

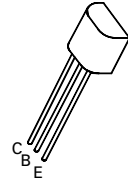
# NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

## ZTX454 ZTX455

ISSUE 2 – MARCH 1994

### FEATURES

- \* 140 Volt  $V_{CEO}$
- \* 1 Amp continuous current
- \*  $P_{tot} = 1$  Watt



E-Line  
TO92 Compatible

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX454	ZTX455	UNIT
Collector-Base Voltage	$V_{CBO}$	140	160	V
Collector-Emitter Voltage	$V_{CEO}$	120	140	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 $T_{amb} = 25^\circ\text{C}$ ).

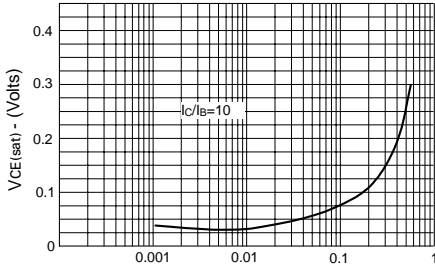
PARAMETER	SYMBOL	ZTX454		ZTX455		UNIT	CONDITIONS.
		MIN.	MAX.	MIN.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	140		160		V	$I_C = 100\mu\text{A}$
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	120		140		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		5		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$		0.1		0.1	$\mu\text{A}$	$V_{CB} = 140\text{V}$ $V_{CE} = 120\text{V}$
Emitter Cut-Off Current	$I_{EBO}$		0.1		0.1	$\mu\text{A}$	$V_{EB} = 4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.7 1.0		0.7	V	$I_C = 150\text{mA}, I_B = 15\text{mA}$ $I_C = 200\text{mA}, I_B = 20\text{mA}$
Static Forward Current Transfer Ratio	$h_{FE}$	100 30 10†	300	100 10†	300		$I_C = 150\text{mA}, V_{CE} = 10\text{V}^*$ $I_C = 200\text{mA}, V_{CE} = 1\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 10\text{V}^*$
Transition Frequency	$f_T$	100		100		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 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

† Typical

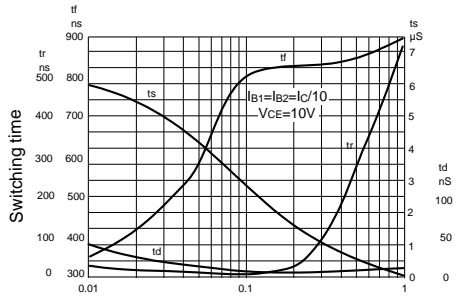
# ZTX454 ZTX455

## TYPICAL CHARACTERISTICS



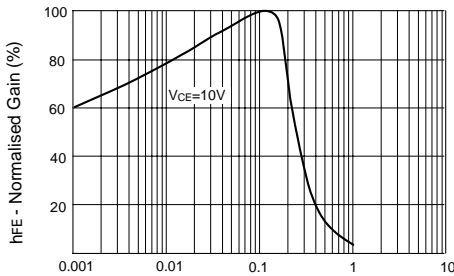
$I_C$  - Collector Current (Amps)

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



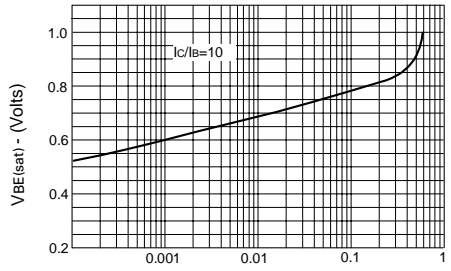
$I_C$  - Collector Current (Amps)

**Typical Switching Speeds**



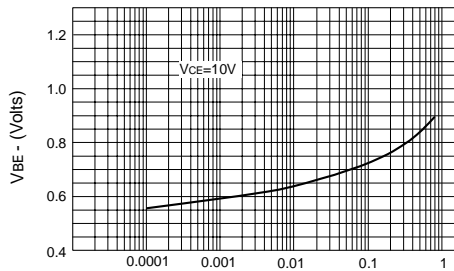
$I_C$  - Collector Current (Amps)

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



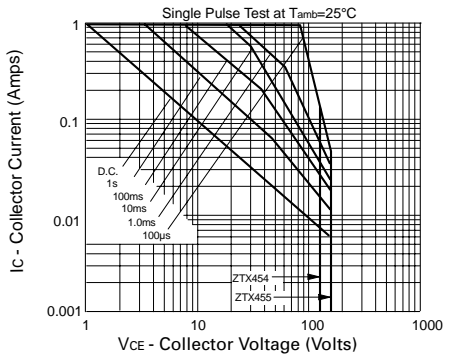
$I_C$  - Collector Current (Amps)

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



$I_C$  - Collector Current (Amps)

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



**Safe Operating Area**