

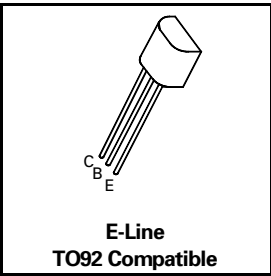
# PNP SILICON PLANAR MEDIUM POWER TRANSISTORS

**ZTX750**  
**ZTX751**

ISSUE 2 – JULY 94

## FEATURES

- \* 60 Volt  $V_{CE0}$
- \* 2 Amp continuous current
- \* Low saturation voltage
- \*  $P_{tot} = 1$  Watt



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                                                 | SYMBOL         | ZTX750      | ZTX751 | UNIT                 |
|---------------------------------------------------------------------------|----------------|-------------|--------|----------------------|
| Collector-Base Voltage                                                    | $V_{CBO}$      | -60         | -80    | V                    |
| Collector-Emitter Voltage                                                 | $V_{CEO}$      | -45         | -60    | V                    |
| Emitter-Base Voltage                                                      | $V_{EBO}$      | -5          |        | V                    |
| Peak Pulse Current                                                        | $I_{CM}$       | -6          |        | A                    |
| Continuous Collector Current                                              | $I_C$          | -2          |        | A                    |
| Power Dissipation: at $T_{amb}=25^{\circ}C$<br>derate above $25^{\circ}C$ | $P_{tot}$      | 1<br>5.7    |        | W<br>mW/ $^{\circ}C$ |
| Operating and Storage Temperature Range                                   | $T_j; T_{stg}$ | -55 to +200 |        | $^{\circ}C$          |

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

| PARAMETER                            | SYMBOL        | ZTX750 |                |              | ZTX751 |                |              | UNIT                          | CONDITIONS.                                                                                                              |
|--------------------------------------|---------------|--------|----------------|--------------|--------|----------------|--------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------|
|                                      |               | MIN.   | TYP.           | MAX.         | MIN.   | TYP.           | MAX.         |                               |                                                                                                                          |
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -60    |                |              | -80    |                |              | V                             | $I_C = -100\mu A$                                                                                                        |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -45    |                |              | -60    |                |              | V                             | $I_C = -10mA$                                                                                                            |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | -5     |                |              | -5     |                |              | V                             | $I_E = -100\mu A$                                                                                                        |
| Collector Cut-Off Current            | $I_{CBO}$     |        |                | -0.1<br>-10  |        |                | -0.1<br>-10  | $\mu A$<br>$\mu A$<br>$\mu A$ | $V_{CB} = -45V$<br>$V_{CB} = -60V$<br>$V_{CB} = -45V, T_{amb} = 100^{\circ}C$<br>$V_{CB} = -60V, T_{amb} = 100^{\circ}C$ |
| Emitter Cut-Off Current              | $I_{EBO}$     |        |                | -0.1         |        |                | -0.1         | $\mu A$                       | $V_{EB} = -4V$                                                                                                           |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |        | -0.15<br>-0.28 | -0.3<br>-0.5 |        | -0.15<br>-0.28 | -0.3<br>-0.5 | V<br>V                        | $I_C = -1A, I_B = -100mA$<br>$I_C = -2A, I_B = -200mA$                                                                   |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ |        | -0.9           | -1.25        |        | -0.9           | -1.25        | V                             | $I_C = -1A, I_B = -100mA$                                                                                                |

# ZTX750

# ZTX751

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

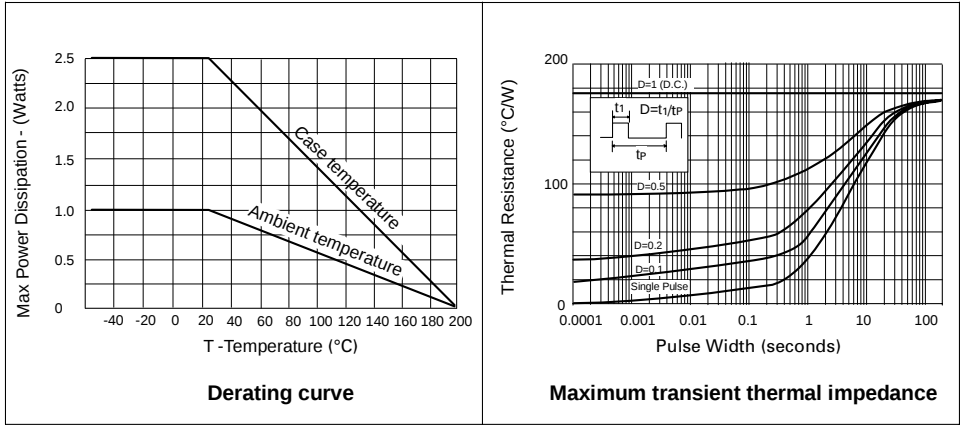
| PARAMETER            | SYMBOL    | ZTX750 |      |      | ZTX751 |      |      | UNIT | CONDITIONS.                                                                        |
|----------------------|-----------|--------|------|------|--------|------|------|------|------------------------------------------------------------------------------------|
|                      |           | MIN.   | TYP. | MAX. | MIN.   | TYP. | MAX. |      |                                                                                    |
| Transition Frequency | $f_T$     | 100    | 140  |      | 100    | 140  |      | MHz  | $I_C = -100\text{mA}$ , $V_{CE} = -5\text{V}$<br>$f = 100\text{MHz}$               |
| Switching Times      | $t_{on}$  |        | 40   |      |        | 40   |      | ns   | $I_C = -500\text{mA}$ , $V_{CC} = -10\text{V}$<br>$I_{B1} = I_{B2} = -50\text{mA}$ |
|                      | $t_{off}$ |        | 450  |      |        | 450  |      | ns   |                                                                                    |
| Output Capacitance   | $C_{obo}$ |        |      | 30   |        |      | 30   | pF   | $V_{CB} = 10\text{V}$ $f = 1\text{MHz}$                                            |

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

## THERMAL CHARACTERISTICS

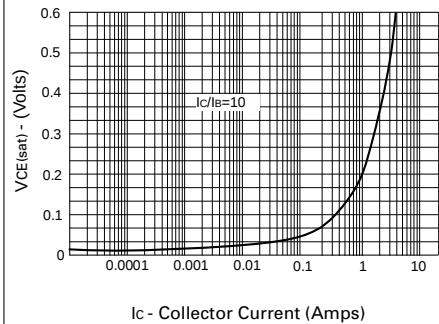
| PARAMETER                                            | SYMBOL                     | MAX. | UNIT                 |
|------------------------------------------------------|----------------------------|------|----------------------|
| Thermal Resistance: Junction to Ambient <sub>1</sub> | $R_{th(j-amb)1}$           | 175  | $^{\circ}\text{C/W}$ |
| Junction to Ambient <sub>2</sub>                     | $R_{th(j-amb)2}^{\dagger}$ | 116  | $^{\circ}\text{C/W}$ |
| Junction to Case                                     | $R_{th(j-case)}$           | 70   | $^{\circ}\text{C/W}$ |

$\dagger$  Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.

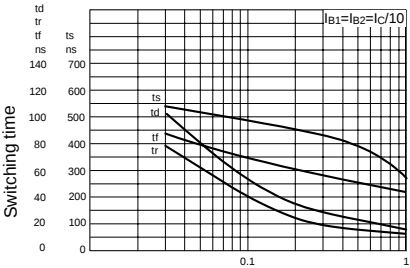


# ZTX750 ZTX751

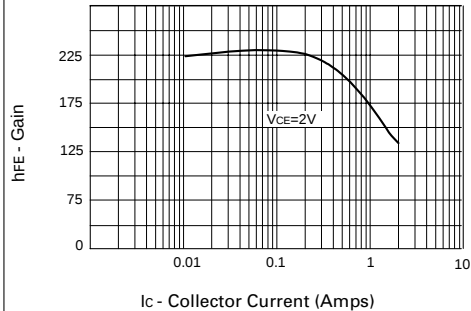
## TYPICAL CHARACTERISTICS



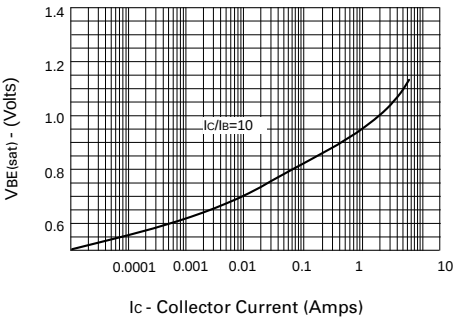
VCE(sat) v IC



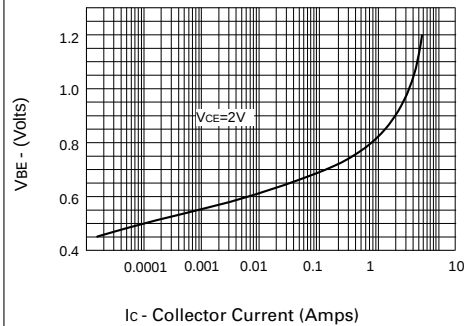
Switching Speeds



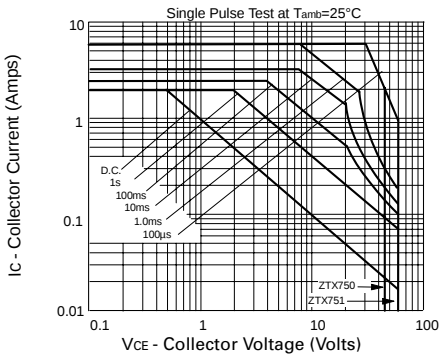
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area