

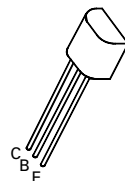
# NPN SILICON PLANAR MEDIUM POWER HIGH VOLTAGE TRANSISTORS

ISSUE 2 – JULY 94

## ZTX656 ZTX657

### FEATURES

- \* 300 Volt  $V_{CE0}$
- \* 0.5 Amp continuous current
- \*  $P_{tot}=1$  Watt



**E-Line  
TO92 Compatible**

### ABSOLUTE MAXIMUM RATINGS.

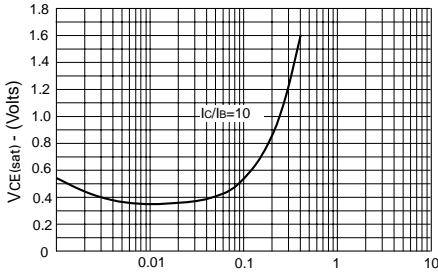
PARAMETER	SYMBOL	ZTX656	ZTX657	UNIT
Collector-Base Voltage	$V_{CBO}$	200	300	V
Collector-Emitter Voltage	$V_{CEO}$	200	300	V
Emitter-Base Voltage	$V_{EBO}$	5		V
Peak Pulse Current	$I_{CM}$	1		A
Continuous Collector Current	$I_C$	0.5		A
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	1		W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200		$^{\circ}C$

### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

PARAMETER	SYMBOL	ZTX656		ZTX657		UNIT	CONDITIONS.
		MIN.	MAX.	MIN.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	200		300		V	$I_C=100\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	200		300		V	$I_C=10mA, I_B=0^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		5		V	$I_E=100\mu A, I_C=0$
Collector Cut-Off Current	$I_{CBO}$		100		100	nA nA	$V_{CB}=160V, I_E=0$ $V_{CB}=200V, I_E=0$
Emitter Cut-Off Current	$I_{EBO}$		100		100	nA	$V_{EB}=3V, I_C=0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.5		0.5	V	$I_C=100mA, I_B=10mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1		1	V	$I_C=100mA, I_B=10mA^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		1		1	V	$I_C=100mA, V_{CE}=5V^*$
Static Forward Current Transfer Ratio	$h_{FE}$	50 40		50 40			$I_C=100mA, V_{CE}=5V$ $I_C=10mA, V_{CE}=5V$
Transition Frequency	$f_T$	30		30		MHz	$I_C=10mA, V_{CE}=20V$ $f=20MHz$

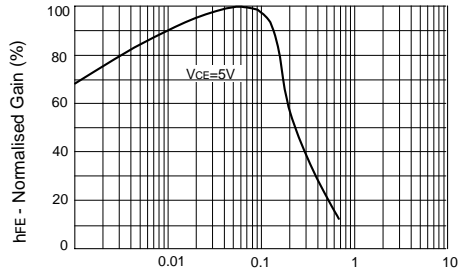
# ZTX656 ZTX657

## TYPICAL CHARACTERISTICS



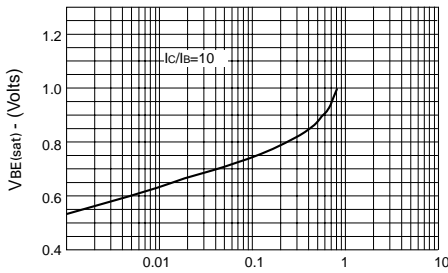
$I_C$  - Collector Current (Amps)

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



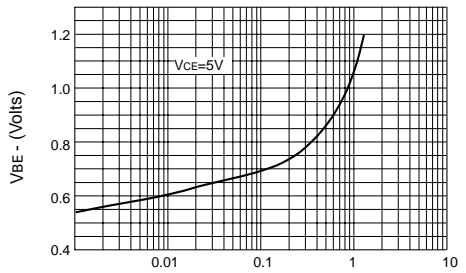
$I_C$  - Collector Current (Amps)

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



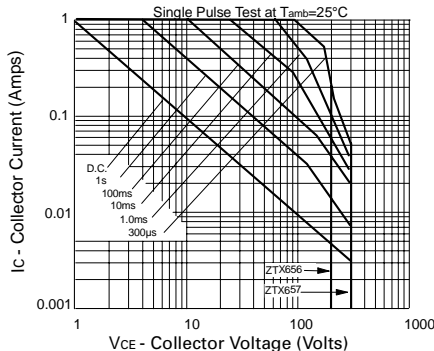
$I_C$  - Collector Current (Amps)

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

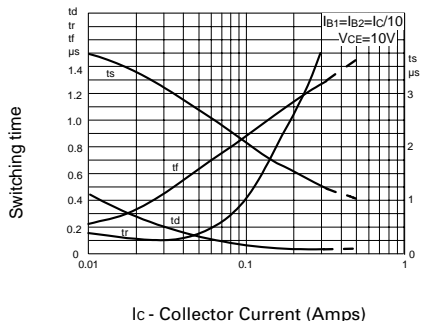


$I_C$  - Collector Current (Amps)

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



**Safe Operating Area**



**Switching Speeds**