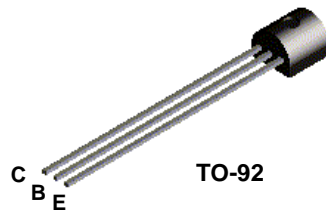
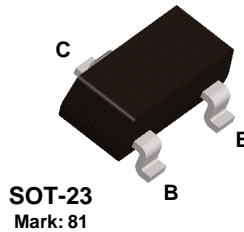


## PN4355



## MMBT4355



### PNP General Purpose Amplifier

This device is designed for use as a general purpose amplifier and switch requiring collector currents to 500 mA. Sourced from Process 67. See TN4033A for characteristics.

#### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CEO</sub>	Collector-Emitter Voltage	60	V
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	10	V
I <sub>C</sub>	Collector Current - Continuous	800	mA
T <sub>J</sub> , T <sub>stg</sub>	Operating and Storage Junction Temperature Range	-55 to +150	°C

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

#### NOTES:

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

#### Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		PN4355	*MMBT4355	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	625	350	mW
		5.0	2.8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	83.3		°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	200	357	°C/W

\*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

# PNP General Purpose Amplifier

(continued)

PN4355 / MMBT4355

## Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
--------	-----------	-----------------	-----	-----	-------

### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	60		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ } \mu\text{A}, I_E = 0$	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ } \mu\text{A}, I_C = 0$	5.0		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 50 \text{ V}, I_E = 0$		50	nA
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = 5.0 \text{ V}, V_{CE} = 0$ $V_{EB} = 4.0 \text{ V}, I_C = 0$		10 100	$\mu\text{A}$ nA

### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain	$I_C = 100 \text{ } \mu\text{A}, V_{CE} = 10 \text{ V}$ $I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 100 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 500 \text{ mA}, V_{CE} = 10 \text{ V}$	60 75 100 75 75	400	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$ $I_C = 1.0 \text{ A}, I_B = 100 \text{ mA}$		0.15 0.50 1.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$ $I_C = 1.0 \text{ A}, I_B = 100 \text{ mA}$		0.9 1.1 1.2	V V V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 500 \text{ mA}, V_{CE} = 0.5 \text{ V}$ $I_C = 1.0 \text{ A}, V_{CE} = 1.0 \text{ V}$		1.1 1.2	V V

### SMALL SIGNAL CHARACTERISTICS

$C_{obo}$	Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		30	pF
$C_{ibo}$	Input Capacitance	$V_{EB} = 0.5 \text{ V}, I_C = 0, f = 1.0 \text{ MHz}$		110	pF
$h_{fe}$	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	$I_C = 100 \text{ } \mu\text{A}, V_{CE} = 10 \text{ V},$ $R_S = 1.0 \text{ k}\Omega, f = 1.0 \text{ kHz},$ $BW = 1.0 \text{ Hz}$	1.0	3.0	dB

### SWITCHING CHARACTERISTICS

$t_{on}$	Turn-On Time	$I_C = 500 \text{ mA}, V_{CC} = 500 \text{ mA}$		100	ns
$t_{off}$	Turn-Off Time	$I_{B1} = I_{B2} = 50 \text{ mA}$		400	ns

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