FAIRCHILD SEMICONDUCTOR®

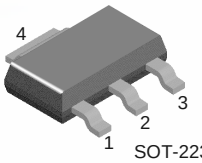
# MPSA27/PZTA27

## NPN General Purpose Amplifier

- This device is designed for applications requiring extremely high current gain at collector currents to 500mA.
- Sourced from process 03.
- See MPSA28 for characteristics.


TO-92

1. Emitter 2. Base 3. Collector




SOT-223

1. Base 2. Collector 3. Emitter

## Absolute Maximum Ratings* $T_A$=25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CES}$ | Collector-Emitter Voltage | 60 | V |
| $V_{CBO}$ | Collector-Base Voltage | 60 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 10 | V |
| $I_C$ | Collector current - Continuous | 800 | mA |
| $T_J$, $T_{stg}$ | Operating and Storage Junction Temperature | -55 ~ +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 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 $T_A$=25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| **Off Characteristics** | | | | | | |
| $V_{(BR)CES}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 100µA, $V_{BE}$ = 0 | 60 | | | V |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C$ = 10µA, $I_C$ = 0 | 60 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_C$ = 100µA, $I_C$ = 0 | 10 | | | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$ = 50V, $I_E$ = 0 | | | 100 | nA |
| $I_{CES}$ | Collector Cutoff Current | $V_{CE}$ = 50V, $V_{BE}$ = 0 | | | 500 | nA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$ = 10V, $I_C$ = 0 | | | 100 | nA |
| **On Characteristics** | | | | | | |
| $h_{FE}$ | DC Current Gain | $I_C$ = 10mA, $V_{CE}$ = 5.0V<br>$I_C$ = 100mA, $V_{CE}$ = 5.0V | 10000<br>10000 | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$ = 100mA, $I_B$ = 0.1mA | | | 1.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C$ = 100mA, $V_{CE}$ = 5.0V | | | 2.0 | V |
| **Small Signal Characteristics** | | | | | | |
| $f_T$ | Current Gain Bandwidth Product | $I_C$ = 10mA, $V_{CE}$ = 5.0V,<br>f = 100MHz | 125 | | | MHz |

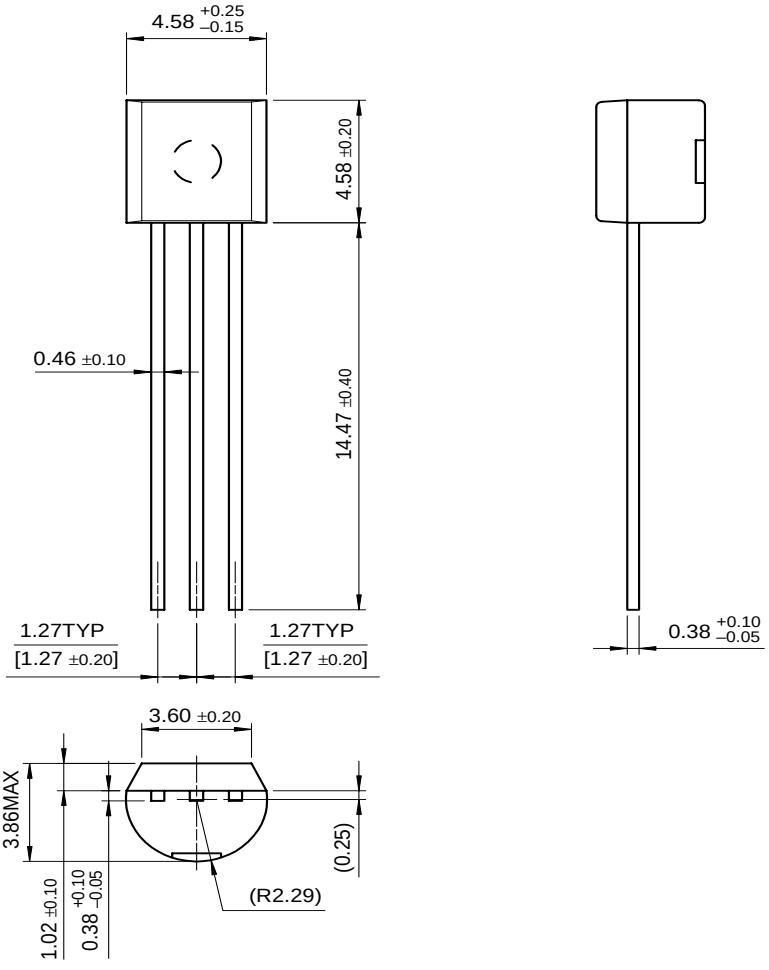
## Thermal Characteristics $T_A$=25°C unless otherwise noted

| Symbol | Parameter | Max. | | Units |
|---|---|---|---|---|
| | | MPSA27 | *PZTA27 | |
| $P_D$ | Total Device Dissipation<br>Derate above 25°C | 625<br>5.0 | 1000<br>8.0 | mW<br>mW/°C |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 83.3 | | °C/W |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 200 | 125 | °C/W |

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

## Package Dimensions

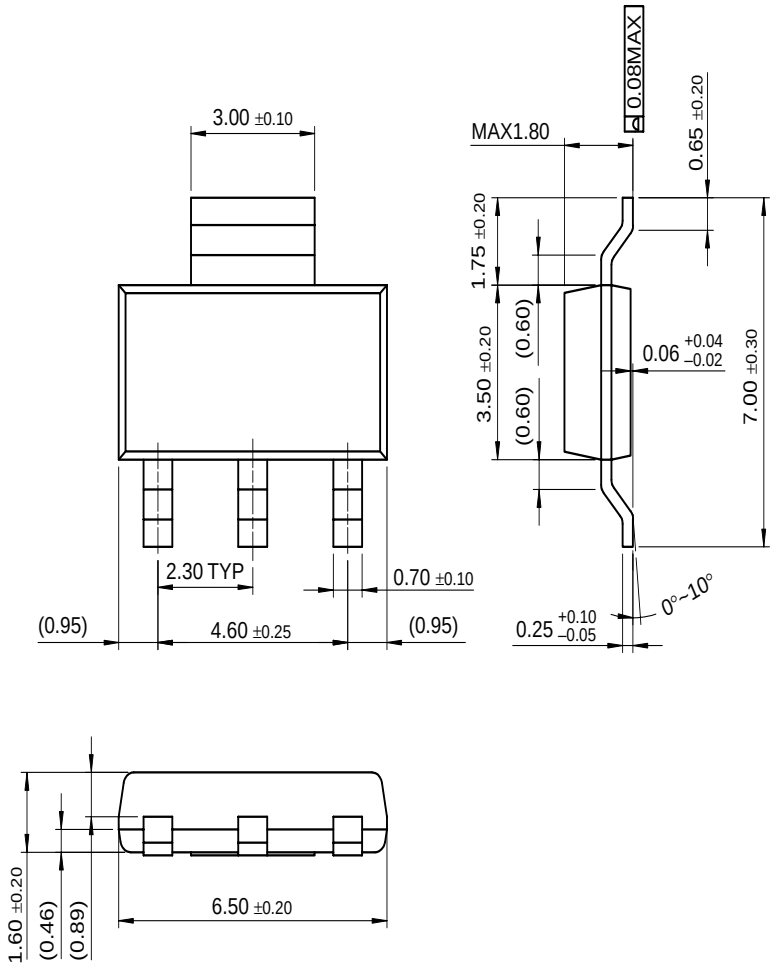
TO-92




Dimensions in Millimeters

## Package Demensions (Continued)

# SOT-223




Dimensions in Millimeters

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