

PNP SILICON PLANAR HIGH SPEED SWITCHING TRANSISTOR

ZTX510

ISSUE 2 – MARCH 94

FEATURES

- * 12 Volt V_{CEO}
- * $f_T=400\text{MHz}$



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-12	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-4	V
Base Current	I_B	-40	mA
Continuous Collector Current	I_C	-200	mA
Power Dissipation at $T_{amb}=25^\circ\text{C}$	P_{tot}	300	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +175	$^\circ\text{C}$

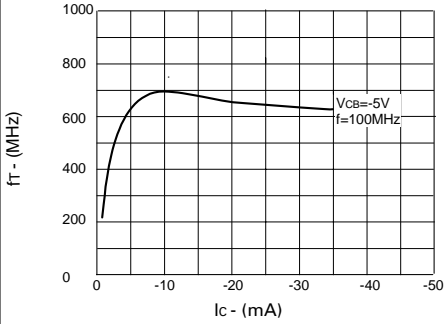
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-12			V	$I_C=-10\mu\text{A}$
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	-12			V	$I_C=-10\text{mA}$
Collector Cut-Off Current	I_{CBO}			-0.1	μA	$V_{CB}=-6\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.15 -0.2 -0.5	V V V	$I_C=-10\text{mA}, I_B=-1\text{mA}^*$ $I_C=-30\text{mA}, I_B=-3\text{mA}^*$ $I_C=-100\text{mA}, I_B=-10\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-0.76 -0.82 -1.7		-0.98 -1.2	V V V	$I_C=-10\text{mA}, I_B=-1\text{mA}^*$ $I_C=-30\text{mA}, I_B=-3\text{mA}^*$ $I_C=-100\text{mA}, I_B=-10\text{mA}^*$
Static Forward Current Transfer Ratio	h_{FE}	30 40 20		150		$I_C=-10\text{mA}, V_{CE}=-0.3\text{V}^*$ $I_C=-30\text{mA}, V_{CE}=-0.5\text{V}^*$ $I_C=-100\text{mA}, V_{CE}=-1\text{V}^*$
Transition Frequency	f_T	400			MHz	$I_C=-30\text{mA}, V_{CE}=-5\text{V}$ $f=100\text{MHz}$
Output Capacitance	C_{obo}			6	pF	$V_{CB}=-5\text{V}, f=140\text{KHz}$
Input Capacitance	C_{ibo}			6	pF	$V_{EB}=-0.5\text{V}, f=140\text{KHz}$
Switching Times	t_{on}			60	ns	$I_C=-30\text{mA}, I_{B1}=I_{B2}=-1.5\text{mA}$
	t_{off}			90	ns	

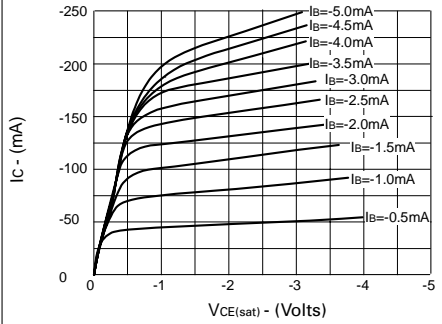
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

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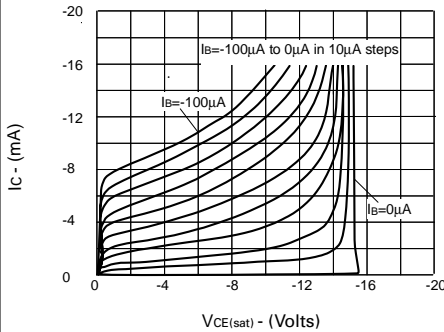
TYPICAL CHARACTERISTICS



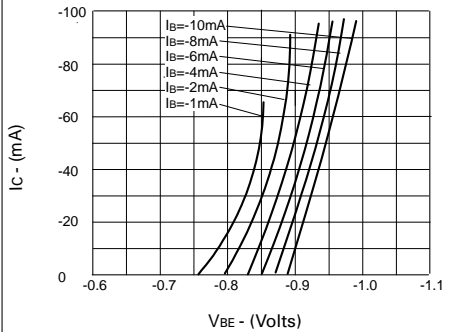
I_c v f_t



$V_{CE(sat)}$ v I_c



V_{CE} v I_c



V_{BE} v I_c