

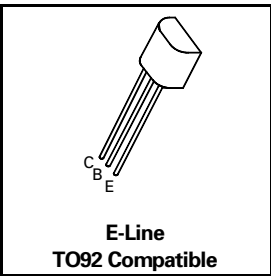
PNP SILICON PLANAR MEDIUM POWER TRANSISTORS

**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 $T_{amb}=25^{\circ}C$ derate above $25^{\circ}C$ | P_{tot} | 1 5.7 | | W 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 -10 | | | -0.1 -10 | μA μA μA μA | $V_{CB}=-80V$ $V_{CB}=-100V$ $V_{CB}=-80V, T_{amb}=100^{\circ}C$ $V_{CB}=-100V, T_{amb}=100^{\circ}C$ |
| Emitter Cut-Off Current | I_{EBO} | | | -0.1 | | | -0.1 | μA | $V_{EB}=-4V$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | -0.17 -0.30 | -0.3 -0.5 | | | -0.17 -0.30 -0.5 | V V | $I_C=-1A, I_B=-100mA^*$ $I_C=-2A, I_B=-200mA^*$ |
| 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 | $I_C=-1A, V_{CE}=-2V^*$ |

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

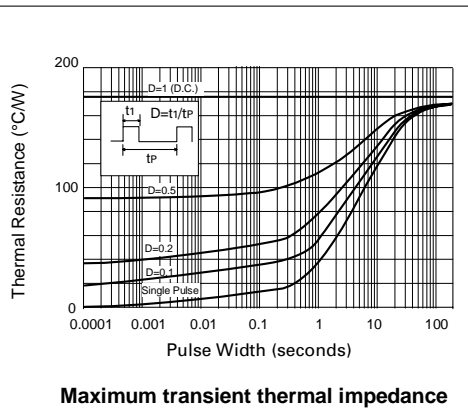
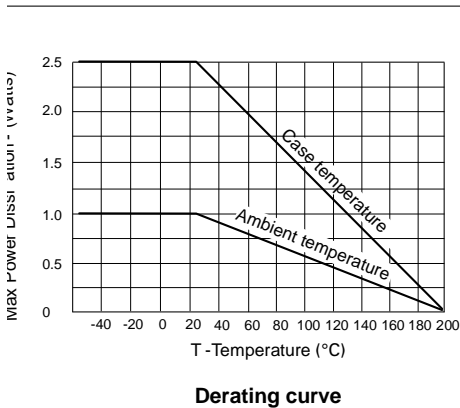
| PARAMETER | SYMBOL | ZTX752 | | | ZTX753 | | | UNIT | CONDITIONS. |
|----------------------|-----------|--------|------|------|--------|------|------|------|--|
| | | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. | | |
| Transition Frequency | f_T | 100 | 140 | | 100 | 140 | | MHz | $I_C = -100\text{mA}$, $V_{CE} = -5\text{V}$ $f = 100\text{MHz}$ |
| Switching Times | t_{on} | | 40 | | | 40 | | ns | $I_C = -500\text{mA}$, $V_{CC} = -10\text{V}$ $I_{B1} = I_{B2} = -50\text{mA}$ |
| | t_{off} | | 600 | | | 600 | | ns | |
| Output Capacitance | C_{obo} | | | 30 | | | 30 | pF | $V_{CB} = 10\text{V}$ $f = 1\text{MHz}$ |

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

THERMAL CHARACTERISTICS

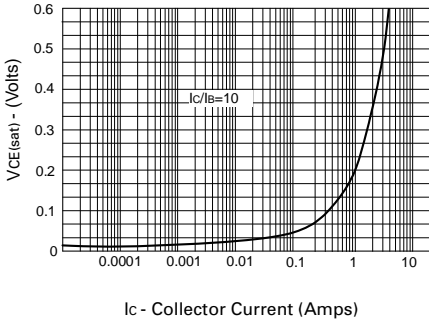
| PARAMETER | SYMBOL | MAX. | UNIT |
|--|--------------------------|------|----------------------|
| Thermal Resistance: Junction to Ambient ₁ | $R_{th(j-amb)1}$ | 175 | $^{\circ}\text{C/W}$ |
| Junction to Ambient ₂ | $R_{th(j-amb)2} \dagger$ | 116 | $^{\circ}\text{C/W}$ |
| Junction to Case | $R_{th(j-case)}$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

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

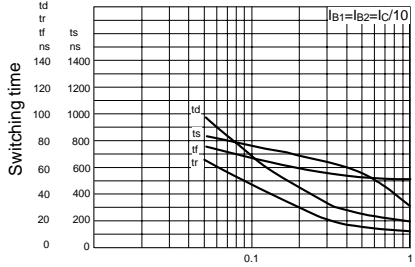


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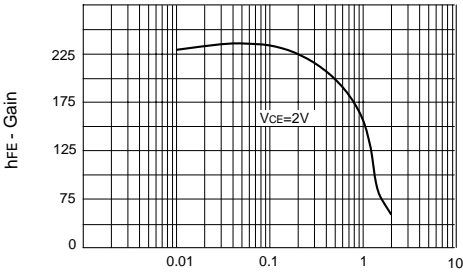
TYPICAL CHARACTERISTICS



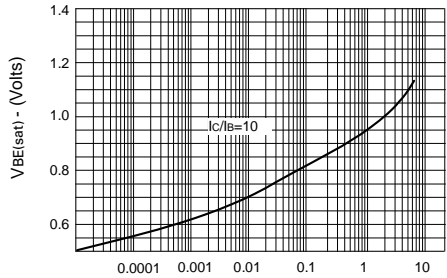
$V_{CE(sat)}$ v I_C



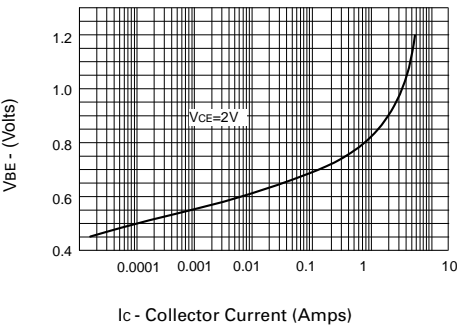
Switching Speeds



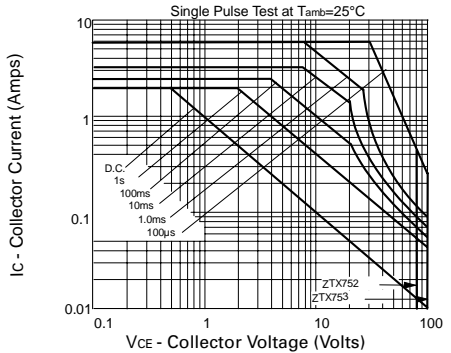
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area