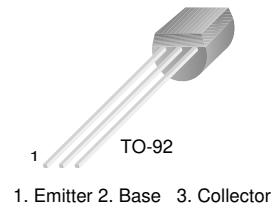


MPSA20

NPN General Purpose Amplifier

- Sourced from process 10



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

| Symbol | Parameter | Value | Units |
|----------------|--|------------|------------------|
| V_{CEO} | Collector-Emitter Voltage | 40 | V |
| V_{EBO} | Emitter-Base Voltage | 4 | V |
| I_C | Collector current - Continuous | 100 | mA |
| T_J, T_{stg} | Operating and Storage Junction Temperature | -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 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. | Typ. | Max. | Units |
|-------------------------------------|--------------------------------------|--|------|------|------|-------|
| Off Characteristics | | | | | | |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C = 1\text{mA}, I_B = 0$ | 40 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_C = 100\mu\text{A}, I_C = 0$ | 4 | | | V |
| I_{CBO} | Collector Cutoff Current | $V_{CB} = 30\text{V}, I_E = 0$ | | | 100 | nA |
| On Characteristics | | | | | | |
| h_{FE} | DC Current Gain | $I_C = 5\text{mA}, V_{CE} = 10\text{V}$ | 40 | | 400 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 10\text{mA}, I_B = 1\text{mA}$ | | | 0.25 | V |
| Small Signal Characteristics | | | | | | |
| f_T | Current Gain Bandwidth Product | $I_C = 5\text{mA}, V_{CE} = 10\text{V}, f = 100\text{MHz}$ | 125 | | | MHz |
| C_{ob} | Output Capacitance | $V_{CB} = 10\text{V}, I_E = 0, f = 100\text{KHz}$ | | | 4.0 | pF |

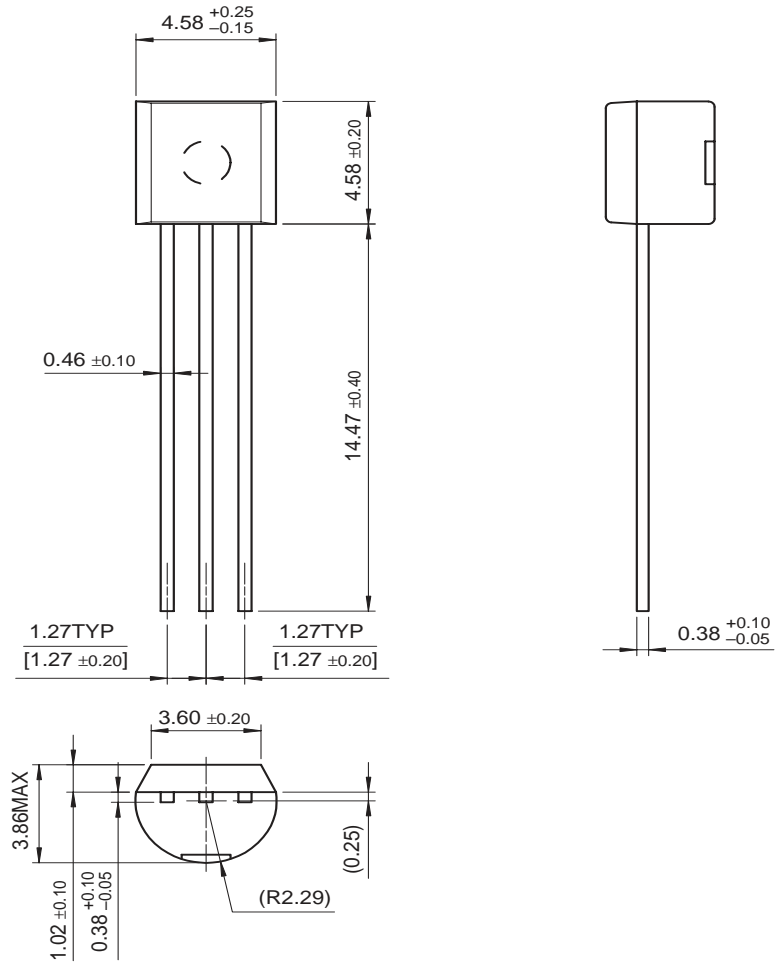
Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------------|---|------------|----------------------------|
| P_D | Total Device Dissipation Derate above 25°C | 625 5.0 | mW mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 125 | $^\circ\text{C/W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 200 | $^\circ\text{C/W}$ |

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

Package Dimensions

TO-92



Dimensions in Millimeters

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| | | | | |
|--------------------------------------|---------------------|---------------|---------------------|-----------------|
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|--------------------------|------------------------|---|
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