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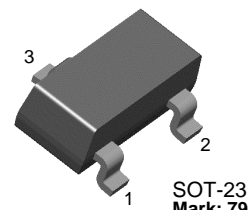
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# MMBT4354

MMBT4354

## PNP General Purpose Amplifier

- This device is designed for use as general purpose amplifiers and switch requiring collector currents to 500mA.
- Sourced from process 67.
- TN4033A for characteristics.



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	-60	V
$V_{CBO}$	Collector-Base Voltage	-60	V
$V_{EBO}$	Emitter-Base Voltage	-5.0	V
$I_C$	Collector Current - Continuous	-800	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	- 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
<b>Off Characteristics</b>					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage *	$I_C = -1.0\text{mA}, I_B = 0$	-60		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = -10\mu\text{A}, I_E = 0$	-60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10\mu\text{A}, I_C = 0$	-5.0		V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = -50\text{V}, I_E = 0$		-50	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -5.0\text{V}, V_{CE} = 0$		-10	$\mu\text{A}$
<b>On Characteristics *</b>					
$h_{FE}$	DC Current Gain	$V_{CE} = -5\text{V}, I_C = -0.1\text{mA}$ $V_{CE} = -5\text{V}, I_C = -1.0\text{mA}$ $V_{CE} = -5\text{V}, I_C = -10\text{mA}$ $V_{CE} = -5\text{V}, I_C = -100\text{mA}$ $V_{CE} = -5\text{V}, I_C = -500\text{mA}$	25 40 50 40 30	500	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -150\text{mA}, I_B = -15\text{mA}$ $I_C = -500\text{mA}, I_B = -50\text{mA}$		-0.15 -0.50	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -150\text{mA}, I_B = -15\text{mA}$ $I_C = -500\text{mA}, I_B = -50\text{mA}$		-0.9 -1.1	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -0.5\text{V}, I_C = -500\text{mA}$		-1.1	V
<b>Small Signal Characteristics</b>					
$h_{fe}$	Small Signal Current Gain	$I_C = -50\text{mA}, V_{CE} = -10\text{V}, f = 100\text{MHz}$	1.0	5.0	
NF	Noise Figure	$V_{CE} = -10\text{V}, I_C = -100\mu\text{A}$ $R_S = 1.0\text{k}\Omega, f = 1.0\text{KHz}, B_W = 1.0\text{Hz}$		2.0	dB
<b>Switching Characteristics</b>					
$t_{on}$	Turn-On Time	$I_C = -500\text{mA}, V_{CC} = -30\text{V}$		100	ns
$t_{off}$	Turn-Off Time	$I_{B1} = I_{B2} = -50\text{mA}$		400	ns

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 1.0\%$

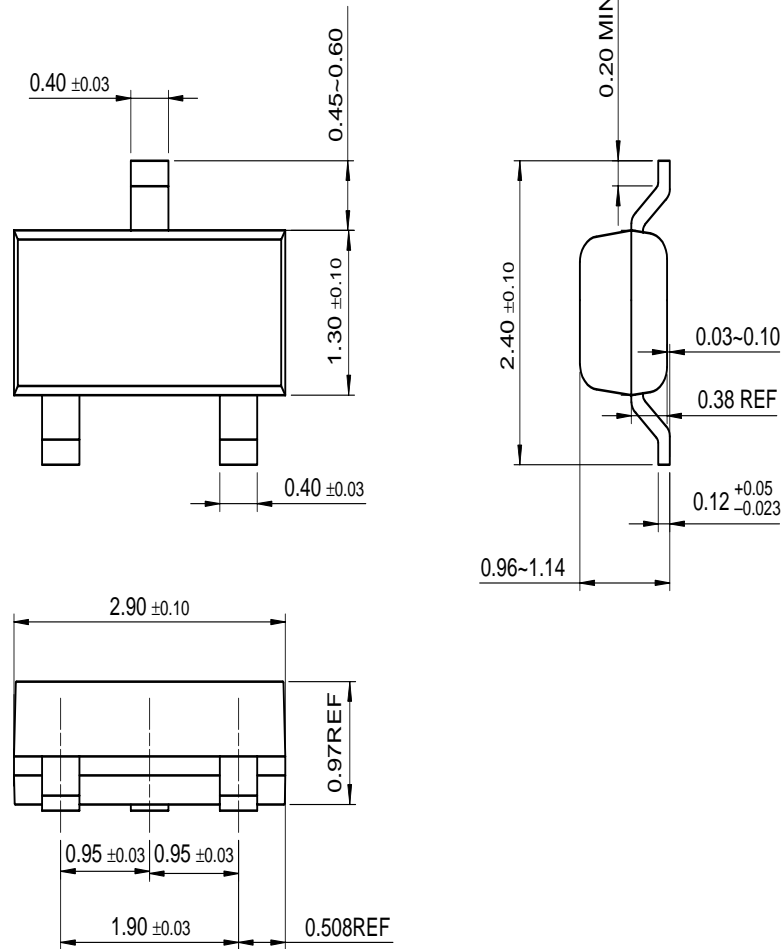
**Thermal Characteristics**  $T_a=25^{\circ}\text{C}$  unless otherwise noted

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

\* Device mounted on FR-4PCB  $1.6'' \times 1.6'' \times 0.06''$ .

## Package Dimensions

## SOT-23



Dimensions in Millimeters

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