

ZTX949**PNP SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR****ZTX949**

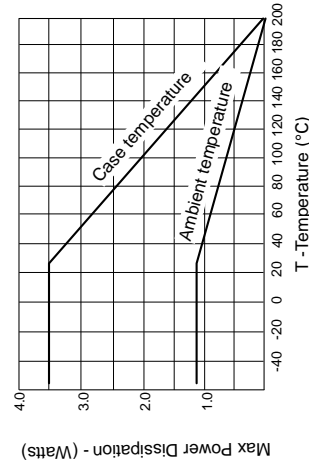
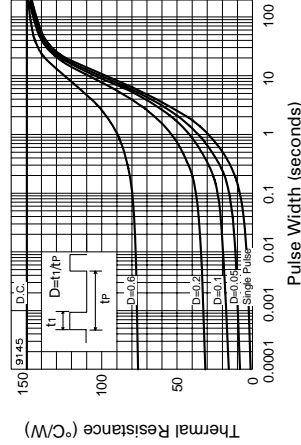
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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$)

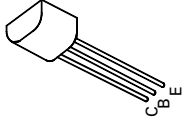
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-860	-1000	mV	$I_C = -5A, V_{CE} = -1V^*$
Static Forward Current Transfer Ratio	h_{FE}	100	200	300		$I_C = -10mA, V_{CE} = -1V$
		100	200			$I_C = -1A, V_{CE} = -1V^*$
		75	140			$I_C = -5A, V_{CE} = -1V^*$
			35			$I_C = -20A, V_{CE} = -1V^*$
Transition Frequency	f_T	100			MHz	$I_C = -100mA, V_{CE} = -10V, f = 50MHz$
Output Capacitance	C_{obo}		122		pF	$V_{CE} = -10V, f = 1MHz$
Switching Times	t_{on} t_{off}		120		ns	$I_C = -4A, I_B = -400mA, V_{CE} = -10V$
			130		ns	$I_B = -400mA, V_{CE} = -10V$

*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	$R_{\theta(j-amb)}$	150	$^{\circ}\text{C/W}$
	$R_{\theta(j-case)}$	50	$^{\circ}\text{C/W}$

**Derating curve****Maximum transient thermal impedance****FEATURES**

- * 4.5 Amps continuous current
- * Up to 20 Amps peak current
- * Very low saturation voltage
- * Excellent gain up to 20 Amps
- * Very low leakage
- * Exceptional gain linearity down to 10mA
- * Spice model available

**E-Line
TO92 Compatible****ABSOLUTE MAXIMUM RATINGS.**

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-30	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 $T_{amb} = 25^{\circ}\text{C}$	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	$V_{(BR)CBO}$	-50	-80		V	$I_C = -100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	-50	-80		V	$I_C = -1\mu A, R_B \leq 1K\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-30	-45		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	nA	$V_{CE} = -40V, T_{amb} = 100^{\circ}\text{C}$
				-1	μA	$V_{CB} = -40V, T_{amb} = 100^{\circ}\text{C}$
Collector Cut-Off Current	I_{CER} $R \leq 1K\Omega$			-50	nA	$V_{CE} = -40V, T_{amb} = 100^{\circ}\text{C}$
				-1	μA	$V_{CB} = -40V, T_{amb} = 100^{\circ}\text{C}$
Emitter Cut-Off Current	I_{EBO}			-10	nA	$V_{EB} = -6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-40			mV	$I_C = -0.5A, I_B = -20mA^*$
		-80			mV	$I_C = -1A, I_B = -20mA^*$
		-100			mV	$I_C = -2A, I_B = -200mA^*$
		-320			mV	$I_C = -5A, I_B = -300mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-960		mV	$I_C = -5A, I_B = -300mA^*$

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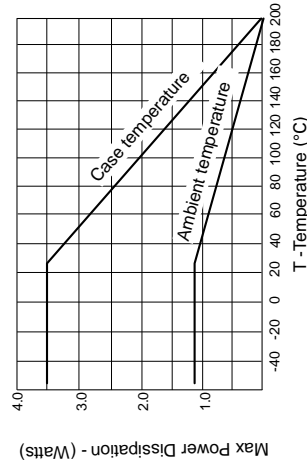
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Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-860	-1000	mV	$I_C = -5\text{A}$, $V_{CE} = -1\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	100	200	300		$I_C = -10\text{mA}$, $V_{CE} = -1\text{V}$
		100	200	300		$I_C = -1\text{A}$, $V_{CE} = -1\text{V}^*$
		75	140	300		$I_C = -5\text{A}$, $V_{CE} = -1\text{V}^*$
			35	300		$I_C = -20\text{A}$, $V_{CE} = -1\text{V}^*$
Transition Frequency	f_T	100			MHz	$I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$, $f = 50\text{MHz}$
Output Capacitance	C_{obo}		122		pF	$V_{CE} = -10\text{V}$, $f = 1\text{MHz}$
Switching Times	t_{on} t_{off}		120		ns	$I_C = -4\text{A}$, $I_B = -400\text{mA}$
			130		ns	$I_B = -400\text{mA}$, $V_{CE} = -10\text{V}$

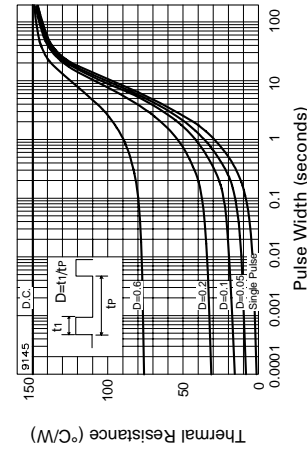
*Measured under pulsed conditions. Pulse width=300 μ s. Duty cycle $\leq 2\%$

THERMAL CHARACTERISTICS

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



Derating curve



Maximum transient thermal impedance

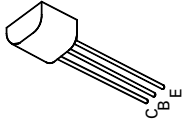
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Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-50	-80		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	-50	-80		V	$I_C = -1\mu\text{A}$, $R_B \leq 1\text{K}\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-30	-45		V	$I_C = -10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	-8		V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			-50	nA	$V_{CE} = -40\text{V}$
				-1	μA	$V_{CB} = -40\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Collector Cut-Off Current	I_{CER}			-50	nA	$V_{CE} = -40\text{V}$
		$R \leq 1\text{K}\Omega$		-1	μA	$V_{CB} = -40\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Emitter Cut-Off Current	I_{EBO}			-10	nA	$V_{EB} = -6\text{V}$
				-40	mV	$I_C = -0.5\text{A}$, $I_B = -20\text{mA}^*$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-80	mV	$I_C = -1\text{A}$, $I_B = -20\text{mA}^*$
				-100	mV	$I_C = -2\text{A}$, $I_B = -200\text{mA}^*$
				-320	mV	$I_C = -5\text{A}$, $I_B = -300\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-1100	mV	$I_C = -5\text{A}$, $I_B = -300\text{mA}^*$

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TYPICAL CHARACTERISTICS

