



ZTX968

PNP SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ZTX968

ISSUE 2 - JUNE 94

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Static Forward Current Transfer Ratio	h_{FE}	300 300 200 150	450 450 300 240 50	1000		$I_C = 10mA, V_{CE} = -1V^*$ $I_C = 500mA, V_{CE} = -1V^*$ $I_C = 5A, V_{CE} = -1V^*$ $I_C = 10A, V_{CE} = -1V^*$ $I_C = 20A, V_{CE} = -1V^*$
Transition Frequency	f_T		80		MHz	$I_C = 100mA, V_{CE} = -10V$ $f = 50MHz$
Output Capacitance	C_{obo}		161		pF	$V_{CB} = -20V, f = 1MHz$
Switching Times	t_{on}		120		ns	$I_C = 4A, I_B = -400mA$ $I_B = 400mA, V_{CC} = -10V$
	t_{off}		116		ns	

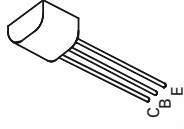
Measured under pulsed conditions. Pulse width=300 μ s. Duty cycle \leq 2%

HERMAL CHARACTERISTICS

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

FEATURES

- * 4.5 Amps continuous current
- * Up to 20 Amps peak current
- * Very low saturation voltage
- * High gain
- * Spice model available



E-Line
TO92 Compatible

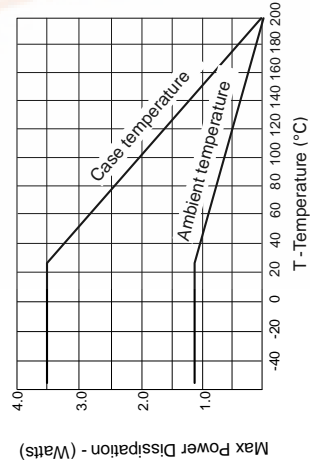
ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-15	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-6	V
Peak Pulse Current	I_{CM}	-20	A
Continuous Collector Current	I_C	-4.5	A
Practical Power Dissipation*	P_{totp}	1.58	W
Power Dissipation at $T_{amb} = 25^{\circ}C$	P_{tot}	1.2	W
Operating and Storage Temperature Range	T_j, T_{stg}	-55 to +200	$^{\circ}C$

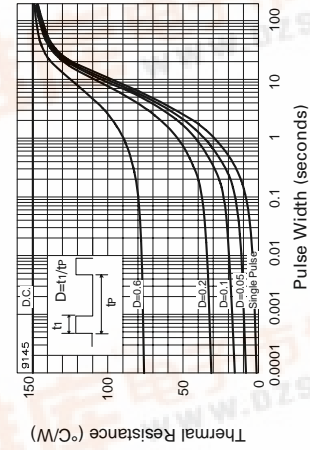
*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 1 inch square minimum

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-15	-28		V	$I_C = -100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-12	-20		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	$V_{CB} = -12V$ $V_{CE} = -12V, T_{amb} = 100^{\circ}C$
Emitter Cut-Off Current	I_{EBO}			-10	nA	$V_{EB} = -6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-50	-100	mV	$I_C = 500mA, I_B = -5mA^*$
			-100	-150	mV	$I_C = 2A, I_B = -50mA^*$
			-220	-300	mV	$I_C = 5A, I_B = -200mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-930	-1050	mV	$I_C = 5A, I_B = -200mA^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-830	-1000	mV	$I_C = 5A, V_{CE} = -1V^*$



Derating curve



Maximum transient thermal impedance

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	t_{off}		116		ns	

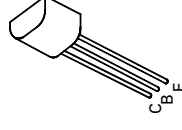
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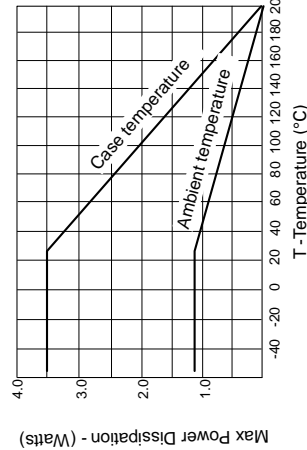
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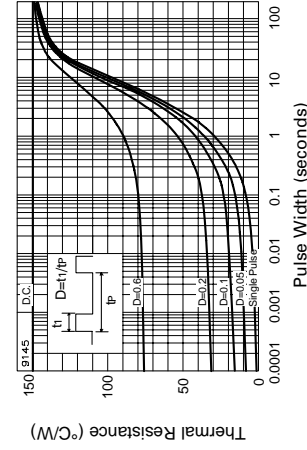
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Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	-8		V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			-50	nA	$V_{CB} = -12\text{V}$
				-1	μA	$V_{CB} = -12\text{V}, T_{amb} = 100^{\circ}\text{C}$
Emitter Cut-Off Current	I_{EBO}			-10	nA	$V_{EB} = -6\text{V}$
				-100	mV	$I_C = -500\text{mA}, I_B = -5\text{mA}^*$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-50	-100		mV	$I_C = -2\text{A}, I_B = -50\text{mA}^*$
		-150	-220		mV	$I_C = -5\text{A}, I_B = -200\text{mA}^*$
		-300			mV	$I_C = -5\text{A}, I_B = -200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-930		mV	$I_C = -5\text{A}, I_B = -200\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-830		mV	$I_C = -5\text{A}, V_{CE} = -1\text{V}^*$



Derating curve

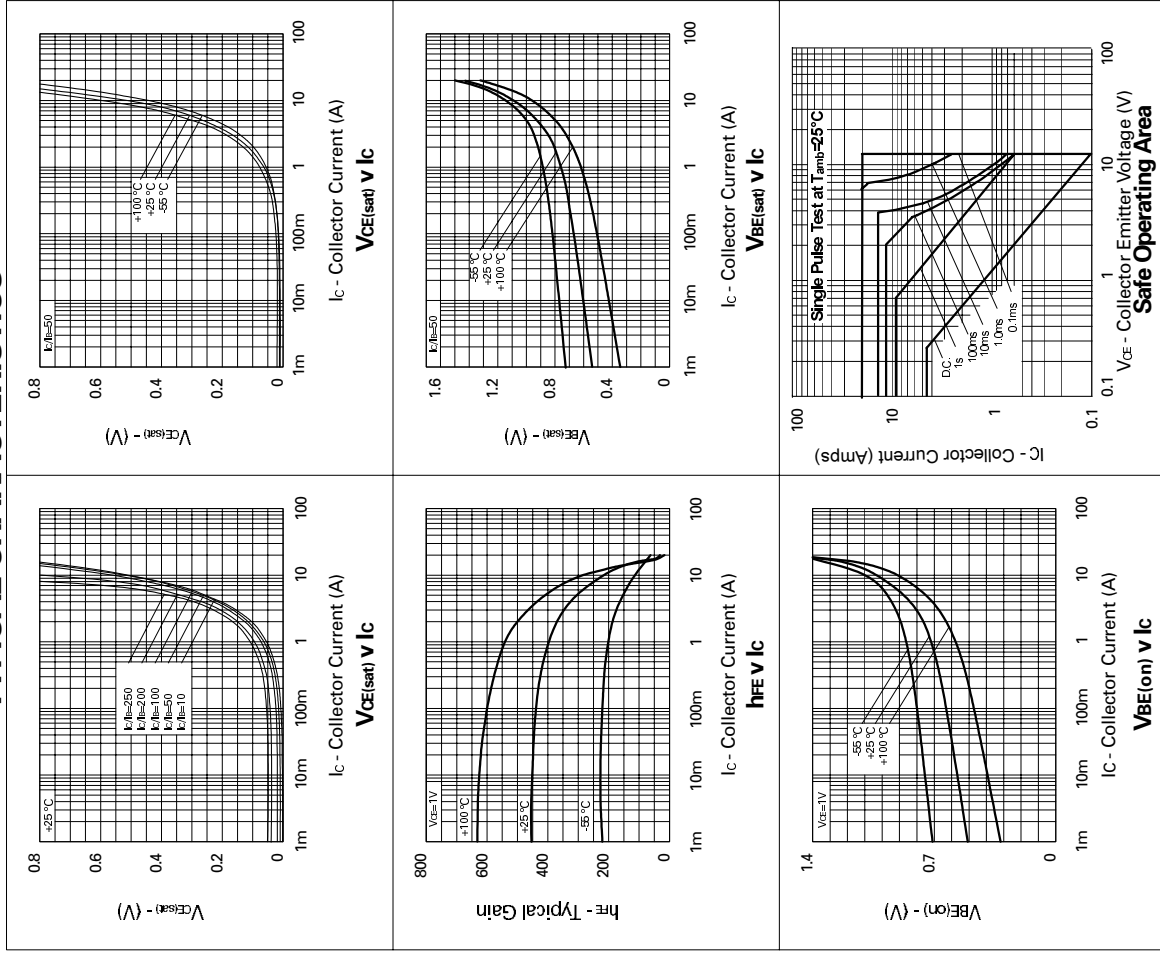


Maximum transient thermal impedance

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TYPICAL CHARACTERISTICS



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