-23	12K / 13" Reel	B05

Mounting Pad Layout



MMBTA05-AU / MMBTA06-AU / MMBTA55-AU / MMBTA56-AU

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.