



# MMBTA44

## NPN HIGH VOLTAGE TRANSISTOR

**VOLTAGE** 400 Volts **POWER** 225 mWatts

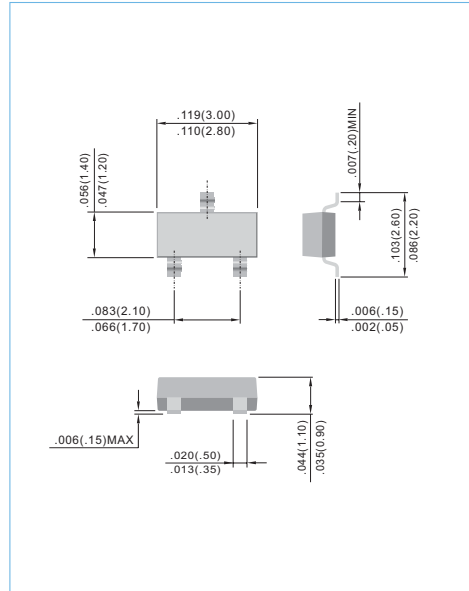
### FEATURES

- PNP silicon, planar design
- Collector-emitter voltage  $V_{CE} = 400V$
- Collector current  $I_C = 300mA$
- 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: A44

SOT-23 Unit: inch (mm)



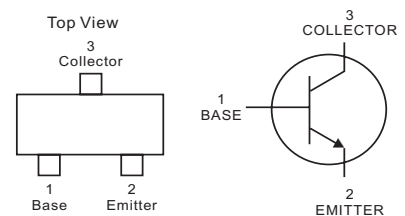
### ABSOLUTE MAXIMUM RATINGS

PARAMETER	Symbol	Value	Units
Collector - Emitter Voltage	$V_{CEO}$	400	V
Collector - Base Voltage	$V_{CBO}$	400	V
Emitter - Base Voltage	$V_{EBO}$	6.0	V
Collector Current Continuous	$I_C$	300	mA

### THERMAL CHARACTERISTICS

PARAMETER	Symbol	Value	Units
Max Power Dissipation (Note 1)	$P_{TOT}$	225	mW
Thermal Resistance ,Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}C/W$
Junction Temperature	$T_J$	-55 to 150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}C$

Note 1: Transistor mounted on FR-5 board 1.0 x 0.75 x 0.062 in.





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## ELECTRICAL CHARACTERISTICS

PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1.0mA, I_B = 0$	500	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0$	400	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	6.0	-	0.1	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 400V, I_E = 0A$	-	-	0.1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 6.0V, I_C = 0$	-	-	-	-
DC Current Gain	$h_{FE}$	$V_{CE} = 10V, I_C = 1mA$ $V_{CE} = 10V, I_C = 10mA$ $V_{CE} = 10V, I_C = 50mA$ $V_{CE} = 10V, I_C = 100mA$	40 50 45 40	- - - -	- 20 - -	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 1mA, I_B = 1mA$ $I_C = 10mA, I_B = 1mA$ $I_C = 50mA, I_B = 5mA$	-	-	0.4 0.5 0.75	V
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 10mA, I_B = 1mA$	-	-	0.75	V
Collector Gain - Bandwidth Product	$F_T$	$I_C = 10mA, V_{CE} = 20V, f = 30MHz$	50	-	-	$MHz$



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## RATING AND CHARACTERISTIC CURVES

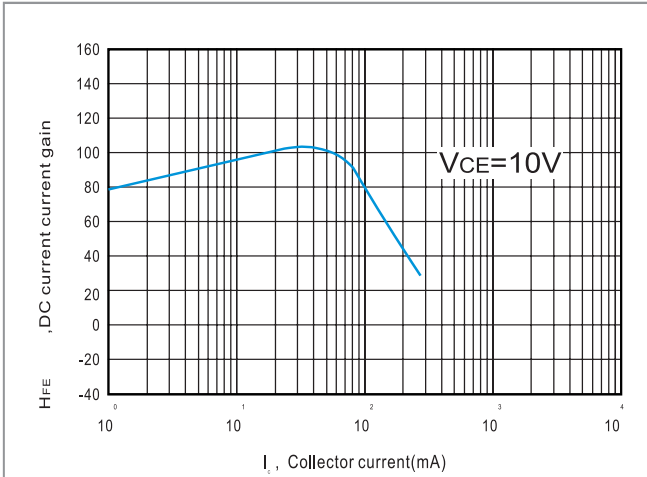


Fig.1 DC current gain

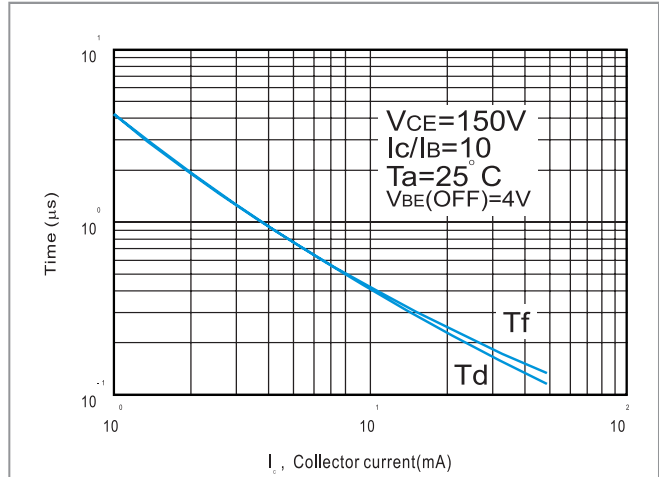


Fig.2 Turn-on switching time

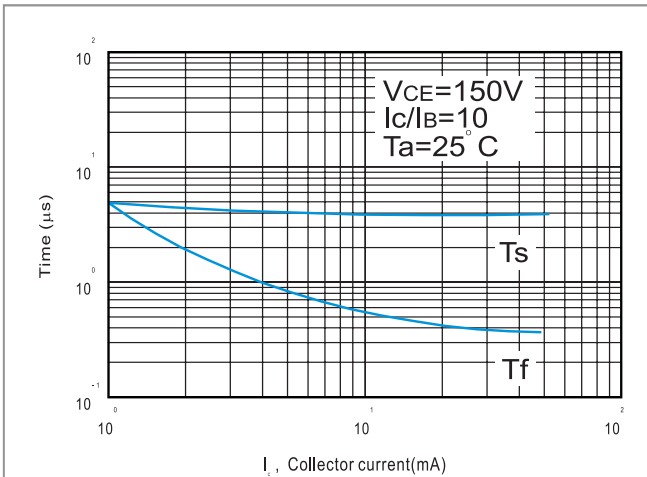


Fig.3 Turn-off switching time

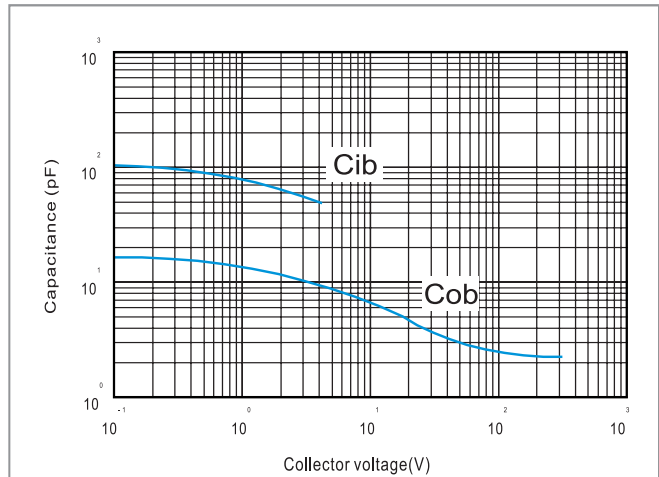


Fig.4 Capacitance

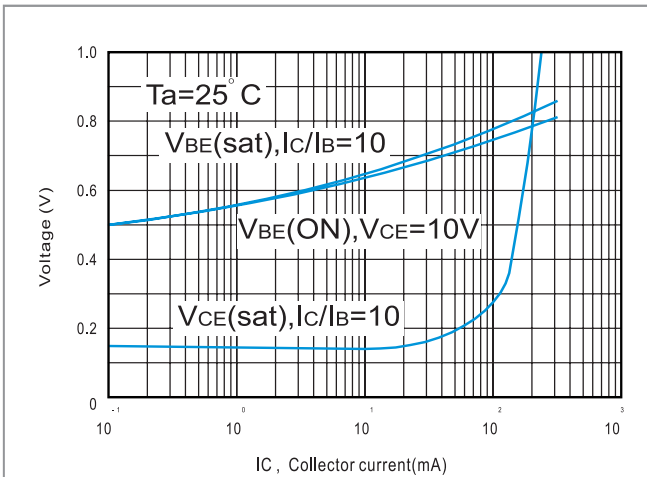


Fig.5 ON Voltage

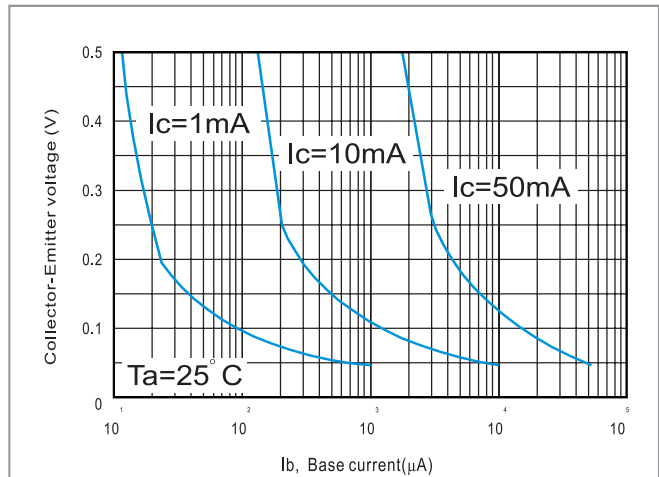
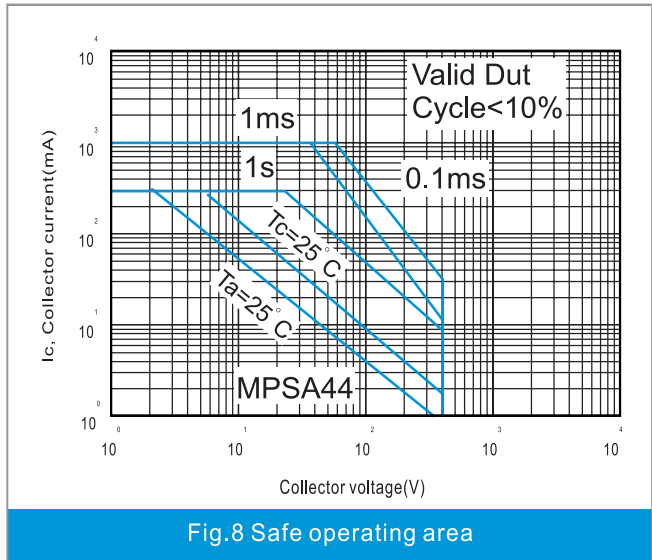
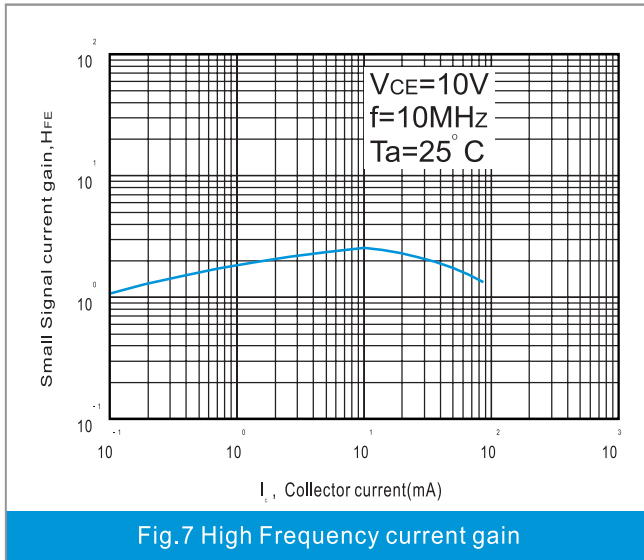


Fig.6 Collector saturation region



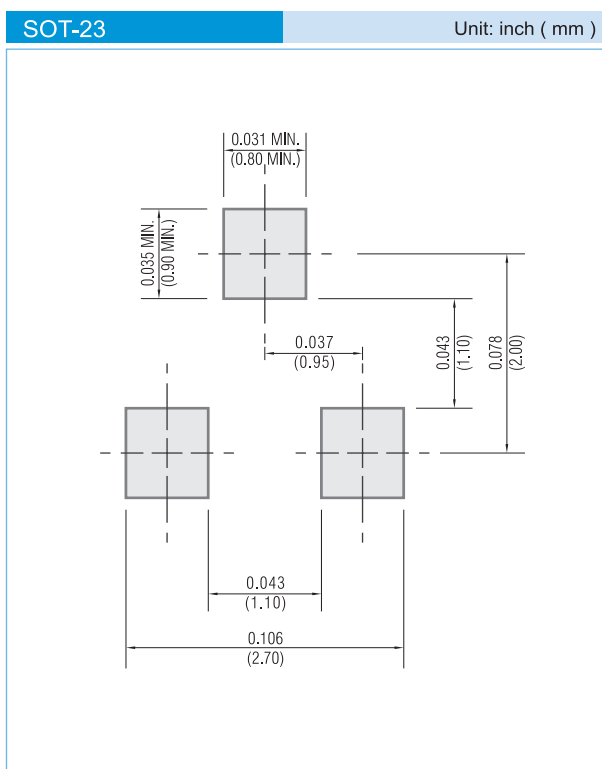
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## RATING AND CHARACTERISTIC CURVES





## 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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