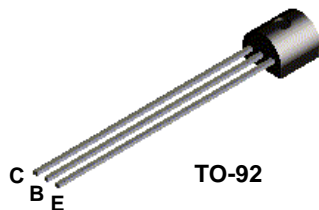


## MPS8050



### NPN General Purpose Amplifier

This device is designed for general purpose audio amplifier applications at collector currents to 500 mA. Sourced from Process 30.

#### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CEO</sub>	Collector-Emitter Voltage	25	V
V <sub>CBO</sub>	Collector-Base Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	6.0	V
I <sub>C</sub>	Collector Current - Continuous	1.0	A
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
		MPS8050	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	625	mW
		5.0	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	°C/W

# NPN General Purpose Amplifier

(continued)

MPS8050

## Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
<b>OFF CHARACTERISTICS</b>					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage*	$I_C = 30 \text{ mA}, I_B = 0$	25		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}, I_C = 0$	6.0		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 35 \text{ V}, I_E = 0$		0.1	$\mu\text{A}$
$I_{CES}$	Collector-Cutoff Current	$V_{CE} = 20 \text{ V}, I_E = 0$		75	nA

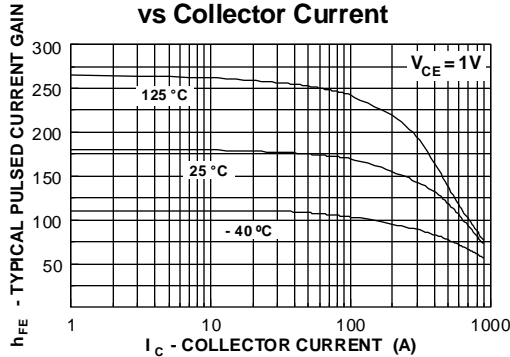
## ON CHARACTERISTICS

$h_{FE}$	DC Current Gain	$I_C = 5.0 \text{ mA}, V_{CE} = 1.0$ $I_C = 100 \text{ mA}, V_{CE} = 1.0$ $I_C = 800 \text{ mA}, V_{CE} = 1.0$	45 80 40	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 800 \text{ mA}, I_B = 80 \text{ mA}$		0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 800 \text{ mA}, I_B = 80 \text{ mA}$		1.2	V

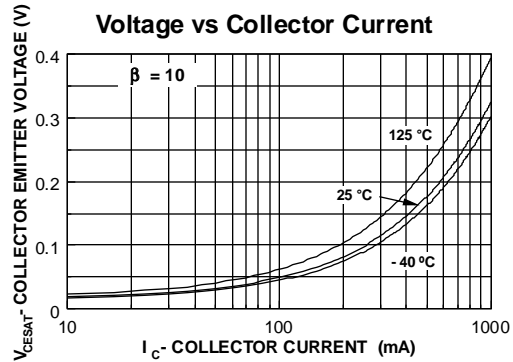
\*Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 1.0\%$

## Typical Characteristics

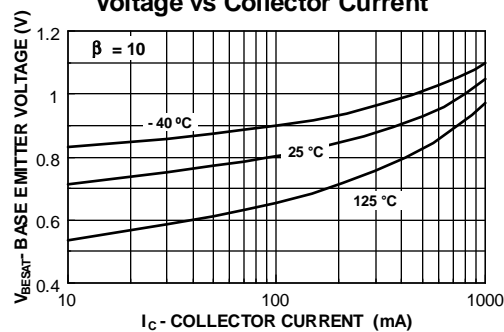
**Typical Pulsed Current Gain vs Collector Current**



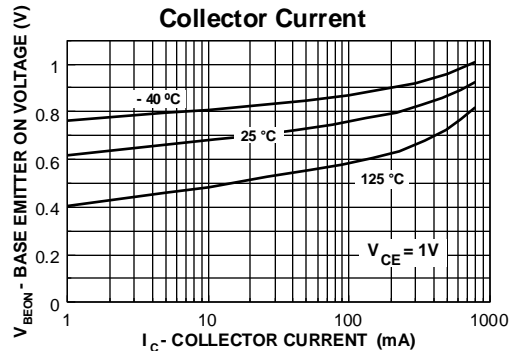
**Collector-Emitter Saturation Voltage vs Collector Current**



**Base-Emitter Saturation Voltage vs Collector Current**

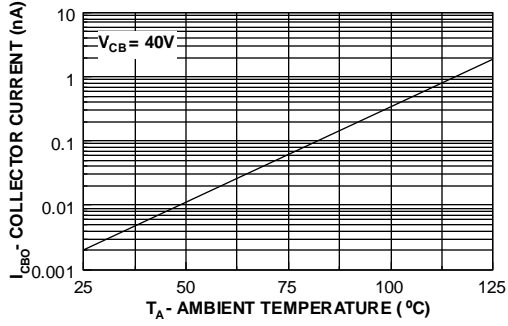


**Base Emitter ON Voltage vs Collector Current**

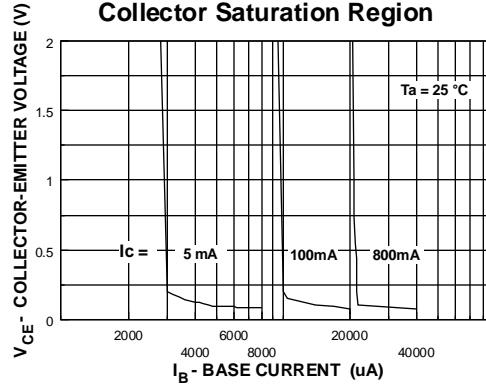


Typical Characteristics (continued)

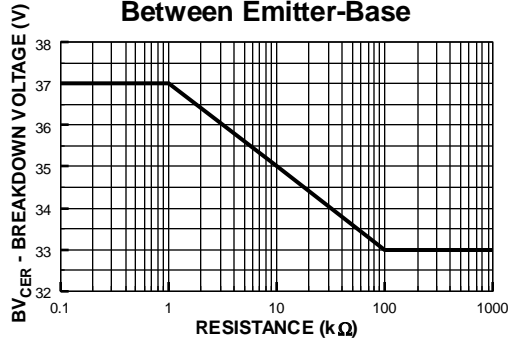
Collector-Cutoff Current vs. Ambient Temperature



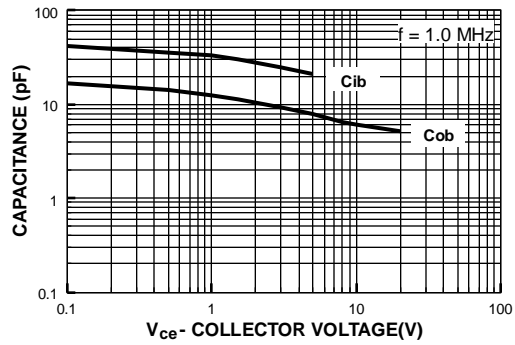
Collector Saturation Region



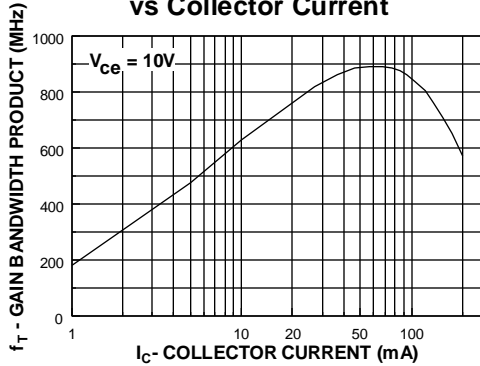
Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base



Input and Output Capacitance vs Reverse Voltage



Gain Bandwidth Product vs Collector Current



Power Dissipation vs Ambient Temperature

