

ZTX851

NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ISSUE 2 – AUGUST 94

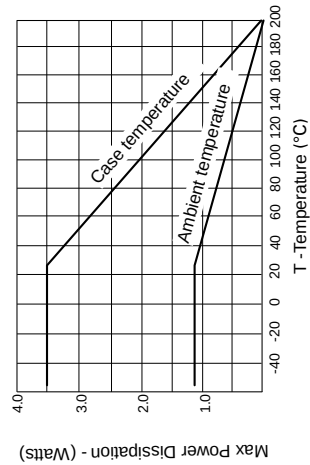
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		840	950	mV	$I_C=4A, V_{CE}=1V^*$
Static Forward Current Transfer Ratio	h_{FE}	100 100 75 25	200 200 120 50	300		$I_C=10mA, V_{CE}=1V$ $I_C=2A, V_{CE}=1V^*$ $I_C=5A, V_{CE}=1V^*$ $I_C=10A, V_{CE}=1V^*$
Transition Frequency	f_T		130		MHz	$I_C=100mA, V_{CE}=10V$ $f=50MHz$
Output Capacitance	C_{obo}		45		pF	$V_{CE}=10V, f=1MHz$
Switching Times	t_{on} t_{off}		45 1100		ns ns	$I_C=1A, I_{BI}=100mA$ $I_{B2}=100mA, V_{CC}=10V$

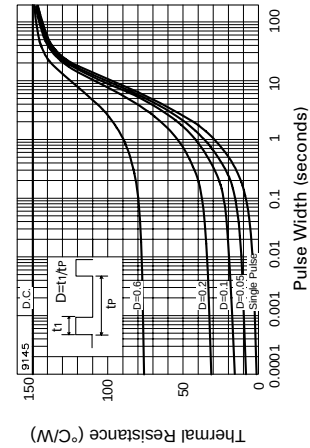
*Measured under pulsed conditions. Pulse width=300 μ s. Duty cycle $\leq$ 2%

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient Junction to Case	$R_{th(j-amb)}$ $R_{th(j-case)}$	150 50	$^{\circ}C/W$ $^{\circ}C/W$

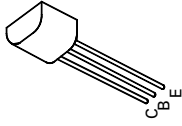


Derating curve



Maximum transient thermal impedance

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**E-Line
T092 Compatible**

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	6	V
Peak Pulse Current	I_{CM}	20	A
Continuous Collector Current	I_C	5	A
Practical Power Dissipation*	P_{totp}	1.58	W
Power Dissipation at $T_{amb}=25^{\circ}\text{C}$	P_{tot}	1.2	W
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 $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	220		V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	150	220		V	$IC=1\mu A, RB \leq 1K\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60	85		V	$I_C=10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	$I_E=100\mu A$
Collector Cut-Off Current	I_{CBO}			50 1	nA μA	$V_{CB}=120V, T_{amb}=100^\circ C$
Collector Cut-Off Current	I_{CER} $R \leq 1K\Omega$			50 1	nA μA	$V_{CB}=120V, T_{amb}=100^\circ C$
Emitter Cut-Off Current	I_{EBO}			10	nA	$V_{EB}=6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		10 50 100 200	50 100 150 250	mV mV mV mV	$I_C=0.1A, I_B=5mA^*$ $I_C=1A, I_B=50mA^*$ $I_C=2A, I_B=50mA^*$ $I_C=5A, I_B=200mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		920	1050	mV	$I_C=4A, I_B=200mA^*$

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TYPICAL CHARACTERISTICS

