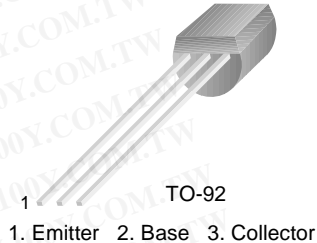


PN3643

PN3643

NPN General Purpose Amplifier

- This device is designed for use as 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 | 30 | V |
| V_{CBO} | Collector-Base Voltage | 60 | 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 |
|-------------------------------------|---------------------------------------|--|-----------|-----------|---------------------|
| Off Characteristics | | | | | |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage * | $I_C = 10\text{mA}, I_B = 0$ | 30 | | V |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C = 10\mu\text{A}, I_E = 0$ | 60 | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E = 10\mu\text{A}, I_C = 0$ | 5.0 | | V |
| I_{CES} | Collector Cut-off Current | $V_{CB} = 50\text{V}, I_E = 0$ $V_{CB} = 50\text{V}, I_E = 0, T_A = 65^\circ\text{C}$ | | 50 1.0 | nA μA |
| On Characteristics | | | | | |
| h_{FE} | DC Current Gain | $V_{CE} = 10\text{V}, I_C = 150\text{mA}$ $V_{CE} = 10\text{V}, I_C = 500\text{mA}$ | 100 20 | 300 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 150\text{mA}, I_B = 15\text{mA}$ | | 0.22 | V |
| Small Signal Characteristics | | | | | |
| C_{ob} | Output Capacitance | $V_{CB} = 10\text{V}, f = 140\text{KHz}$ | | 8.0 | pF |
| η | Collector Efficiency | $V_{CE} = 15\text{V}, f = 30\text{MHz}$ $R_G = 140\Omega, R_L = 260\Omega$ | 60 | | % |
| G_{pe} | Amplifier Power Gain | $V_{CE} = 15\text{V}, f = 30\text{MHz}$ $R_G = 140\Omega, R_L = 260\Omega$ | 10 | | dB |
| h_{fe} | Small Signal Current Gain | $I_C = 50\text{mA}, V_{CE} = 5.0\text{V}, f = 100\text{MHz}$ | 2.5 | | |

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

勝特力材料 886-3-5753170
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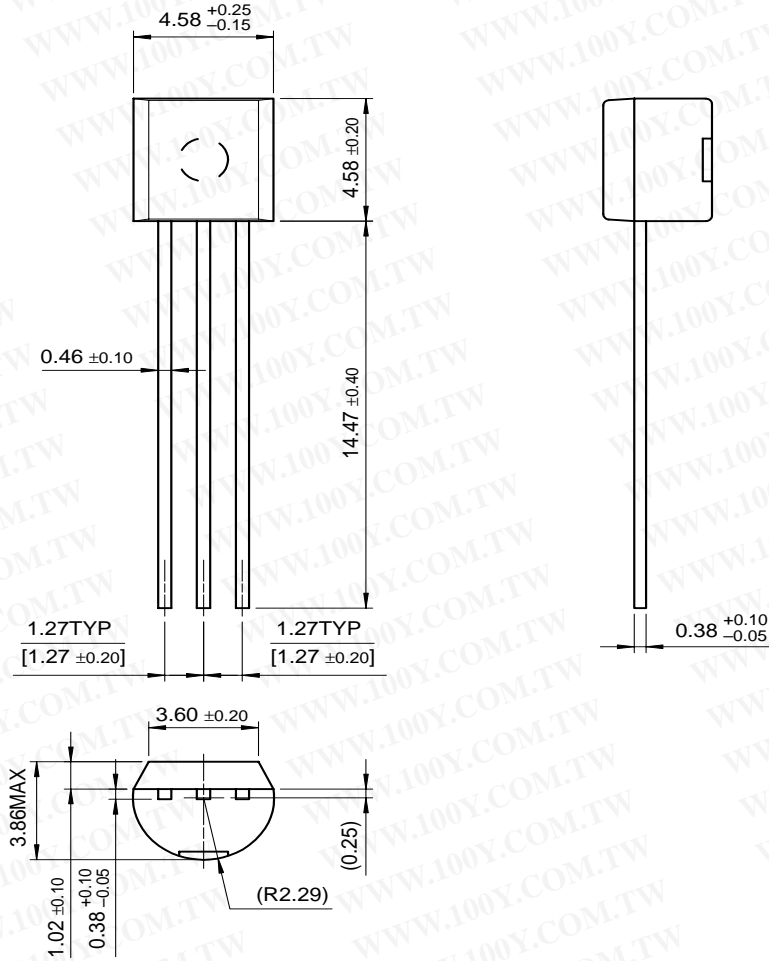
Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

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

Package Dimensions

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TO-92



Dimensions in Millimeters