



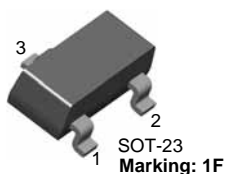
THE DATASHEET OF MMBT5550



MMBT5550

NPN General Purpose Amplifier

- This device is designed for general purpose high voltage amplifiers and gas discharge display drivers.



1. Base 2. Emitter 3. Collector

Absolute Maximum Ratings * $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	140	V
V_{CBO}	Collector-Base Voltage	160	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector current - Continuous	600	mA
T_J, T_{stg}	Junction and Storage Temperature	-55 ~ +150	$^\circ\text{C}$

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

NOTES:

- 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.

Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	$I_C = 1.0\text{mA}, I_B = 0$	140		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	160		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\text{mA}, I_C = 0$	6.0		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 100\text{V}, I_E = 0$ $V_{CB} = 100\text{V}, I_E = 0, T_a = 100^\circ\text{C}$		100 100	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4.0\text{V}, I_C = 0$		50	nA
On Characteristics					
h_{FE}	DC Current Gain	$I_C = 1.0\text{mA}, V_{CE} = 5.0\text{V}$ $I_C = 10\text{mA}, V_{CE} = 5.0\text{V}$ $I_C = 50\text{mA}, V_{CE} = 5.0\text{V}$	60 60 20	250	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$		0.15 0.25	V V
$V_{BE(sat)}$	Base-Emitter On Voltage	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$		1.0 1.2	V V

Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Small Signal Characteristics					
f_T	Current Gain Bandwidth Product	$I_C = 10\text{mA}$, $V_{CE} = 10\text{V}$, $f = 100\text{MHz}$	50		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1.0\text{MHz}$		6.0	pF
C_{ibo}	Input Capacitance	$V_{BE} = 0.5\text{V}$, $I_C = 0$, $f = 1.0\text{MHz}$		30	pF

Thermal Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C/W}$

* Device mounted on FR-4 PCB $1.6'' \times 1.6'' \times 0.06''$ **Package Marking and Ordering Information**

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
1F	MMBT5550	SOT-23	7"	--	3,000

Typical Performance Characteristics

Figure 1. Typical Pulsed Current Gain vs Collector Current

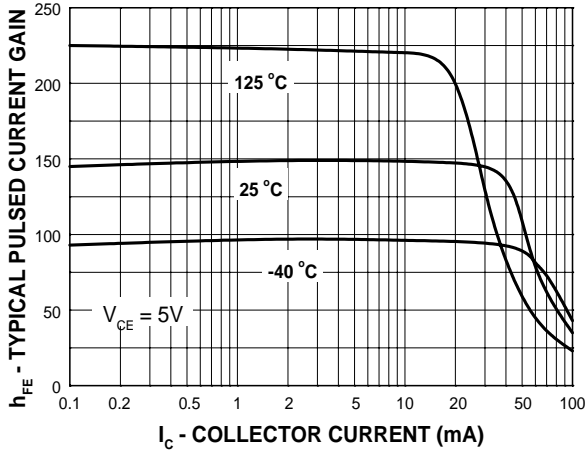


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

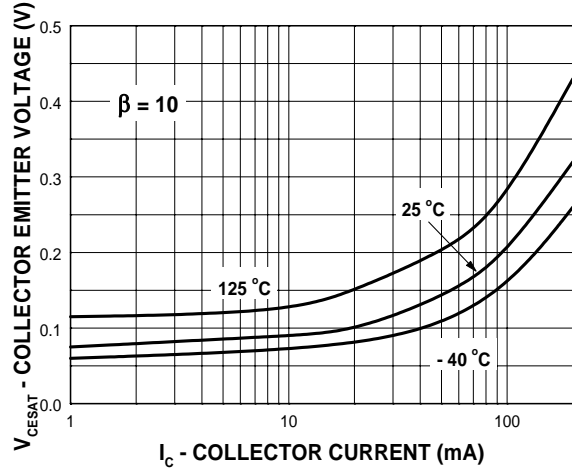


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

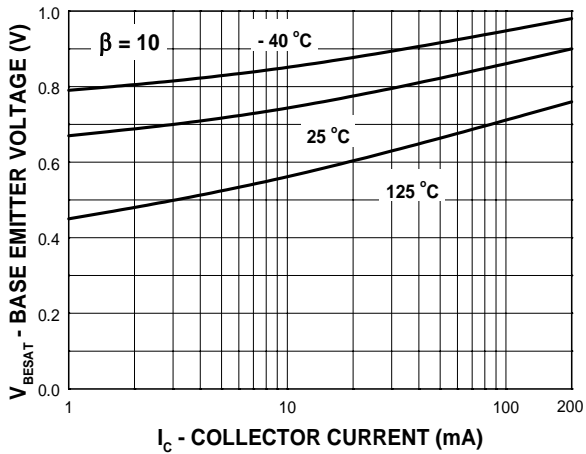


Figure 4. Base-Emitter On Voltage vs Collector Current

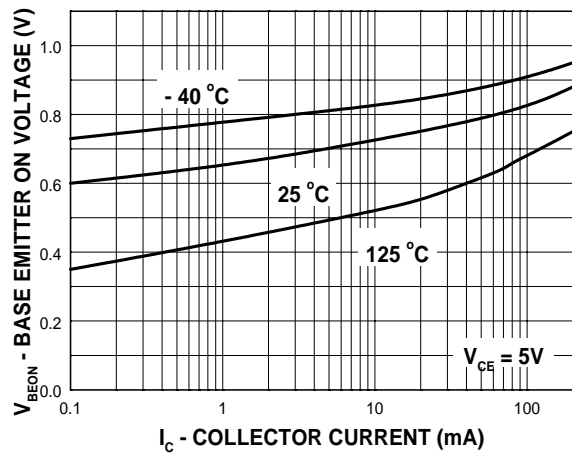


Figure 5. Collector Cutoff Current vs Ambient Temperature

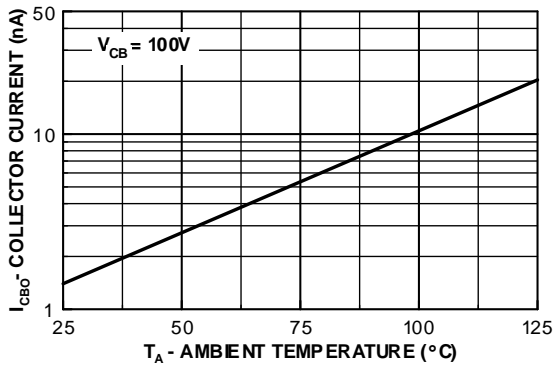
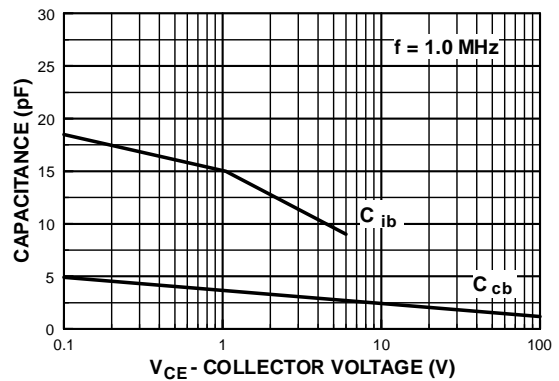
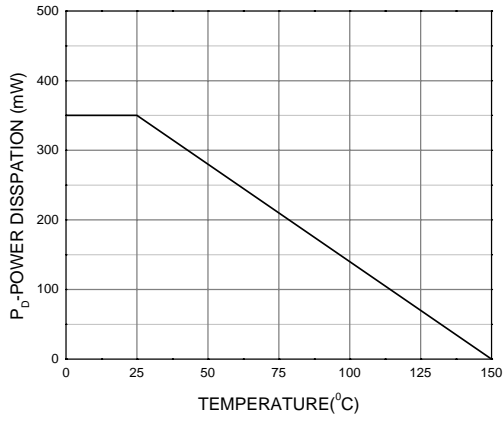


Figure 6. Input and Output Capacitance vs Reverse Voltage



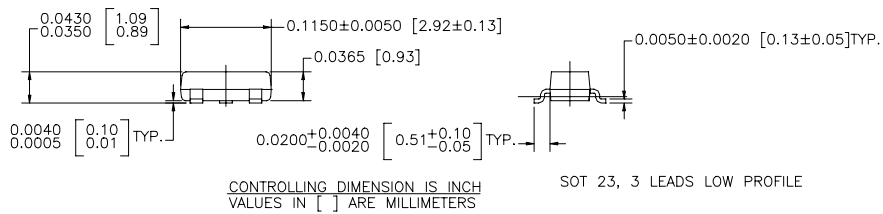
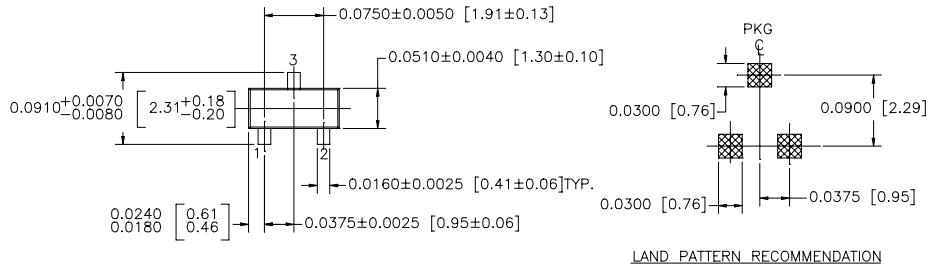
Typical Performance Characteristics (Continued)

Figure 7. Power Dissipation vs Ambient Temperature



Mechanical Dimensions

SOT-23



NOTE : UNLESS OTHERWISE SPECIFIED

1. STANDARD LEAD FINISH 150 MICRONS / 3.81 MICROMETERS
 MINIMUM TIN / LEAD (SOLDER) ON ALLOY 42
2. REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE G, DATED JUL 1993

Dimensions in Millimeters

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