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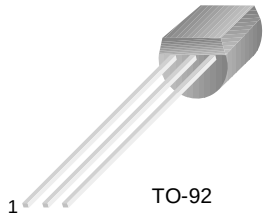
# 2N5772

## NPN Switching Transistor

- Sourced from process 22.




TO-92

1. Emitter 2. Collector 3. Base

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

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | 15 | V |
| $V_{CBO}$ | Collector-Base Voltage | 40 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5.0 | V |
| $I_C$ | Collector Current - Continued | 300 | mA |
| $T_{STG}$ | Operating and Storage Junction Temperature Range | - 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 a 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. | Max. | Units |
|---|---|---|---|---|---|
| **Off Characteristics** | | | | | |
| $BV_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage * | $I_C$ = 10mA, $I_B$ = 0 | 15 | | V |
| $BV_{(BR)CES}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 100µA, $V_{BE}$ = 0 | 40 | | V |
| $BV_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C$ = 100µA, $I_E$ = 0 | 40 | | V |
| $BV_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$ = 100µA, $I_C$ = 0 | 5.0 | | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$ = 20V, $I_E$ = 0 | | 0.5 | µA |
| $I_{CES}$ | Collector Cutoff Current | $V_{CE}$ = 20V, $V_{BE}$ = 0<br>$V_{CE}$ = 20V, $V_{BE}$ = 0, $T_A$ = 65°C | | 0.5<br>3.0 | µA<br>µA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$ = 5.0V, $I_C$ = 0 | | 100 | µA |
| **On Characteristics *** | | | | | |
| $h_{FE}$ | DC Current Gain | $V_{CE}$ = 0.4V, $I_C$ = 30mA<br>$V_{CE}$ = 0.5V, $I_C$ = 100mA<br>$V_{CE}$ = 1.0V, $I_C$ = 300mA | 30<br>25<br>15 | 120 | |
| $V_{CE}$(sat) | Collector-Emitter Saturation Voltage | $I_C$ = 30mA, $I_B$ = 3.0mA<br>$I_C$ = 100mA, $I_B$ = 10mA<br>$I_C$ = 300mA, $I_B$ = 3.0mA | | 0.2<br>0.28<br>0.5 | V<br>V<br>V |
| $V_{BE}$(sat) | Base-Emitter Saturation Voltage | $I_C$ = 30mA, $I_B$ = 3.0mA<br>$I_C$ = 100mA, $I_B$ = 10mA<br>$I_C$ = 300mA, $I_B$ = 3.0mA | <br>0.75 | 0.95<br>1.2<br>1.7 | V<br>V<br>V |
| **Small Signal Characteristics** | | | | | |
| $C_{cb}$ | Collector-Base Capacitance | $V_{CB}$ = 5.0V, $I_E$ = 0, f = 1MHz | | 5.0 | pF |
| $C_{eb}$ | Emitter-Base Capacitance | $V_{CB}$ = 5.0V, $I_C$ = 0, f = 1MHz | | 8.0 | pF |
| $h_{fe}$ | Small-Signal Current Gain | $I_C$ = 300mA, $V_{CE}$ = 10V, f = 100MHz | 3.5 | | |

* Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2.0%

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## Electrical Characteristics Ta=25°C unless otherwise noted (Continued)

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|---|---|---|---|---|---|
| **Switching Characteristics** | | | | | |
| $t_s$ | Storage Time | $I_C$ = 300mA, $V_{CC}$ = 10V<br>$I_{B1} = I_{B2}$ = 30mA | | 20 | ns |
| $t_{on}$ | Turn-On Time | | | 18 | ns |
| $t_{off}$ | Turn-Off Time | | | 28 | ns |

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

| Symbol | Parameter | Max. | Units |
|---|---|---|---|
| $P_D$ | Total Device Dissipation<br>Derate above 25°C | 350<br>2.8 | mW<br>mW/°C |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 125 | °C/W |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357 | °C/W |

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## Package Dimensions

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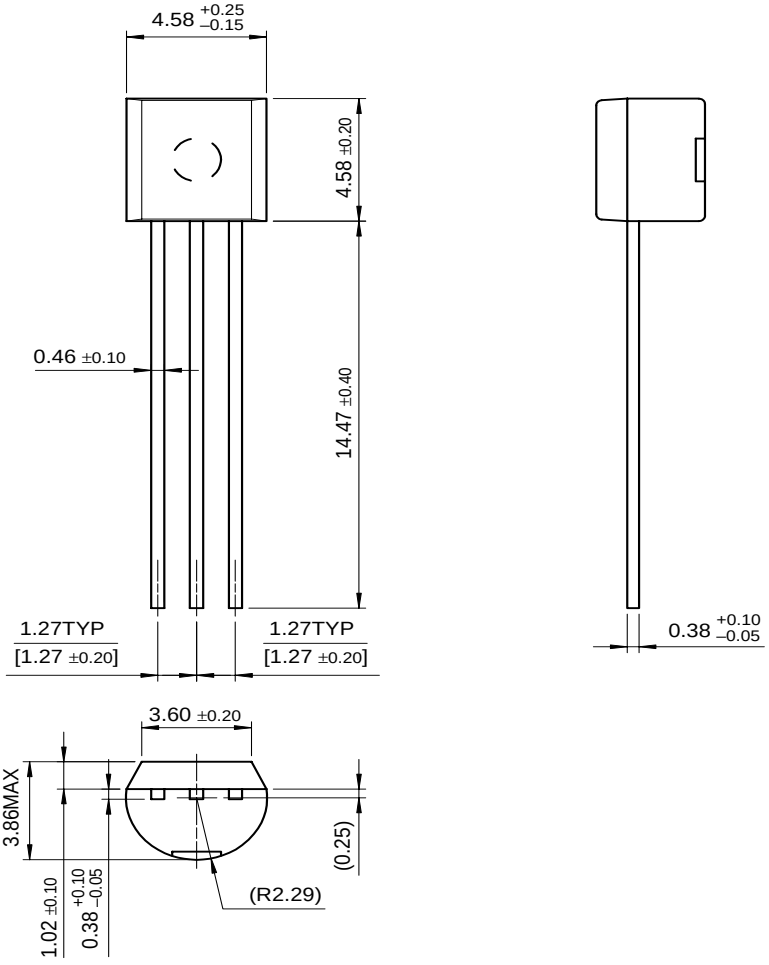


Dimensions in Millimeters

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