

SEMICONDUCTOR®

# MPSA20

## **NPN General Purpose Amplifier**

Sourced from process 10



1. Emitter 2. Base 3. Collector

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

Symbol	Parameter		Value	Units
V <sub>CEO</sub>	Collector-Emitter Voltage		40	V
V <sub>EBO</sub>	Emitter-Base Voltage		4	V
С	Collector current	- Continuous	100	mA
Γ <sub>J</sub> , T <sub>sta</sub>	Operating and Storage Junction Temperature		-55 ~ +150	°C

NOTES:
1) These ratings are based on 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.

## Electrical Characteristics TA=25°C unless otherwise noted

						-
Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Units
Off Character	eristics					
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	$I_{\rm C} = 1 {\rm mA}, I_{\rm B} = 0$	40			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	$I_{\rm C} = 100 \mu {\rm A}, I_{\rm C} = 0$	4			V
I <sub>CBO</sub>	Collector Cutoff Current	$V_{CB} = 30V, I_E = 0$			100	nA
On Characte	eristics			•		
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 5mA, V <sub>CE</sub> = 10V	40		400	
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA			0.25	V
Small Signa	I Characteristics			•		
f <sub>T</sub>	Current Gain Bandwidth Product	$I_{C} = 5mA, V_{CE} = 10V,$ f = 100MHz	125			MHz
C <sub>ob</sub>	Output Capacitance	$V_{CB} = 10V, I_E = 0,$ f=100KHZ			4.0	pF

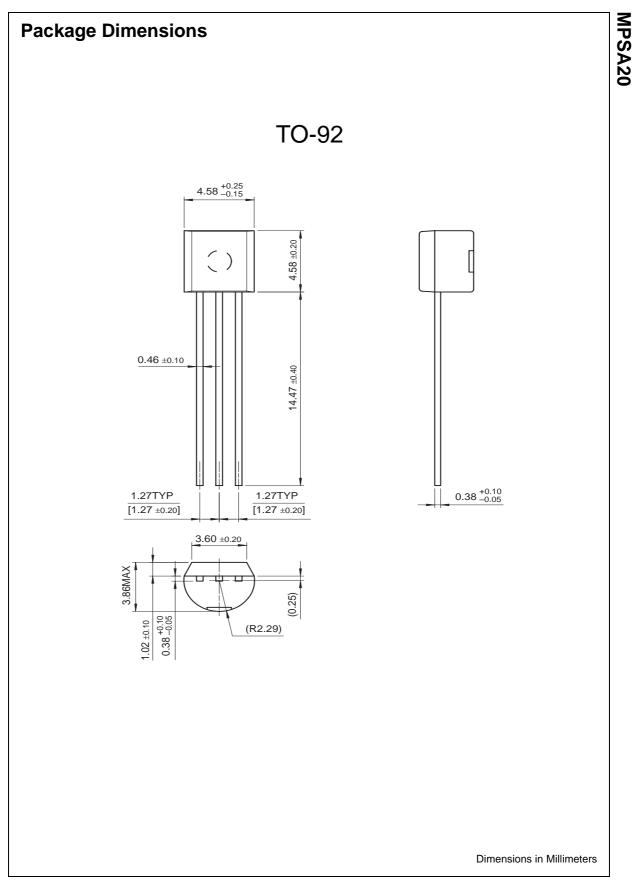
# Thermal Characteristics $T_A=25$ °C unless otherwise noted

Symbol	Parameter	Value	Units
PD	Total Device Dissipation	625	mW
_	Derate above 25°C	5.0	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C/W
$R_{\thetaJA}$	Thermal Resistance, Junction to Ambient	200	°C/W

\* Device mounted on FR-4 PCB 36mm × 18mm × 1.5mm: mounting pad for the collector lead min. 6cm.

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