

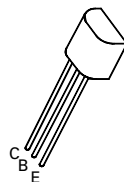
NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

ZTX449

ISSUE 2 – MARCH 1994

FEATURES

- * 30 Volt V_{CEO}
- * 1 Amp continuous current
- * P_{tot} = 1 Watt



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|----------------|-------------|------------------|
| Collector-Base Voltage | V_{CBO} | 50 | V |
| Collector-Emitter Voltage | V_{CEO} | 30 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Peak Pulse Current | I_{CM} | 2 | A |
| Continuous Collector Current | I_C | 1 | A |
| Power Dissipation at $T_{amb} = 25^\circ\text{C}$ | P_{tot} | 1 | W |
| Operating and Storage Temperature Range | $T_j; T_{stg}$ | -55 to +200 | $^\circ\text{C}$ |

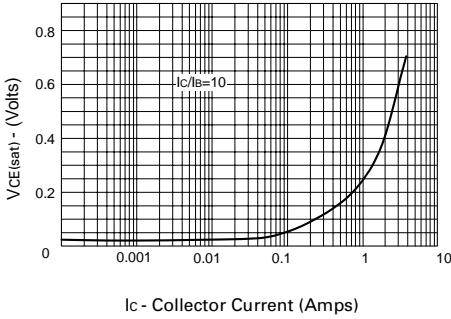
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---------------------------------------|---------------|-----------------------|------|-----------|--------------------------------|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 50 | | | V | $I_C = 100\mu\text{A}$, $I_E = 0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 30 | | | V | $I_C = 10\text{mA}$, $I_B = 0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | | | V | $I_E = 100\mu\text{A}$, $I_C = 0$ |
| Collector Cut-Off Current | I_{CBO} | | | 0.1 10 | μA μA | $V_{CB} = 40\text{V}$ $V_{CB} = 40\text{V}$, $T_{amb} = 100^\circ\text{C}$ |
| Emitter Cut-Off Current | I_{EBO} | | | 0.1 | μA | $V_{EB} = 4\text{V}$, $I_C = 0$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | 0.5 1 | V V | $I_C = 1\text{A}$, $I_B = 100\text{mA}^*$ $I_C = 2\text{A}$, $I_B = 200\text{mA}^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | | 1.25 | V | $I_C = 1\text{A}$, $I_B = 100\text{mA}^*$ |
| Base-Emitter Turn-on Voltage | $V_{BE(on)}$ | | | 1 | V | $I_C = 1\text{A}$, $V_{CE} = 2\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 70 100 80 40 | | 300 | | $I_C = 50\text{mA}$, $V_{CE} = 2\text{V}^*$ $I_C = 500\text{mA}$, $V_{CE} = 2\text{V}^*$ $I_C = 1\text{A}$, $V_{CE} = 2\text{V}^*$ $I_C = 2\text{A}$, $V_{CE} = 2\text{V}^*$ |
| Transition Frequency | f_T | 150 | | | MHz | $I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$ |
| Output Capacitance | C_{obo} | | | 15 | pF | $V_{CB} = 10\text{V}$, $f = 1\text{MHz}$ |

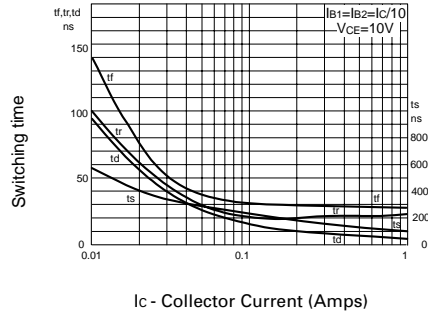
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

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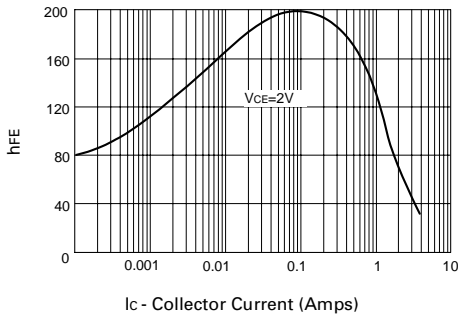
TYPICAL CHARACTERISTICS



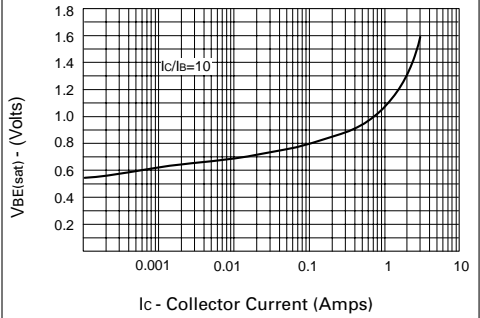
$V_{CE(sat)}$ v I_C



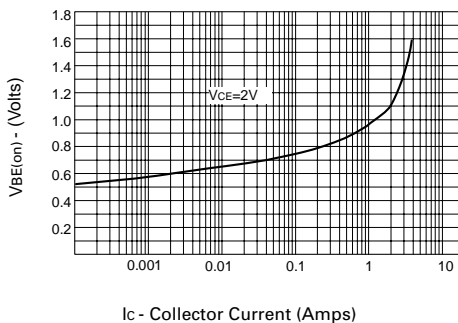
Switching Speeds



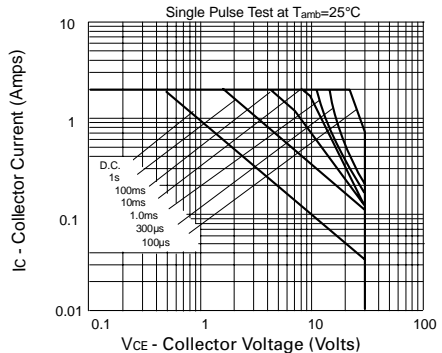
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area