

# PN3569

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## NPN General Purpose Amplifier

- This device is designed for use at general purpose amplifiers and switches requiring collector currents to 300mA.



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

| Symbol         | Parameter                                        | Value      | Units            |
|----------------|--------------------------------------------------|------------|------------------|
| $V_{CEO}$      | Collector-Emitter Voltage                        | 40         | V                |
| $V_{CBO}$      | Collector-Base Voltage                           | 80         | V                |
| $V_{EBO}$      | Emitter-Base Voltage                             | 5.0        | V                |
| $I_C$          | Collector Current - Continuous                   | 500        | mA               |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | - 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 a 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.       | Max. | Units |
|-------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------|------------|------|-------|
| <b>Off Characteristics</b>          |                                        |                                                                                     |            |      |       |
| $V_{(BR)CEO}$                       | Collector-Emitter Sustaining Voltage * | $I_C = 30\mu\text{A}, I_B = 0$                                                      | 40         |      | V     |
| $V_{(BR)CBO}$                       | Collector-Base Breakdown Voltage       | $I_C = 100\mu\text{A}, I_E = 0$                                                     | 80         |      |       |
| $V_{(BR)EBO}$                       | Emitter-Base Breakdown Voltage         | $I_E = 10\mu\text{A}, I_C = 0$                                                      | 5.0        |      | V     |
| $I_{CBO}$                           | Collector Cutoff Current               | $V_{CB} = 40\text{V}, I_E = 0$                                                      |            | 50   | nA    |
| $I_{EBO}$                           | Emitter Cut-off Current                | $V_{EB} = 4.0\text{V}, I_C = 0$                                                     |            | 25   | nA    |
| <b>On Characteristics</b>           |                                        |                                                                                     |            |      |       |
| $h_{FE}$                            | DC Current Gain                        | $V_{CE} = 1\text{V}, I_C = 150\text{mA}$<br>$V_{CE} = 1\text{V}, I_C = 30\text{mA}$ | 100<br>100 | 300  |       |
| $V_{CE(sat)}$                       | Collector-Emitter Saturation Voltage   | $I_C = 150\text{mA}, I_B = 15\text{mA}$                                             |            | 0.25 | V     |
| $V_{BE(on)}$                        | Base-Emitter On Voltage                | $I_C = 150\text{mA}, V_{CE} = 1\text{V}$                                            |            | 1.1  | V     |
| <b>Small Signal Characteristics</b> |                                        |                                                                                     |            |      |       |
| $h_{fe}$                            | Small Signal current Gain              | $I_C = 50\text{mA}, V_{CE} = 10\text{V}, f = 10\text{MHz}$                          | 3.0        | 30   |       |

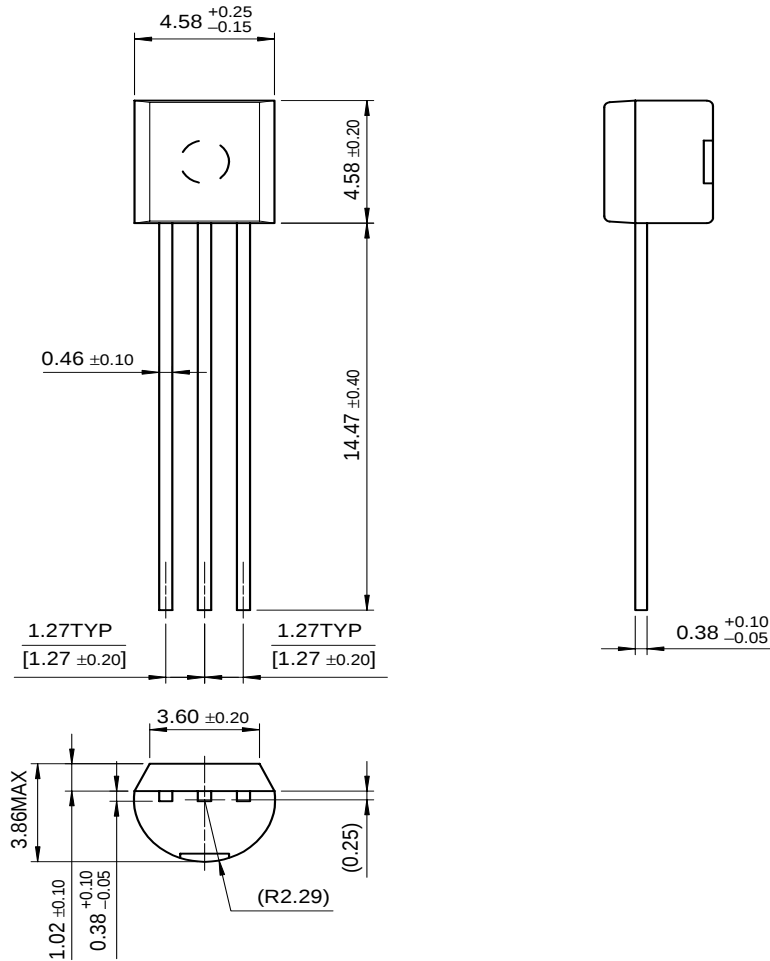
\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

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

| Symbol          | Parameter                               | Max. | Units                |
|-----------------|-----------------------------------------|------|----------------------|
| $P_D$           | Total Device Dissipation                | 625  | mW                   |
|                 | Derate above $25^\circ\text{C}$         | 5.0  | mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case    | 83.3 | $^\circ\text{C/W}$   |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 200  | $^\circ\text{C/W}$   |

# Package Dimensions

## TO-92



Dimensions in Millimeters

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