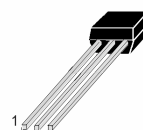


**APPLICATIONS**

Switching Circuit, Interface Circuit.

**ABSOLUTE MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ )** $T_{\text{stg}}$ —Storage Temperature.....  $-55\sim 150^{\circ}\text{C}$  $T_j$ —Junction Temperature..... $150^{\circ}\text{C}$  $P_C$ —Collector Dissipation..... $300\text{mW}$  $V_{\text{CBO}}$ —Collector-Base Voltage..... $50\text{V}$  $V_{\text{CEO}}$ —Collector-Emitter Voltage..... $50\text{V}$  $V_{\text{EBO}}$ —Emitter-Base Voltage..... $5\text{V}$  $I_C$ —Collector Current..... $100\text{mA}$ 

TO-92S



1—Emitter, E

2—Collector, C

3—Base, B

**ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ )**

| Symbol                        | Characteristics                       | Min        | Typ         | Max        | Unit                               | Test Conditions                                 |
|-------------------------------|---------------------------------------|------------|-------------|------------|------------------------------------|-------------------------------------------------|
| $BV_{\text{CBO}}$             | Collector-Base Breakdown Voltage      | <b>50</b>  |             |            | <b>V</b>                           | $I_C=50\mu\text{A}$ , $I_E=0$                   |
| $BV_{\text{CEO}}$             | Collector-Emitter Breakdown Voltage   | <b>50</b>  |             |            | <b>V</b>                           | $I_C=1\text{mA}$ , $I_B=0$                      |
| $BV_{\text{EBO}}$             | Emitter-Base Breakdown Voltage        | <b>5</b>   |             |            | <b>V</b>                           | $I_E=50\mu\text{A}$ , $I_C=0$                   |
| $I_{\text{CBO}}$              | Collector Cut-off Current             |            |             | <b>0.1</b> | <b><math>\mu\text{A}</math></b>    | $V_{\text{CB}}=50\text{V}$ , $I_E=0$            |
| $I_{\text{EBO}}$              | Emitter Cut-off Current               |            |             | <b>0.1</b> | <b><math>\mu\text{A}</math></b>    | $V_{\text{EB}}=4\text{V}$ , $I_C=0$             |
| $H_{\text{FE}}$               | DC Current Gain                       | <b>100</b> |             | <b>600</b> |                                    | $V_{\text{CE}}=5\text{V}$ , $I_C=1\text{mA}$    |
| $V_{\text{CE(sat)}}$          | Collector- Emitter Saturation Voltage |            |             | <b>0.3</b> | <b>V</b>                           | $I_C=10\text{mA}$ , $I_B=1\text{mA}$            |
| <b><math>V_i</math> (off)</b> | Input Off Voltage                     | <b>0.4</b> | <b>0.55</b> | <b>0.8</b> | <b>V</b>                           | $V_{\text{CE}}=5\text{V}$ , $I_C=0.1\text{mA}$  |
| <b><math>V_i</math> (on)</b>  | Input On Voltage                      | <b>0.7</b> | <b>1.2</b>  | <b>3.0</b> | <b>V</b>                           | $V_{\text{CE}}=0.2\text{V}$ , $I_C=10\text{mA}$ |
| R1                            | Input Resistor                        | <b>7.0</b> | <b>10</b>   | <b>13</b>  | <b><math>\text{k}\Omega</math></b> |                                                 |
| fr                            | Current Gain-Bandwidth Product        |            | <b>250</b>  |            | <b>MHz</b>                         | $V_{\text{CE}}=10\text{V}$ , $I_C=5\text{mA}$   |
| Cob                           | Output Capacitance                    |            | <b>3.7</b>  |            | <b>pF</b>                          | $V_{\text{CB}}=10\text{V}$ , $f=1\text{MHz}$    |