

ZTX696B

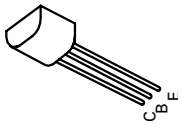
NPN SILICON PLANAR MEDIUM POWER
HIGH GAIN TRANSISTOR

ISSUE 3 - NOVEMBER 1995

ZTX696B

FEATURES

- * 180 Volt V_{CE0}
 - * Gain of 500 at $I_C=100\text{mA}$
 - * Very low saturation voltage
- APPLICATIONS
- * Darlington replacement
 - * Battery powered circuits
 - * Motor drivers
 - * Relay / solenoid drivers



E-Line
TO92 Compatible

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Transition Frequency	f_T	70			MHz	$I_C=50\text{mA}, V_{CE}=5\text{V}$ $f=50\text{MHz}$
Input Capacitance	C_{ibo}		200		pF	$V_{EB}=0.5\text{V}, f=1\text{MHz}$
Output Capacitance	C_{obo}		6		pF	$V_{CE}=10\text{V}, f=1\text{MHz}$
Switching Times	t_{on} t_{off}		80 4400		ns	$I_C=100\text{mA}, I_B=10\text{mA}$ $I_B=10\text{mA}, V_{CC}=50\text{V}$

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

THERMAL CHARACTERISTICS

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

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	180	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 $T_{amb}=25^\circ\text{C}$	P_{Tot}	1	W
		5.7	mW/ $^\circ\text{C}$
Operating and Storage Temperature Range	$T_J; T_{sg}$	-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 $T_{amb} = 25^\circ\text{C}$)

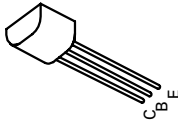
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	180			V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	180			V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			0.1	μA	$V_{CB}=145\text{V}$
Emitter Cut-Off Current	I_{EBO}			0.1	μA	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.2	V	$I_C=50\text{mA}, I_B=0.5\text{mA}^*$
				0.2	V	$I_C=100\text{mA}, I_B=2\text{mA}^*$
				0.25	V	$I_C=200\text{mA}, I_B=5\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=200\text{mA}, I_B=5\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.9	V	$I_C=200\text{mA}, V_{CE}=5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	500				$I_C=100\text{mA}, V_{CE}=5\text{V}^*$
		150				$I_C=200\text{mA}, V_{CE}=5\text{V}^*$

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Output Capacitance	C_{obo}		6		pF	$V_{CE}=10\text{V}, f=1\text{MHz}$
Switching Times	t_{on}		80		ns	$I_C=100\text{mA}, I_B=10\text{mA}$
	t_{off}		4400		ns	$I_B=10\text{mA}, V_{CC}=50\text{V}$

*Measured under pulsed conditions. Pulse width=300 μ s. Duty cycle $\leq 2\%$ **THERMAL CHARACTERISTICS**

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				0.2	V	$I_C=100\text{mA}, I_B=2\text{mA}^*$
				0.25	V	$I_C=200\text{mA}, I_B=5\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=200\text{mA}, I_B=5\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.9	V	$I_C=200\text{mA}, V_{CE}=5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	500				$I_C=100\text{mA}, V_{CE}=5\text{V}^*$
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TYPICAL CHARACTERISTICS

