



# THE DATASHEET OF ZTX869STOA



# ZTX869

## NPN SILICON PLANAR MED HIGH CURRENT TRANSIS

ISSUE 1 – APRIL 94

### FEATURES

- \* 25 Volt  $V_{CE0}$
- \* 5 Amps continuous current
- \* Up to 20 Amps peak current
- \* Very low saturation voltage
- \* High Gain
- \*  $P_{tot}=1.2$  Watts

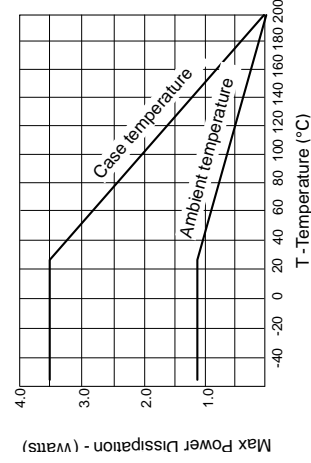
### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ )

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		800	900	mV	$I_C=5A, V_{CE}=1V^*$
Static Forward Current Transfer Ratio	$h_{FE}$	300	450			$I_C=10mA, V_{CE}=1V$
		300	450			$I_C=1A, V_{CE}=1V^*$
		250	400			$I_C=5A, V_{CE}=1V^*$
		40	100			$I_C=20A, V_{CE}=1V^*$
Transition Frequency	$f_T$		100		MHz	$I_C=100mA, V_{CE}=10V, f=50MHz$
Output Capacitance	$C_{obo}$		70		pF	$V_{CB}=10V, f=1MHz$
Switching Times	$t_{on}$		60		ns	$I_C=1A, I_B=100mA$
	$t_{off}$		680		ns	$I_B=100mA, V_{CC}=10V$

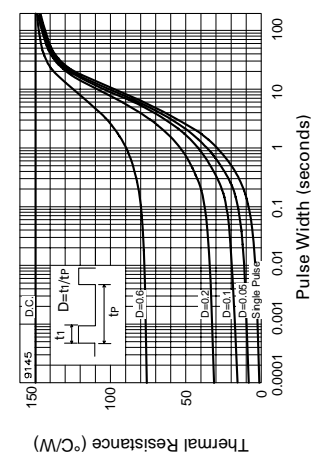
\*Measured under pulsed conditions. Pulse width=300 $\mu$ s. Duty cycle  $\leq$ 2%

### 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

### 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	$I_{CBO}$
Continuous Collector Current	$I_{CER}$
Practical Power Dissipation*	$R \leq 1K\Omega$
Power Dissipation at $T_{amb}=25^{\circ}C$	$I_{EBO}$
Operating and Storage Temperature Range	$V_{CE(sat)}$

\*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	$V_{(BR)CEO}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$
Collector Cut-Off Current	$I_{CBO}$
Collector Cut-Off Current	$I_{CER}$
Emitter Cut-Off Current	$I_{EBO}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$

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## NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

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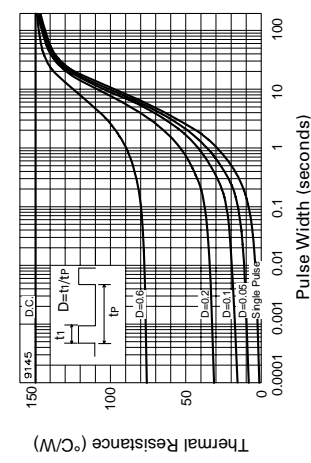
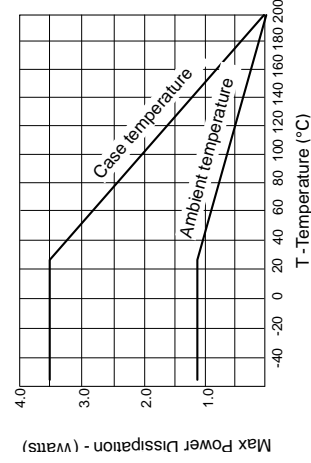
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\*Measured under pulsed conditions. Pulse width=300 $\mu$ s. Duty cycle  $\leq$ 2%

### THERMAL CHARACTERISTICS

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



### 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	$I_{CBO}$
Continuous Collector Current	$I_{CER}$
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Operating and Storage Temperature Range	$V_{CE(sat)}$

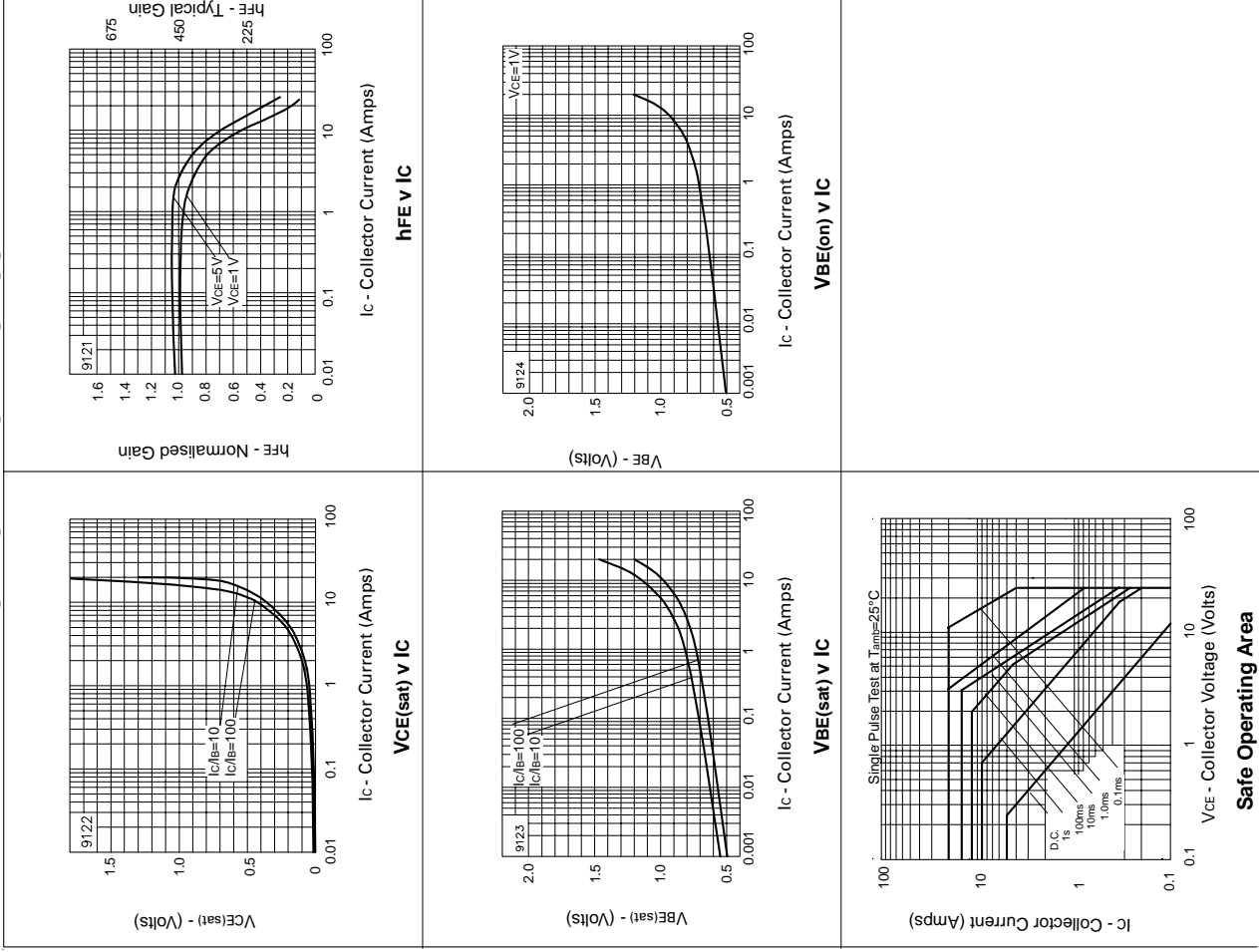
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### ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$
Collector Cut-Off Current	$I_{CBO}$
Collector Cut-Off Current	$I_{CER}$
Emitter Cut-Off Current	$I_{EBO}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$

# ZTX869

## TYPICAL CHARACTERISTICS



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