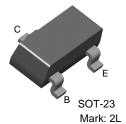


MMBT5401

PNP General Purpose Amplifier

• This device is designed as a general purpose amplifier and switch for applications requiring high voltage.



PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings* T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	-150	V
V _{CBO}	Collector-Base Voltage	-160	V
V _{EBO}	Emitter-Base Voltage	-5.0	V
I _C	Collector Current - Continuous	-600	mA
T _J , T _{STG}	Operating and Storage Junction Temperature Range	-55 ~ 150	°C

^{*} These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Charac	teristics			•	
BV _{CEO}	Collector-Emitter Breakdown Voltage *	$I_C = -1.0 \text{mA}, I_B = 0$	-150		V
BV _{CBO}	Collector-Base Breakdown Voltage	$I_C = -100\mu A, I_E = 0$	-160		V
BV _{EBO}	Emitter-Base Breakdown Voltage	$I_E = -10\mu A, I_C = 0$	-5.0		V
I _{CBO}	Collector Cutoff Current	$V_{CB} = -120V, I_{E} = 0$ $V_{CB} = -120V, I_{E} = 0, T_{a} = 100^{\circ}C$		-50 -50	nA μA
I _{EBO}	Emitter Cutoff Current	V _{EB} = -3.0V, I _C =0		-50	nA
On Charac	teristics *			•	
h _{FE}	DC Current Gain	$I_C = -1.0$ mA, $V_{CE} = -5.0$ V $I_C = -10$ mA, $V_{CE} = -5.0$ V $I_C = -50$ mA, $V_{CE} = -5.0$ V	50 60 50	240	
V _{CE} (sat)	Collector-Emitter Saturation Voltage	I _C = -10mA, I _B = -1.0mA I _C = -50mA, I _B = -5.0mA		-0.2 -0.5	V V
V _{BE} (sat)	Base-Emitter Saturation Voltage	I _C = -10mA, I _B = -1.0mA I _C = -50mA, I _B = -5.0mA		-1.0 -1.0	V V
Small Sign	al Characterics			•	
f _T	Current Gain Bandwidth Product	I _C = -10mA, V _{CE} = -10V, f = 100MHz	100	300	MHz
C _{ob}	Output Capacitance	$V_{CB} = -10V, I_{E} = 0, f = 1MHz$		6.0	pF
N _F	Noise Figure	I_C = -250μA, V_{CE} = -5.0V, R_S = 1.0KΩ f = 10Hz to 15.7KHz		8.0	dB

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These ratings are based on a maximum junction temperature of 150 degrees C.
These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics T _a =25°C unless otherwise noted				
Symbol	Parameter	Max.	Units	
P _D	Total Device Dissipation	350	mW	
_	Derate above 25°C	2.8	mW/°C	
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W	

Typical Characteristics

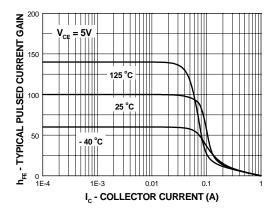


Figure 1. Typical Pulsed Current Gain vs Collector Current

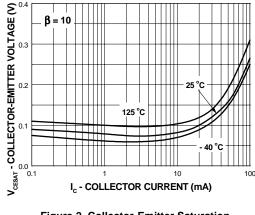


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

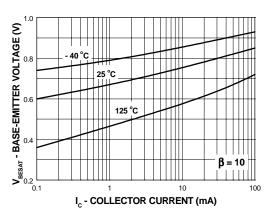


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

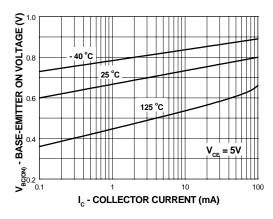


Figure 4. Base-Emitter On Voltage vs Collector Current

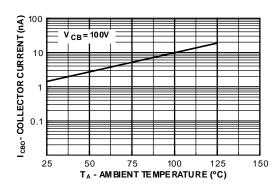


Figure 5. Collector-Cutoff Current vs Ambient Temperature

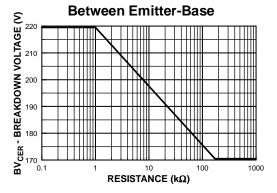


Figure 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

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Typical Characteristics (Continued)

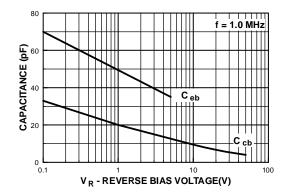


Figure 7. Input and Output Capacitance vs Reverse Voltage

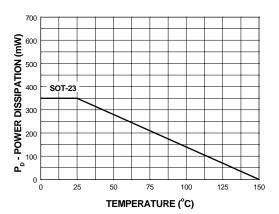
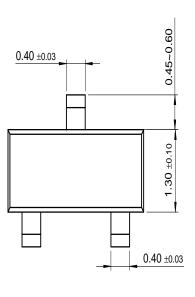
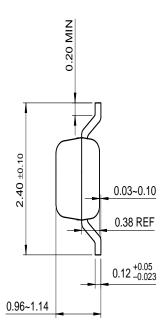


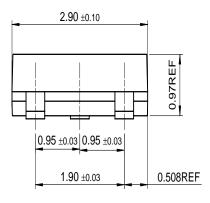
Figure 8. Power Dissipation vs Ambient Temperature

Package Dimensions

SOT-23







Dimensions in Millimeters

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