



THE DATASHEET OF ZTX690B



ZTX690B

NPN SILICON PLANAR MED HIGH GAIN TRANSISTOR ISSUE 1 - MAY 94

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Transition Frequency	f_T	150			MHz	$I_C=50mA, V_{CE}=5V$ $f=50MHz$
Input Capacitance	C_{ibo}		200		pF	$V_{EB}=0.5V, f=1MHz$
Output Capacitance	C_{obo}		16		pF	$V_{CB}=10V, f=1MHz$
Switching Times	t_{on}		33		ns	$I_C=500mA, I_{B1}=50mA$
	t_{off}		1300		ns	$I_B=50mA, V_{CC}=10V$

*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	$^{\circ}C/W$
Junction to Ambient ₂	$R_{th(j-amb)2}$	116	$^{\circ}C/W$
Junction to Case	$R_{th(j-case)}$	70	$^{\circ}C/W$

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

FEATURES

- * 45 Volt V_{CE0}
- * Gain of 400 at $I_C=1$ Amp
- * Very low saturation voltage

APPLICATIONS

- * Darlington replacement
- * Siren Drivers
- * Battery powered circuits
- * Motor drivers

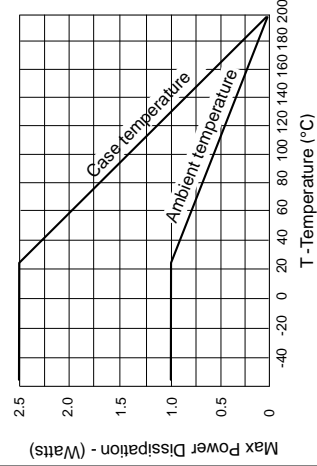
ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL
Collector-Base Voltage	$V_{(BR)CBO}$
Collector-Emitter Voltage	$V_{(BR)CEO}$
Emitter-Base Voltage	$V_{(BR)EBO}$
Peak Pulse Current	I_{CB0}
Continuous Collector Current	I_{EBO}
Practical Power Dissipation*	$V_{CE(sat)}$
Power Dissipation at $T_{amb}=25^{\circ}C$ derate above $25^{\circ}C$	$V_{CE(sat)}$
Operating and Storage Temperature Range	$V_{BE(sat)}$

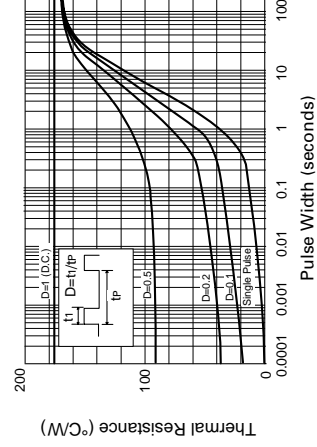
*The power which can be dissipated as P.C.B. with copper equal to 1 inch square

ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$
Collector Cut-Off Current	I_{CBO}
Emitter Cut-Off Current	I_{EBO}
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$
Static Forward Current Transfer Ratio	h_{FE}



Derating curve



Maximum transient thermal impedance

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Switching Times	t_{on}		33		ns	$I_C=500\text{mA}$, $I_{B1}=50\text{mA}$
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ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	UNIT
Collector-Base Voltage	V_{CB0}	V
Collector-Emitter Voltage	V_{CE0}	V
Emitter-Base Voltage	V_{EB0}	V
Peak Pulse Current	I_{CP}	A
Continuous Collector Current	I_C	A
Practical Power Dissipation*	P_D	W
Power Dissipation at $T_{amb}=25^{\circ}\text{C}$ derate above 25°C	$P_{D(25^{\circ}\text{C})}$	W
Operating and Storage Temperature Range	T_{op}	$^{\circ}\text{C}$

*The power which can be dissipated as P.C.B. with copper equal to 1 inch square

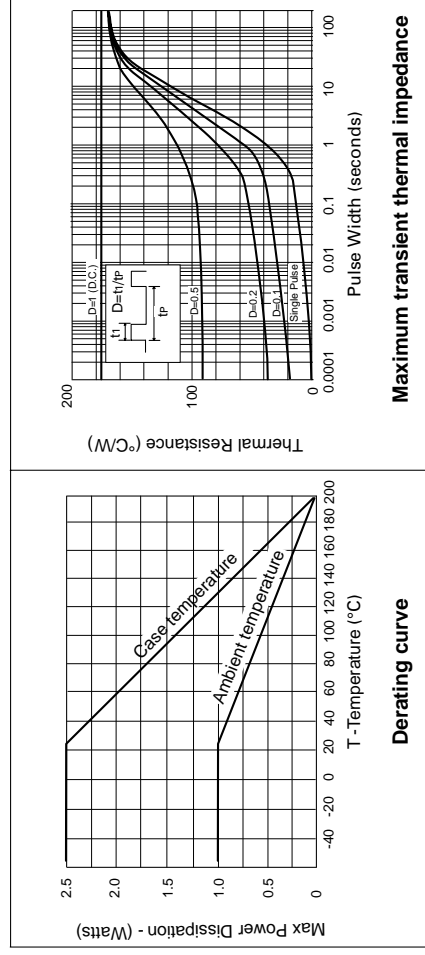
ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	V
Collector Cut-Off Current	I_{CBO}	μA
Emitter Cut-Off Current	I_{EBO}	μA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	V
Static Forward Current Transfer Ratio	h_{FE}	

THERMAL CHARACTERISTICS

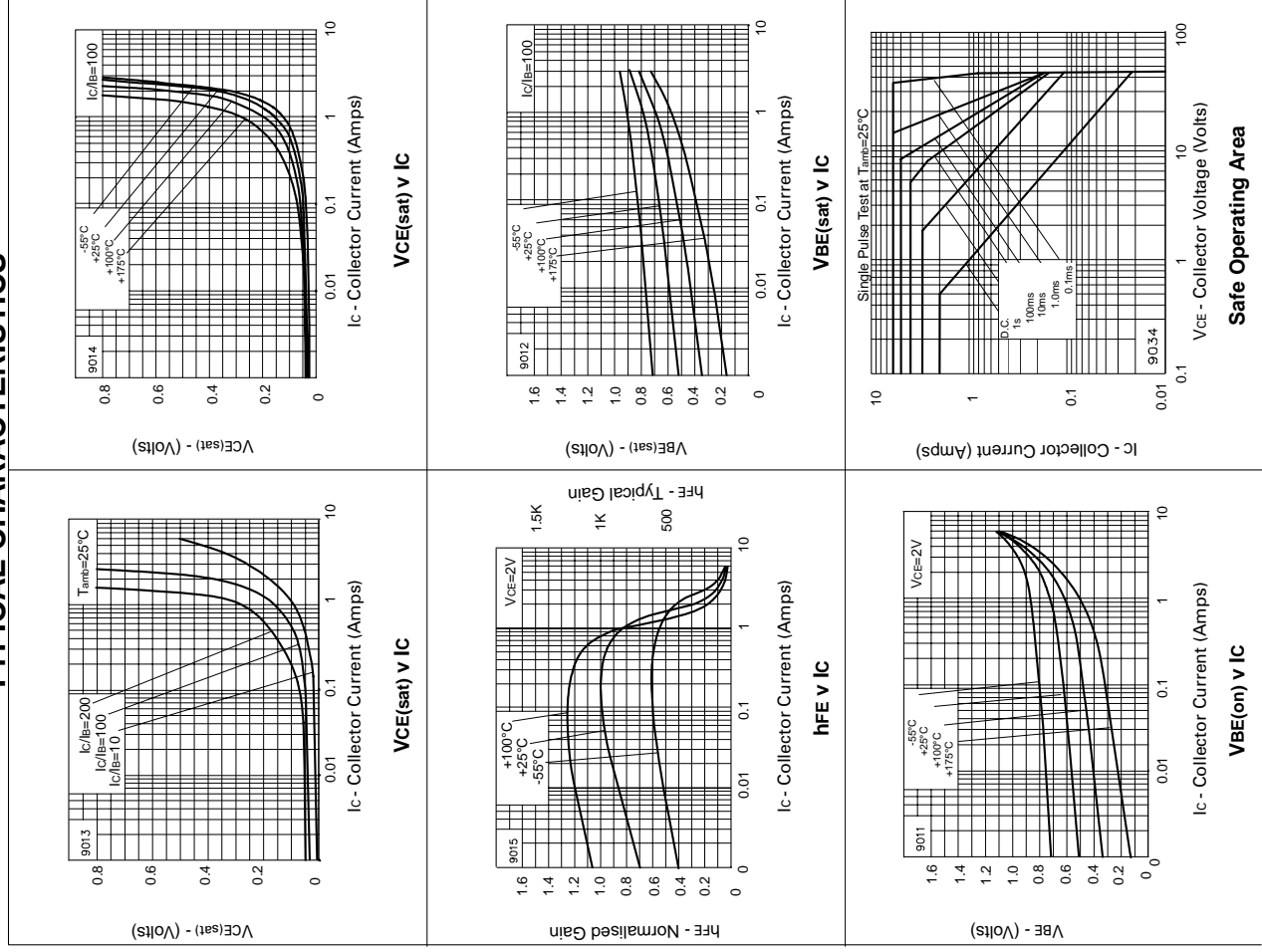
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TYPICAL CHARACTERISTICS



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