

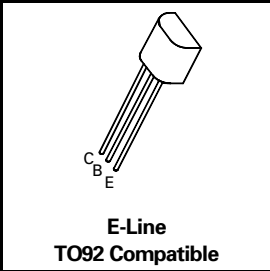
# NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

**ZTX450  
ZTX451**

**ISSUE 2 – MARCH 1994**

**FEATURES**

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



**ABSOLUTE MAXIMUM RATINGS.**

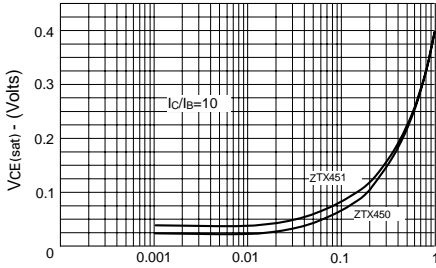
PARAMETER	SYMBOL	ZTX450	ZTX451	UNIT
Collector-Base Voltage	$V_{CBO}$	60	80	V
Collector-Emitter Voltage	$V_{CEO}$	45	60	V
Emitter-Base Voltage	$V_{EBO}$	5		V
Peak Pulse Current	$I_{CM}$	2		A
Continuous Collector Current	$I_C$	1		A
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	1		W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200		$^{\circ}C$

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

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

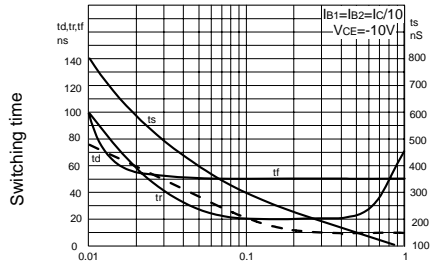
# ZTX450 ZTX451

## TYPICAL CHARACTERISTICS



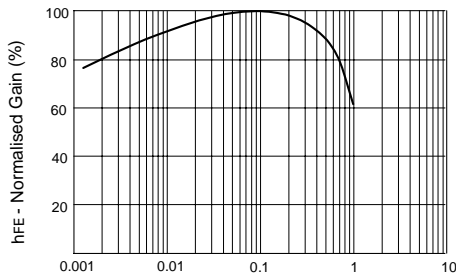
$I_C$  - Collector Current (Amps)

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



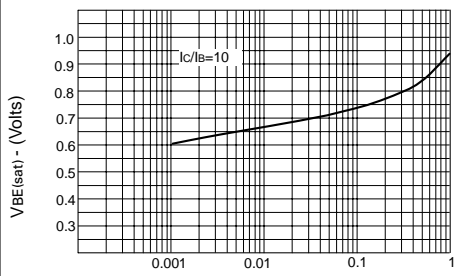
$I_C$  - Collector Current (Amps)

**Typical Switching Speeds**



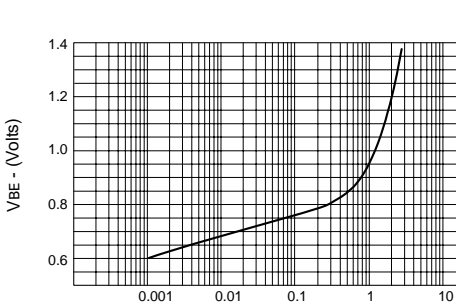
$I_C$  - Collector Current (Amps)

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



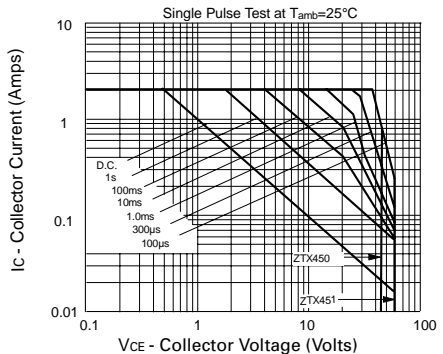
$I_C$  - Collector Current (Amps)

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



$I_C$  - Collector Current (Amps)

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



**Safe Operating Area**