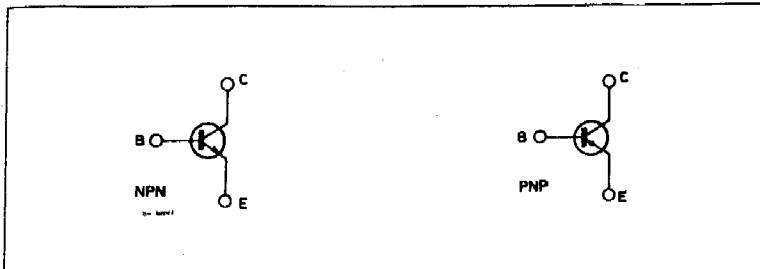


BSS72

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|----------------|--|------------|------------------|
| V_{CBO} | Collector-base Voltage | 200 | V |
| V_{CEO} | Collector-emitter Voltage | 200 | V |
| V_{EBO} | Emitter-base Voltage | 6 | V |
| I_C | Collector Current | 200 | mA |
| I_B | Base Current | 50 | mA |
| P_{tot} | Total Device Dissipation at $T_{amb} \leq 25^\circ\text{C}$ at $T_{case} \leq 25^\circ\text{C}$ | 0.5 2.5 | W W |
| T_{stg}, T_j | Storage and Junction Temperature | -65 to 200 | $^\circ\text{C}$ |

THERMAL DATA

| $R_{th(j-case)}$ | Thermal Resistance Junction-case | Max | 70 | $^\circ\text{C/W}$ |
|------------------|----------------------------------|-----|----|--------------------|
|------------------|----------------------------------|-----|----|--------------------|

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|---|--|----------------|------|-------------------|-------------|
| I_{CBO} | Collector Cutoff Current ($I_E = 0$) | $V_{CB} = 150\text{ V}$ | | | 50 | nA |
| I_{CEO} | Collector Cutoff Current ($I_B = 0$) | $V_{CE} = 150\text{ V}$ | | | 500 | nA |
| I_{EBO} | Emitter Cutoff Current ($I_C = 0$) | $V_{BE} = 5\text{ V}$ | | | 50 | nA |
| $V_{(BR)CBO}$ | Collector-base Breakdown Voltage ($I_E = 0$) | $I_C = 100\ \mu\text{A}$ | 200 | | | V |
| $V_{(BR)CEO}^*$ | Collector-emitter Breakdown Voltage ($I_B = 0$) | $I_C = 10\text{ mA}$ | 200 | | | V |
| $V_{(BR)EBO}$ | Emitter-base Breakdown Voltage ($I_C = 0$) | $I_E = 100\ \mu\text{A}$ | 6 | | | V |
| $V_{CE(sat)}^*$ | Collector-emitter Saturation Voltage | $I_C = 10\text{ mA}$ $I_B = 1\text{ mA}$ $I_C = 30\text{ mA}$ $I_B = 3\text{ mA}$ $I_C = 50\text{ mA}$ $I_B = 5\text{ mA}$ | | | 0.3 0.4 0.5 | V V V |
| $V_{BE(sat)}^*$ | Base-emitter Saturation Voltage | $I_C = 10\text{ mA}$ $I_B = 1\text{ mA}$ $I_C = 30\text{ mA}$ $I_B = 3\text{ mA}$ $I_C = 50\text{ mA}$ $I_B = 5\text{ mA}$ | | | 0.8 0.9 1 | V V V |
| h_{FE}^* | DC Current Gain | $I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 30\text{ mA}$ $V_{CE} = 10\text{ V}$ | 30 50 40 | | 250 | |
| f_T | Transition Frequency | $I_C = 20\text{ mA}$ $V_{CE} = 20\text{ V}$ $f = 20\text{ MHz}$ | 50 | | 200 | MHz |
| C_{CBO} | Collector-base Capacitance | $I_E = 0$ $V_{CB} = 20\text{ V}$ $f = 1\text{ MHz}$ | | 3.5 | | pF |
| C_{EBO} | Emitter-base Capacitance | $I_C = 0$ $V_{EB} = 0.5\text{ V}$ $f = 1\text{ MHz}$ | | 45 | | pF |
| t_{on} | Turn-on Time | $I_C = 50\text{ mA}$ $I_{B1} = 10\text{ mA}$ $V_{CC} = 100\text{ V}$ | | 100 | | ns |
| t_{off} | Turn-off Time | $I_C = 50\text{ mA}$ $I_{B1} = -I_{B2} = -10\text{ mA}$ $V_{CC} = 100\text{ V}$ | | 400 | | ns |

* Pulsed : pulse duration = 300 μs , duty cycle = 1%.



TO-18



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors