

# PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

## ZTX796A

ISSUE 1 – APRIL 94

### FEATURES

- \* 200 Volt  $V_{CE0}$
- \* Gain of 250 at  $I_C=0.3$  Amps
- \* Very low saturation voltage



E-Line  
TO92 Compatible

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	-200	V
Collector-Emitter Voltage	$V_{CEO}$	-200	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Peak Pulse Current	$I_{CM}$	-1	A
Continuous Collector Current	$I_C$	-0.5	A
Practical Power Dissipation*	$P_{totp}$	1.5	W
Power Dissipation at $T_{amb}=25^\circ\text{C}$ derate above $25^\circ\text{C}$	$P_{tot}$	1 5.7	W mW/ $^\circ\text{C}$
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	$^\circ\text{C}$

\*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 1 inch square minimum

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-200			V	$I_C=-100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-200			V	$I_C=-10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E=-100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$			-0.1	$\mu\text{A}$	$V_{CB}=-150\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			-0.1	$\mu\text{A}$	$V_{EB}=-4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.2 -0.3 -0.3	V V V	$I_C=50\text{mA}, I_B=2\text{mA}^*$ $I_C=100\text{mA}, I_B=5\text{mA}^*$ $I_C=200\text{mA}, I_B=20\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-0.95	V	$I_C=200\text{mA}, I_B=20\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-0.67		V	$I_C=-200\text{mA}, V_{CE}=-10\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	300 300 250 100		800		$I_C=10\text{mA}, V_{CE}=-10\text{V}^*$ $I_C=100\text{mA}, V_{CE}=-10\text{V}^*$ $I_C=300\text{mA}, V_{CE}=-10\text{V}^*$ $I_C=400\text{mA}, V_{CE}=-10\text{V}^*$

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

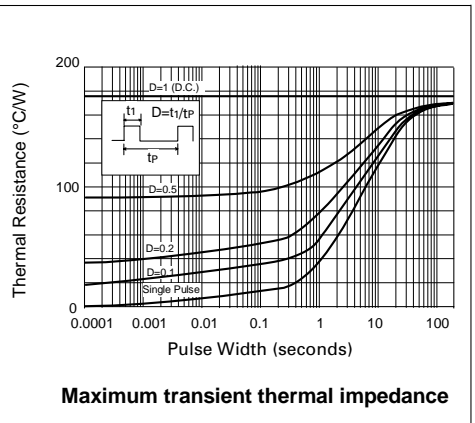
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Transition Frequency	$f_T$	100			MHz	$I_C = -50\text{mA}$ , $V_{CE} = -5\text{V}$ $f = 50\text{MHz}$
Input Capacitance	$C_{ibo}$		225		pF	$V_{EB} = -0.5\text{V}$ , $f = 1\text{MHz}$
Output Capacitance	$C_{obo}$		12		pF	$V_{CB} = -10\text{V}$ , $f = 1\text{MHz}$
Switching Times	$t_{on}$ $t_{off}$		100 3200		ns ns	$I_C = -100\text{mA}$ , $I_{B1} = -10\text{mA}$ $I_{B2} = -10\text{mA}$ , $V_{CC} = -50\text{V}$

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

## THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient <sub>1</sub>	$R_{th(j-amb)1}$	175	$^{\circ}\text{C/W}$
Junction to Ambient <sub>2</sub>	$R_{th(j-amb)2} \dagger$	116	$^{\circ}\text{C/W}$
Junction to Case	$R_{th(j-case)}$	70	$^{\circ}\text{C/W}$

$\dagger$  Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



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