MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56

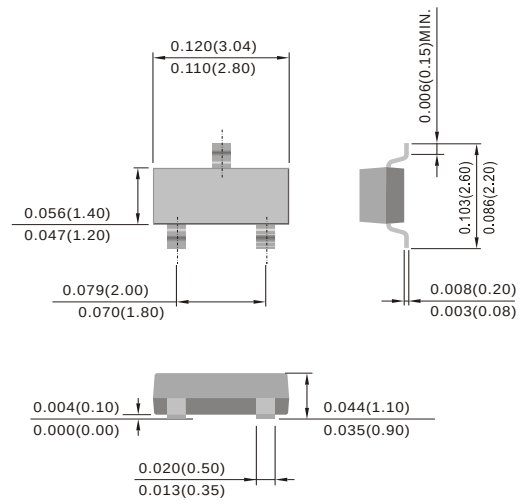
NPN AND PNP HIGH VOLTAGE TRANSISTOR

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

Features

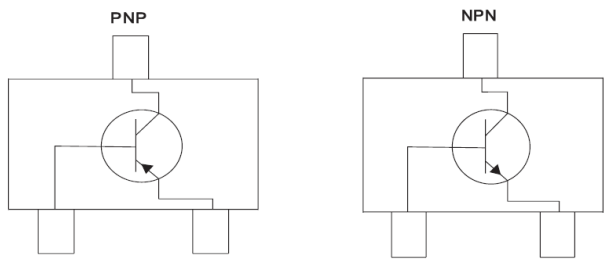
- NPN and PNP silicon, planar design
- Collector current I_C = 500mA
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

SOT-23 Unit: inch(mm)



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°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°C unless otherwise noted)

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

PARAMETER		SYMBOL	MIN.	MAX.	UNITS
OFF Characteristics					
Collector-Emitter Breakdown Voltage (I_C=1.0mA, I_B=0)	MMBTA05, MMBTA55	$V_{(BR)CEO}$	60	-	V
	MMBAT06, MMBTA56		80	-	
Emitter-Base Breakdown Voltage (I_E=100μA, I_C=0)		$V_{(BR)EBO}$	4	-	V
Collector Cutoff Current (V_{CE}=60V, I_B=0)		I_{CES}	-	0.1	μA
Collector Cutoff Current					
(V_{CB}=60V, I_E=0)	MMBTA05, MMBTA55	I_{CBO}	-	0.1	μA
(V_{CB}=80V, I_E=0)	MMBAT06, MMBTA56		-	0.1	
ON characteristics					
DC Current Gain					
(I_C=10mA, V_{CE}=1V)		h_{FE}	100	-	-
(I_C=100mA, V_{CE}=1V)			100	-	
Collector-Emitter Saturation Voltage (I_C=100mA, I_B=10mA)		$V_{CE(SAT)}$	-	0.25	V
Base-Emitter On Voltage (I_C=100mA, V_{CE}=1V)		$V_{BE(ON)}$	-	1.2	V
Small-signal characteristics					
Current-Gain-Bandwidth Product (I_C=10mA, V_{CE}=2V, f=100MHz)		f_T	100	-	MHz

MMBTA05 / MMBTA06 / MMBTA55 / MMBTA56

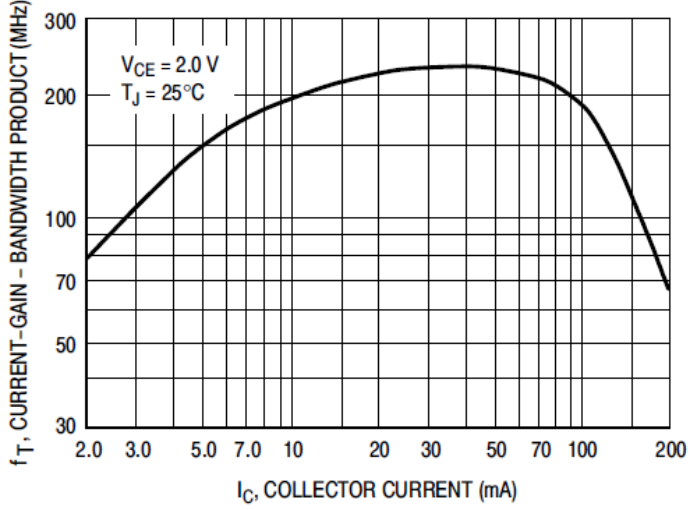


Fig.1 Current-Gain—Bandwidth Product

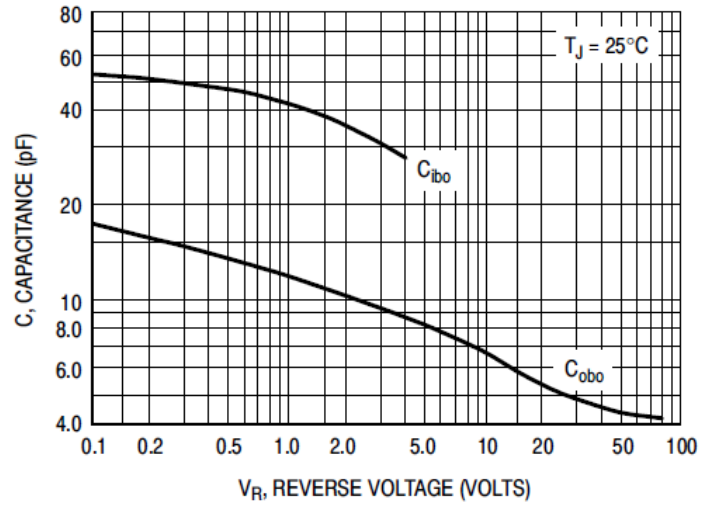


Fig.2 Capacitance

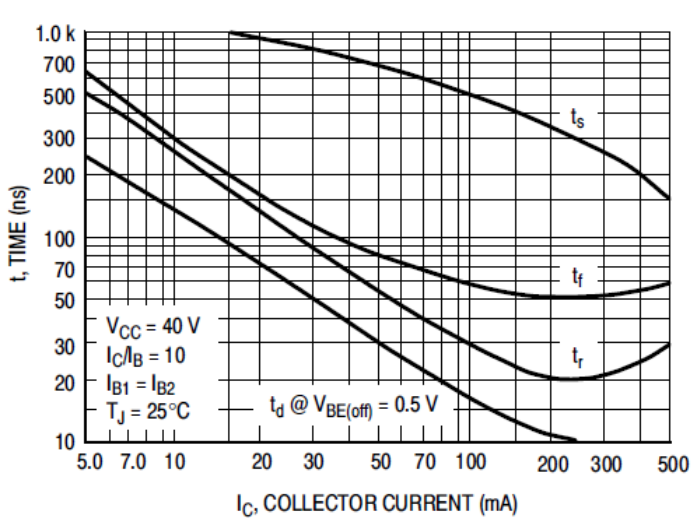


Fig.3 Switching Time

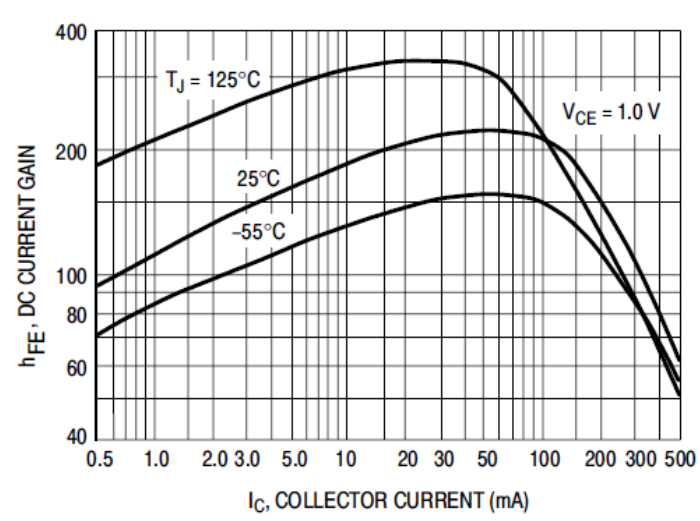


Fig.4 DC Current Gain

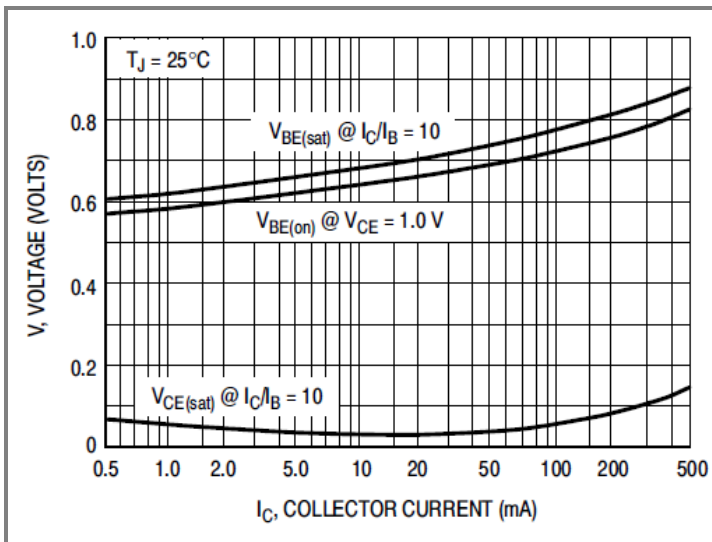


Fig.5 ON Voltages

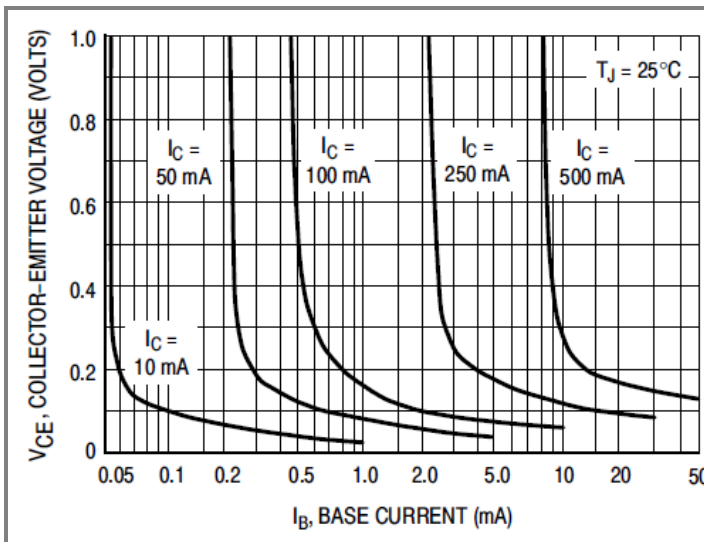


Fig.6 Collector Saturation Region

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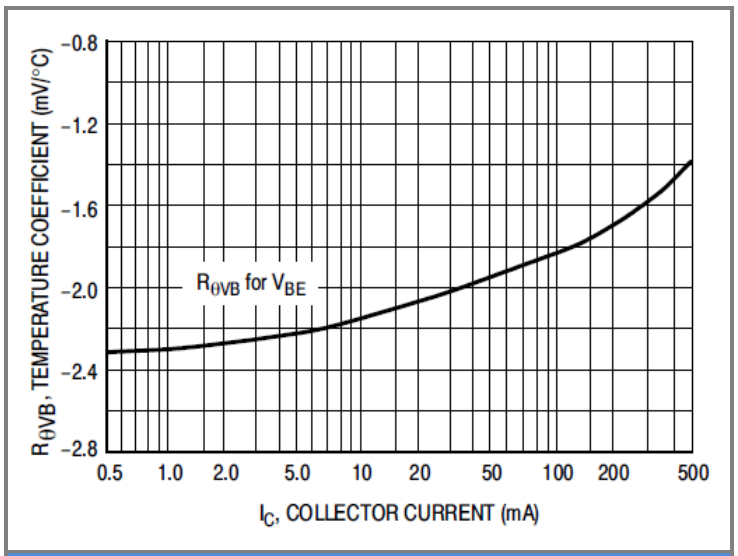

Fig.7 Base-Emitter Temperature Coefficient

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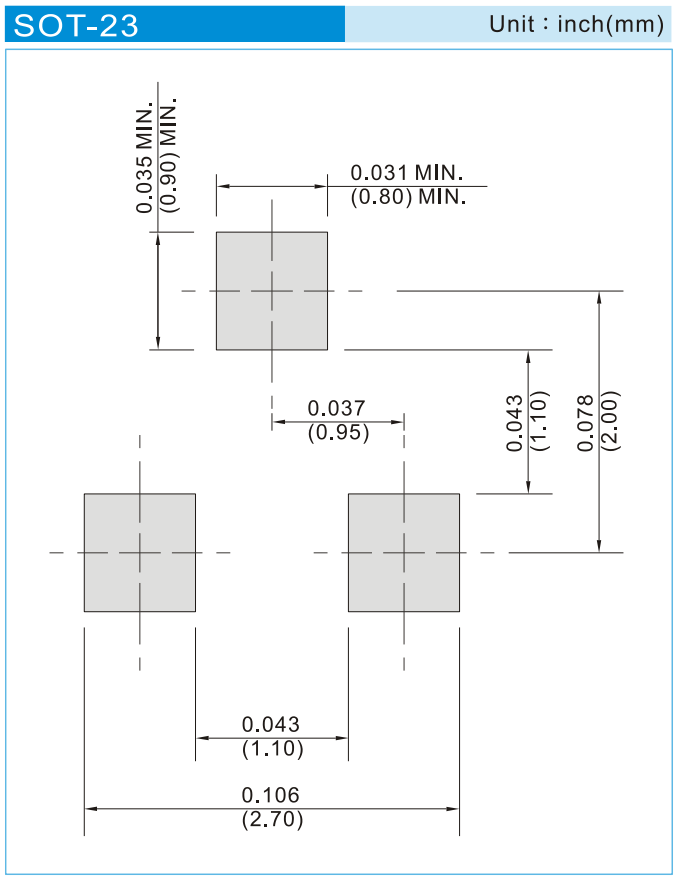
Part No. Packing Code Version

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

Mounting Pad Layout



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