

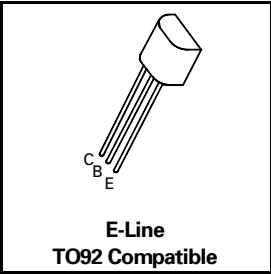
# PNP SILICON PLANAR MEDIUM POWER TRANSISTORS

**ZTX752**  
**ZTX753**

ISSUE 2 – JULY 94

## FEATURES

- \* 100 Volt  $V_{CE0}$
- \* 2 Amp continuous current
- \* Low saturation voltage
- \*  $P_{tot}=1$  Watt



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                                                | SYMBOL         | ZTX752      | ZTX753 | UNIT                 |
|--------------------------------------------------------------------------|----------------|-------------|--------|----------------------|
| Collector-Base Voltage                                                   | $V_{CBO}$      | -100        | -120   | V                    |
| Collector-Emitter Voltage                                                | $V_{CEO}$      | -80         | -100   | 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        | ZTX752 |                |              | ZTX753 |                |              | UNIT                                     | CONDITIONS.                                                                                                    |
|--------------------------------------|---------------|--------|----------------|--------------|--------|----------------|--------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|                                      |               | MIN.   | TYP.           | MAX.         | MIN.   | TYP.           | MAX.         |                                          |                                                                                                                |
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -100   |                |              | -120   |                |              | V                                        | $I_C=-100\mu A$                                                                                                |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -80    |                |              | -100   |                |              | 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>$\mu A$<br>$\mu A$ | $V_{CB}=-80V$<br>$V_{CB}=-100V$<br>$V_{CB}=-80V, T_{amb}=100^{\circ}C$<br>$V_{CB}=-100V, T_{amb}=100^{\circ}C$ |
| Emitter Cut-Off Current              | $I_{EBO}$     |        |                | -0.1         |        |                | -0.1         | $\mu A$                                  | $V_{EB}=-4V$                                                                                                   |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |        | -0.17<br>-0.30 | -0.3<br>-0.5 |        | -0.17<br>-0.30 | -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                                        | $I_C=-1A, I_B=-100mA^*$                                                                                        |
| Base-Emitter Turn-On Voltage         | $V_{BE(on)}$  |        | -0.8           | -1           |        | -0.8           | -1           | V                                        | $I_C=-1A, V_{CE}=-2V^*$                                                                                        |

# ZTX752 ZTX753

## ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C).

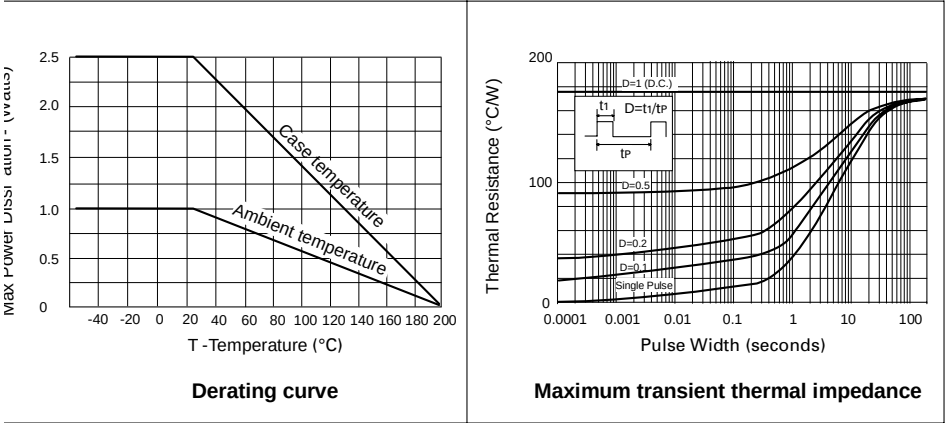
| PARAMETER            | SYMBOL           | ZTX752 |      |      | ZTX753 |      |      | UNIT | CONDITIONS.                                                                              |
|----------------------|------------------|--------|------|------|--------|------|------|------|------------------------------------------------------------------------------------------|
|                      |                  | MIN.   | TYP. | MAX. | MIN.   | TYP. | MAX. |      |                                                                                          |
| Transition Frequency | f <sub>T</sub>   | 100    | 140  |      | 100    | 140  |      | MHz  | I <sub>C</sub> =-100mA, V <sub>CE</sub> =-5V<br>f=100MHz                                 |
| Switching Times      | t <sub>on</sub>  |        | 40   |      |        | 40   |      | ns   | I <sub>C</sub> =-500mA, V <sub>CC</sub> =-10V<br>I <sub>B1</sub> =I <sub>B2</sub> =-50mA |
|                      | t <sub>off</sub> |        | 600  |      |        | 600  |      | ns   |                                                                                          |
| Output Capacitance   | C <sub>obo</sub> |        |      | 30   |        |      | 30   | pF   | V <sub>CB</sub> =10V f=1MHz                                                              |

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

## THERMAL CHARACTERISTICS

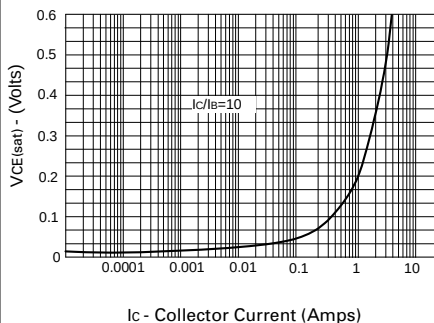
| PARAMETER                                            | SYMBOL                    | MAX. | UNIT |
|------------------------------------------------------|---------------------------|------|------|
| Thermal Resistance: Junction to Ambient <sub>1</sub> | R <sub>th(j-amb)1</sub>   | 175  | °C/W |
| Junction to Ambient <sub>2</sub>                     | R <sub>th(j-amb)2</sub> † | 116  | °C/W |
| Junction to Case                                     | R <sub>th(j-case)</sub>   | 70   | °C/W |

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.

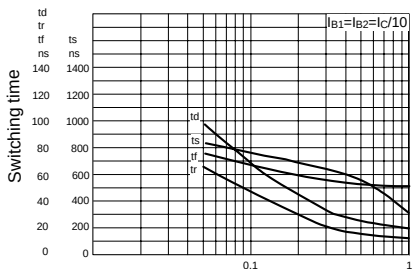


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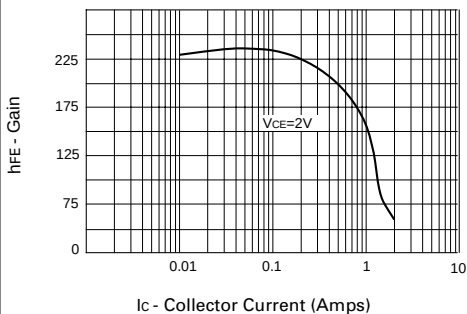
## TYPICAL CHARACTERISTICS



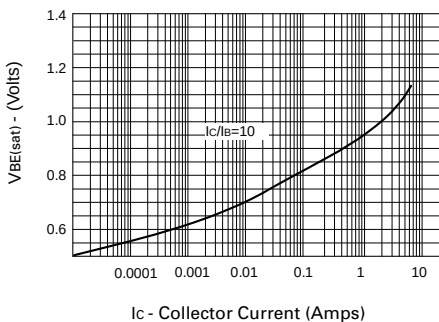
**$V_{CE(sat)}$  v  $I_C$**



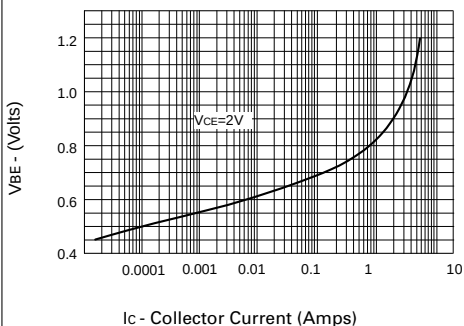
**Switching Speeds**



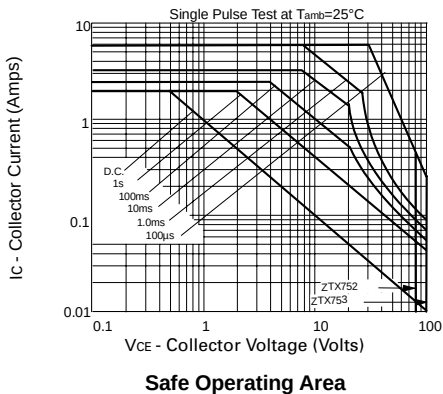
**$h_{FE}$  v  $I_C$**



**$V_{BE(sat)}$  v  $I_C$**



**$V_{BE(on)}$  v  $I_C$**



**Safe Operating Area**

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