

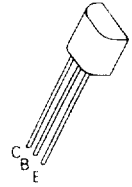
NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

ZTX450 ZTX451

ISSUE 2 – MARCH 1994

FEATURES

- * 60 Volt V_{CE0}
- * 1 Amp continuous current
- * $P_{tot} = 1$ Watt



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX450	ZTX451	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}	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		$^\circ\text{C}$

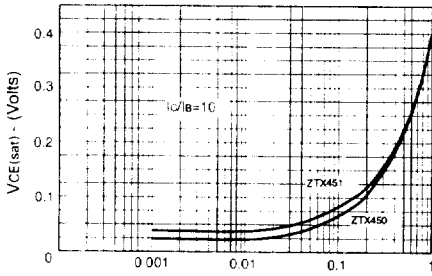
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$).

PARAMETER	SYMBOL	ZTX450		ZTX451		UNIT	CONDITIONS.
		MIN.	MAX.	MIN.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60		80		V	$I_C=100\mu\text{A}$
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	45		60		V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		5		V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		0.1		0.1	μA μA	$V_{CB}=45\text{V}$ $V_{CB}=60\text{V}$
Emitter Cut-Off Current	I_{EBO}		0.1		0.1	μA	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.25		0.35	V	$I_C=150\text{mA}$, $I_B=15\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.1		1.1	V	$I_C=150\text{mA}$, $I_B=15\text{mA}^*$
Static Forward Current Transfer Ratio	h_{FE}	100 15	300	50 10	150		$I_C=150\text{mA}$, $V_{CE}=10\text{V}^*$ $I_C=1\text{A}$, $V_{CE}=10\text{V}^*$
Transition Frequency	f_T	150		150		MHz	$I_C=50\text{mA}$, $V_{CE}=10\text{V}$ $f=100\text{MHz}$
Output Capacitance	C_{obo}		15		15	pF	$V_{CB}=10\text{V}$, $f=1\text{MHz}$

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

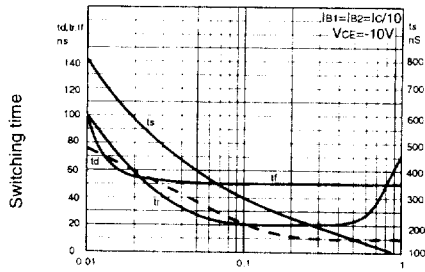
ZTX450 ZTX451

TYPICAL CHARACTERISTICS



I_C - Collector Current (Amps)

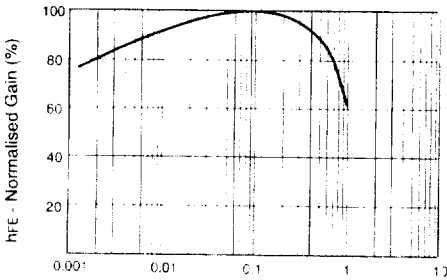
$V_{CE(sat)}$ v I_C



Switching time

I_C - Collector Current (Amps)

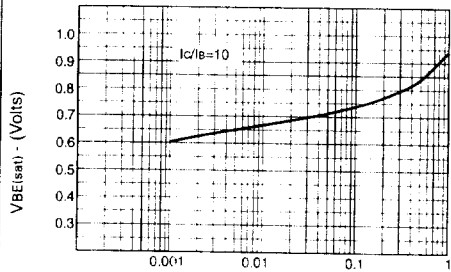
Typical Switching Speeds



h_{FE} - Normalised Gain (%)

I_C - Collector Current (Amps)

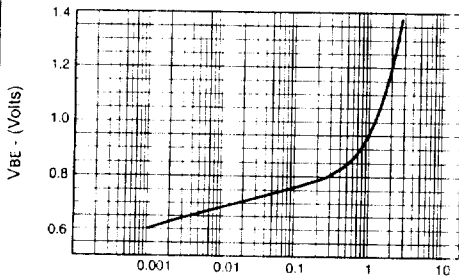
h_{FE} v I_C



$V_{BE(sat)}$ - (Volts)

I_C - Collector Current (Amps)

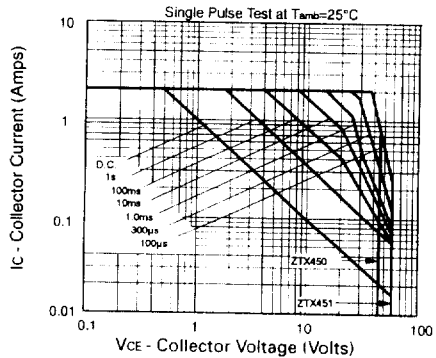
$V_{BE(sat)}$ v I_C



V_{BE} - (Volts)

I_C - Collector Current (Amps)

$V_{BE(on)}$ v I_C



I_C - Collector Current (Amps)

V_{CE} - Collector Voltage (Volts)

Safe Operating Area