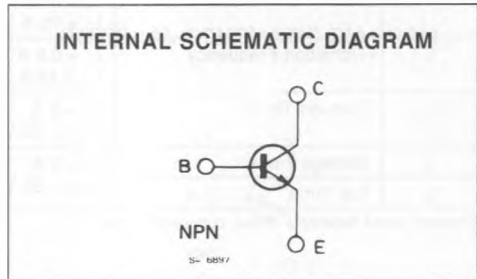
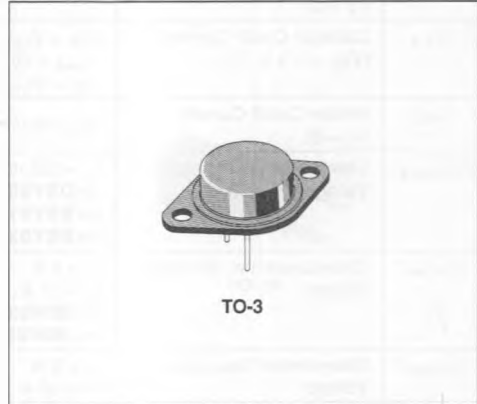


HIGH CURRENT, HIGH SPEED TRANSISTORS

DESCRIPTION

The BDY90, BDY91, BDY92 are silicon multi-epitaxial planar NPN transistors in Jedec TO-3 metal case intended for use in switching and linear applications in military and industrial equipment.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | | Unit |
|-----------|--|-------------|-------|-------|------|
| | | BDY90 | BDY91 | BDY92 | |
| V_{CBO} | Collector-base Voltage ($I_E = 0$) | 120 | 100 | 80 | V |
| V_{CEV} | Collector-emitter Voltage ($V_{BE} = -1.5$ V) | 120 | 100 | 80 | V |
| V_{CEO} | Collector-emitter Voltage ($I_B = 0$) | 100 | 80 | 60 | V |
| V_{EBO} | Emitter-base Voltage ($I_C = 0$) | 6 | | | V |
| I_C | Collector Current | 10 | | | A |
| I_{CM} | Collector Peak Current | 15 | | | A |
| I_B | Base Current | 2 | | | A |
| P_{tot} | Total Power Dissipation at $T_{case} \leq 25$ °C | 60 | | | W |
| T_{stg} | Storage Temperature | - 65 to 175 | | | °C |
| T_j | Junction Temperature | 175 | | | °C |

THERMAL DATA

| | | | | |
|------------------|----------------------------------|-----|-----|------|
| $R_{th\ j-case}$ | Thermal Resistance Junction-case | Max | 2.5 | °C/W |
|------------------|----------------------------------|-----|-----|------|

ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------|---|---|------------------|------|-----------------|-------------|
| I_{CBO} | Collector Cutoff Current ($I_E = 0$) | $V_{CE} = V_{CBO}$ | | | 1 | mA |
| I_{CEV} | Collector Cutoff Current ($V_{BE} = -1.5\text{ V}$) | $V_{CE} = V_{CEV}$ $T_{case} = 150\text{ °C}$ $V_{CE} = V_{CEV}$ | | | 1 3 | mA mA |
| I_{EBO} | Emitter Cutoff Current ($I_C = 0$) | $V_{EB} = 6\text{ V}$ | | | 1 | mA |
| $V_{CEO(sus)}^*$ | Collector-emitter Sustaining Voltage ($I_B = 0$) | $I_C = 100\text{ mA}$ for BDY90 for BDY91 for BDY92 | 120 100 80 | | | V V V |
| $V_{CE(sat)}^*$ | Collector-emitter Saturation Voltage | $I_C = 5\text{ A}$ $I_B = 0.5\text{ A}$ $I_C = 10\text{ A}$ $I_B = 1\text{ A}$ for BDY90, BDY91 for BDY92 | | | 0.5 1.5 1 | V V V |
| $V_{BE(sat)}^*$ | Base-emitter Saturation Voltage | $I_C = 5\text{ A}$ $I_B = 0.5\text{ A}$ $I_C = 10\text{ A}$ $I_B = 1\text{ A}$ | | | 1.2 1.5 | V V |
| h_{FE}^* | DC current Gain | $I_C = 1\text{ A}$ $V_{CE} = 2\text{ V}$ $I_C = 5\text{ A}$ $V_{CE} = 5\text{ V}$ $I_C = 10\text{ A}$ $V_{CE} = 5\text{ V}$ | 30 30 20 | | 120 | |
| f_t | Transition Frequency | $I_C = 0.5\text{ A}$ $V_{CE} = 5\text{ V}$ $f = 5\text{ MHz}$ | | 70 | | MHz |
| t_{on} | Turn-on Time | $I_C = 5\text{ A}$ $I_{B1} = 0.5\text{ A}$ $V_{CC} = 30\text{ V}$ | | | 0.35 | μs |
| t_s | Storage Time | $I_C = 5\text{ A}$ $I_{B1} = -I_{B2} = 0.5\text{ A}$ $V_{CC} = 30\text{ V}$ | | | 1.3 | μs |
| t_f | Fall Time | | | | 0.2 | μs |

* Pulsed : pulse duration = 300μs, duty cycle ≤ 2%.