

MMBT5401

HIGH VOLTAGE TRANSISTOR PNP Silicon

FEATURES

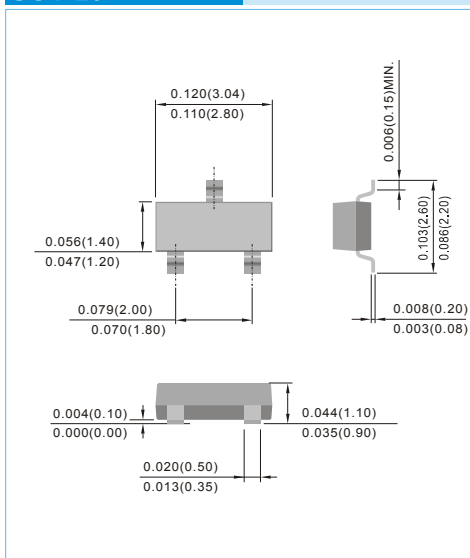
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

- Case : SOT-23 plastic case.
- Terminals : Solderable per MIL-STD-750, Method 2026
- Standard packaging : 8mm tape
- Approx. Weight : 0.0003 ounces, 0.008 grams
- Marking : M5A

SOT-23

Unit : inch(mm)



MAXIMUM RATINGS

RATING	SYMBOL	VALUE	UNITS
Collector-Emitter Voltage	V_{CEO}	-150	Vdc
Collector-Base Voltage	V_{CBO}	-160	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current-Continuous	I_C	-600	mAdc

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operational is not implied, damage may occur and reliability may be affected.

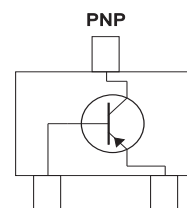


Fig.35

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THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX	UNITS
Total Device Dissipation FR-4 Board (Note 1) T _A =25°C Derate Above 25°C	P _D	225 1.8	mW mW/°C
Thermal Resistance, Junction-to-Ambient	R _{θJA}	556	°C/W
Total Device Dissipation Alumina Substrate (Note 2) T _A =25°C Derate Above 25°C	P _D	300 2.4	mW mW/°C
Thermal Resistance Junction-to-Ambient	R _{θJA}	417	°C/W
Junction and Storage Temperature	T _J , T _{STG}	-55 to +150	°C

1.FR-4 = 70 X 60 X 1mm

2.Alumina = 0.4 X 0.3 X 0.024 in 99.5% alumina

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

CHARACTERISTIC	SYMBOL	MIN	MAX	UNITS
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I _C =-1.0mA _{dc} , I _B =0)	V _{(BR)CEO}	-150	-	V _{dc}
Collector-Base Breakdown Voltage (I _C =-100μA _{dc} , I _E =0)	V _{(BR)CBO}	-160	-	V _{dc}
Emitter-Base Breakdown Voltage (I _E =-10μA _{dc} , I _C =0)	V _{(BR)EBO}	-5.0	-	V _{dc}
Collector Cutoff Current (V _{CB} =-120V _{dc} , I _E =0) (V _{CB} =-120V _{dc} , I _E =0, T _A =100°C)	I _{CBO}	-	-50 -50	nA _{dc} μA _{dc}
ON CHARACTERISTICS				
DC Current Gain (I _C =-1.0mA _{dc} , V _{CE} =-5.0V _{dc}) (I _C =-10mA _{dc} , V _{CE} =-5.0V _{dc}) (I _C =-50mA _{dc} , V _{CE} =-5.0V _{dc})	h _{FE}	50 60 50	- 240 -	-
Collector-Emitter Saturation Voltage (I _C =-10mA _{dc} , I _B =-1.0mA _{dc}) (I _C =-50mA _{dc} , I _B =-5.0mA _{dc})	V _{CE(SAT)}	- -	-0.2 -0.5	V _{dc}
Base-Emitter Saturation Voltage (I _C =-10mA _{dc} , I _B =-1.0mA _{dc}) (I _C =-50mA _{dc} , I _B =-5.0mA _{dc})	V _{BE(SAT)}	- -	-1.0 -1.0	V _{dc}
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain-Bandwidth Product (I _C =-10mA _{dc} , V _{CE} =-10V _{dc} , f=100MHz)	f _r	100	300	MHz
Output Capacitance (V _{CB} =-10V _{dc} , I _E =0, f=1.0MHz)	C _{OB0}	-	6.0	pF
Small Signal Current Gain (I _C =-1.0mA _{dc} , V _{CE} =-10V _{dc} , f=1.0kHz)	h _{FE}	40	200	-
Noise Figure (I _C =-200μA _{dc} , V _{CE} =-5.0V _{dc} , R _s =10Ω, f=1.0kHz)	NF	-	8.0	dB

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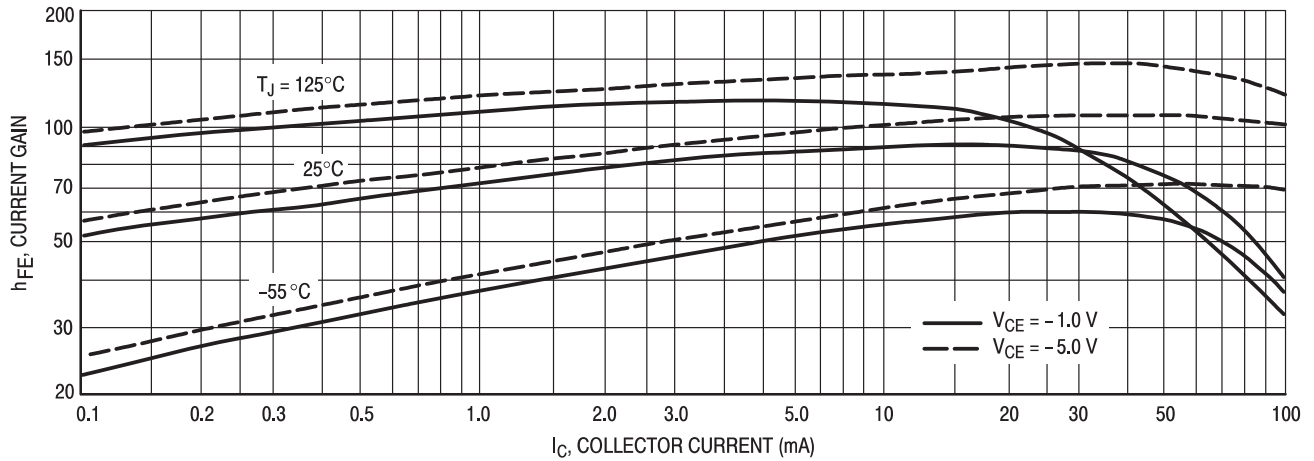


Figure 1. DC Current Gain

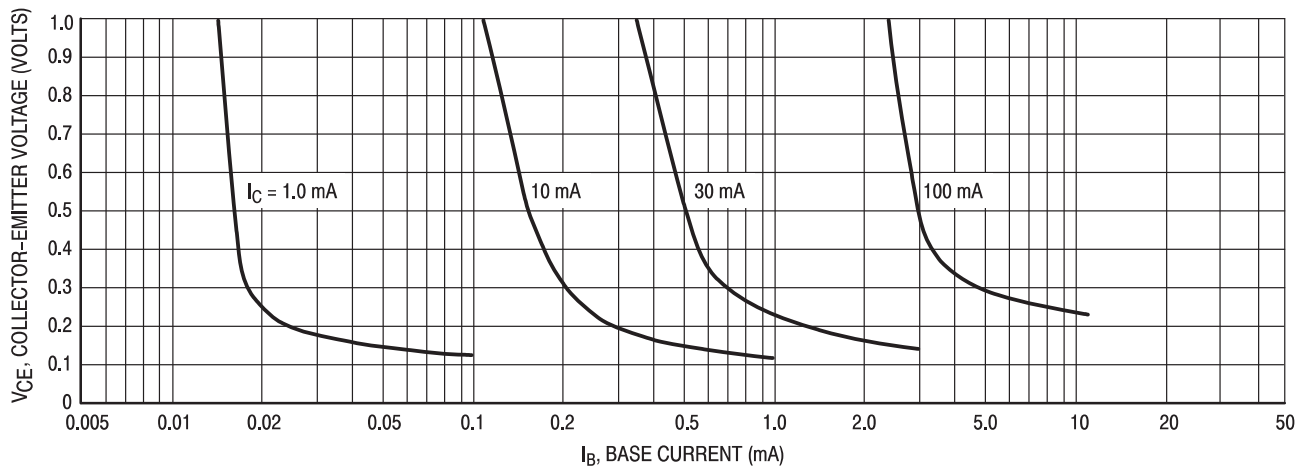


Figure 2. Collector Saturation Region

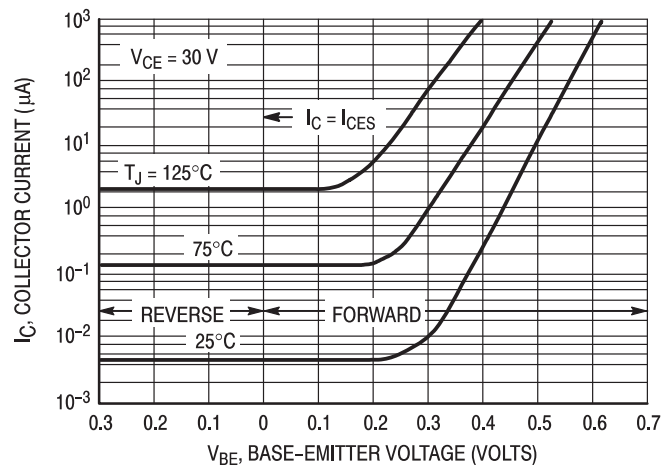


Figure 3. Collector Cut-Off Region

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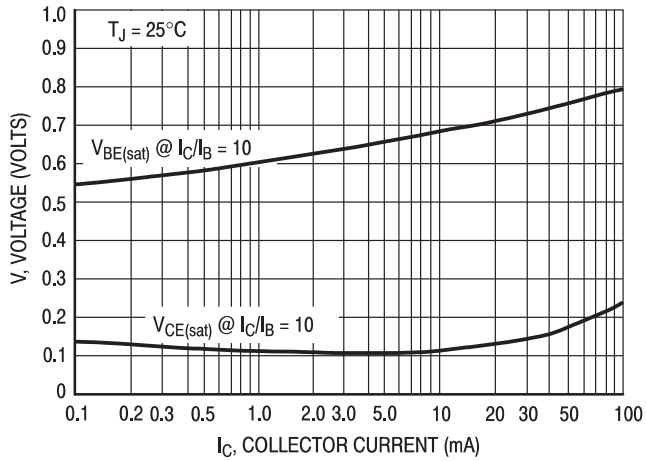


Figure 4. "On" Voltages

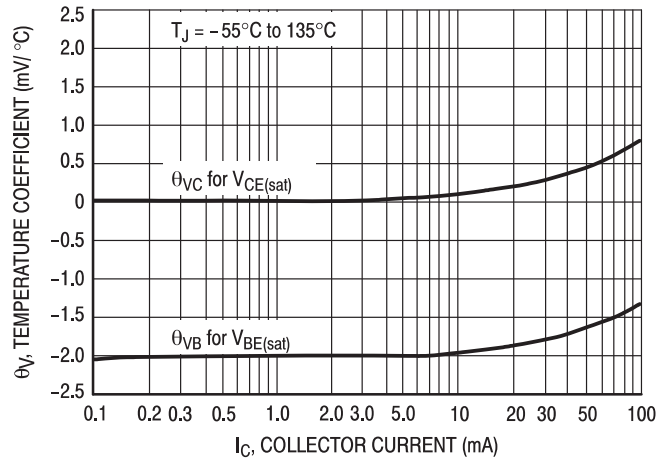


Figure 5. Temperature Coefficients

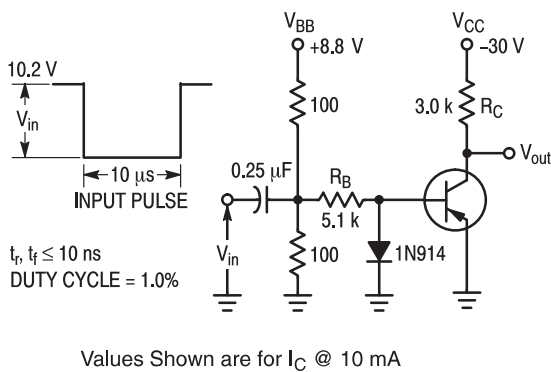


Figure 6. Switching Time Test Circuit

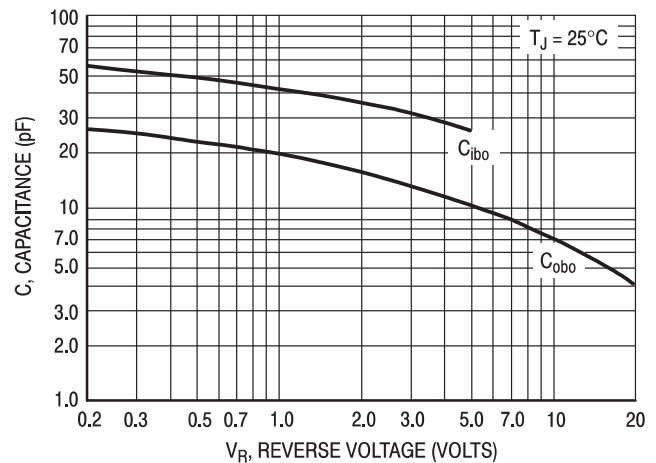


Figure 7. Capacitances

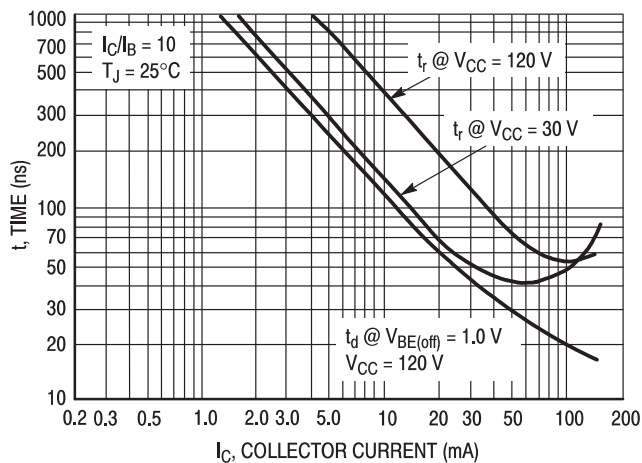


Figure 8. Turn-On Time

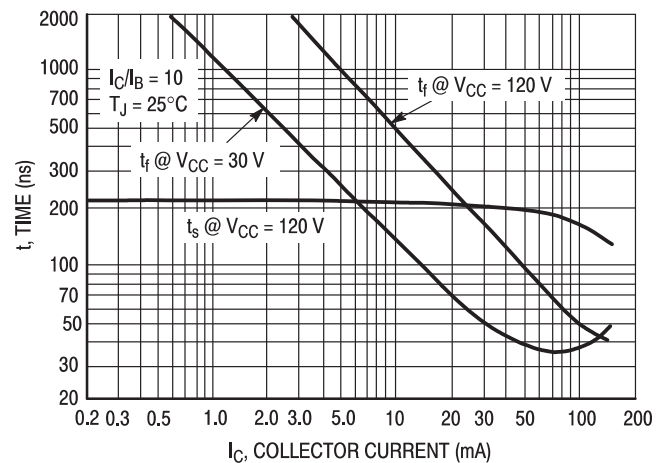


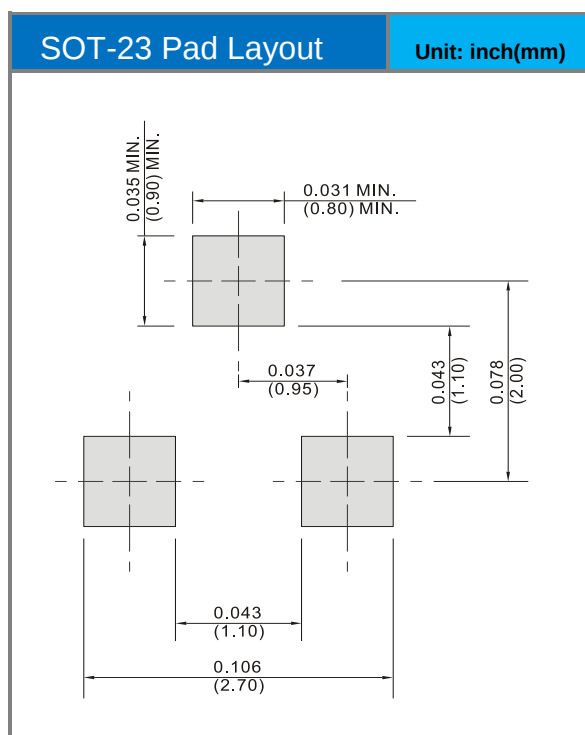
Figure 9. Turn-Off Time

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Product and Packing Information

Part No.	Package Type	Packing Type	Marking
MMBT5401	SOT-23	3K pcs / 7" reel	M5A
MMBT5401	SOT-23	12K pcs / 13" reel	M5A

Mounting Pad Layout



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