

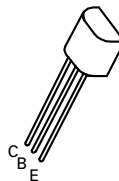
# PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 1 - January 1997

## ZTX1149A

### FEATURES

- \*  $V_{CE0} = -25V$
- \* 3 Amp Continuous Current
- \* 10 Amp Pulse Current
- \* Low Saturation Voltage
- \* High Gain



E-Line  
TO92 Compatible

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX1149A	UNIT
Collector-Base Voltage	$V_{CBO}$	-30	V
Collector-Emitter Voltage	$V_{CEO}$	-25	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Peak Pulse Current	$I_{CM}$	-10	A
Continuous Collector Current	$I_C$	-3	A
Base Current	$I_B$	-500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	1	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	$^{\circ}C$

# ZTX1149A

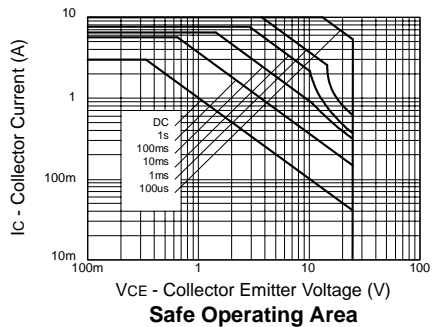
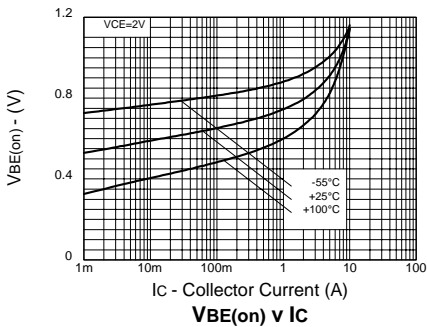
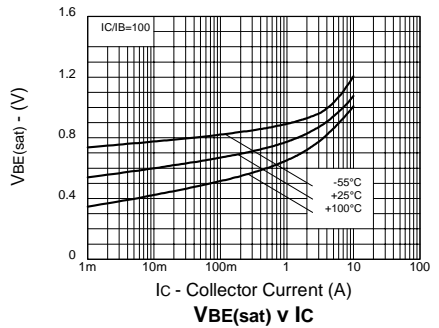
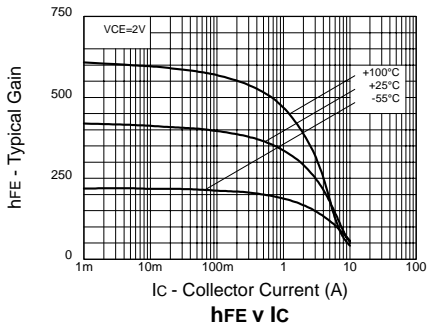
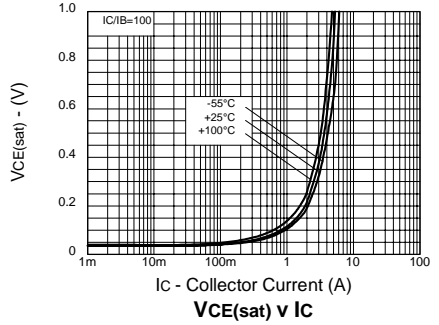
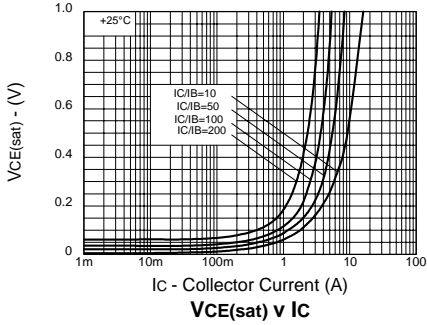
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL				UNIT	CONDITIONS.
		MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-30	-70		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	-25	-60		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-25	-60		V	$I_C = -10\text{mA}^*$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEV}$	-25	-60		V	$I_C = -100\mu\text{A}, V_{EB} = +1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.5		V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$		-0.3	-100	nA	$V_{CB} = -24\text{V}$
Emitter Cut-Off Current	$I_{EBO}$		-0.3	-100	nA	$V_{EB} = -4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$		-0.3	-100	nA	$V_{CE} = -20\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-45 -100 -140 -170 -200	-80 -170 -240 -260 -300	mV mV mV mV mV	$I_C = -0.1\text{A}, I_B = -1.0\text{mA}^*$ $I_C = -0.5\text{A}, I_B = -3\text{mA}^*$ $I_C = -1\text{A}, I_B = -7\text{mA}^*$ $I_C = -2\text{A}, I_B = -30\text{mA}^*$ $I_C = -3\text{A}, I_B = -70\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-870	-1000	mV	$I_C = -3\text{A}, I_B = -70\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-800	-900	mV	$I_C = -3\text{A}, V_{CE} = -2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	270 250 195 115	450 400 320 190 50	800		$I_C = -10\text{mA}, V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -2\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -10\text{A}, V_{CE} = -2\text{V}^*$
Transition Frequency	$f_T$		135		MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	$C_{cb}$		50		pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Switching Times	$t_{on}$		150		ns	$I_C = -4\text{A}, I_B = -40\text{mA}, V_{CC} = -10\text{V}$
	$t_{off}$		270		ns	$I_C = -4\text{A}, I_B = \pm 40\text{mA}, V_{CC} = -10\text{V}$

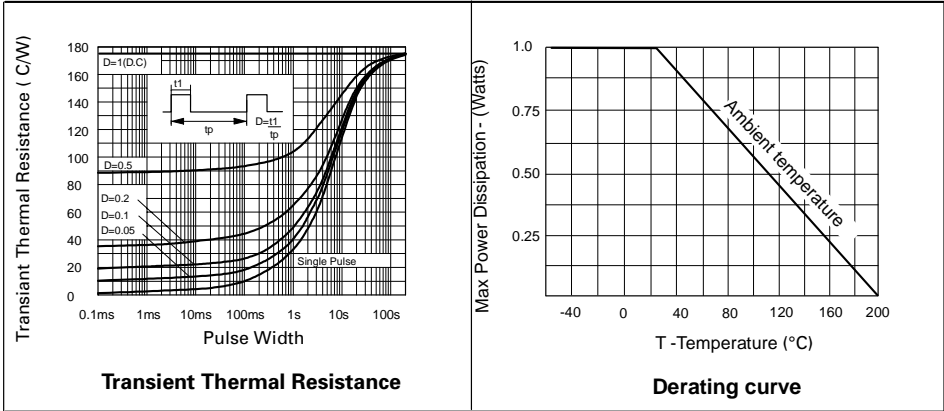
\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

# ZTX1149A

## TYPICAL CHARACTERISTICS



# ZTX1149A



\*ZETEX ZTX1149 Spice model Last revision 10/1/97

\*

.MODEL ZTX1149 PNP IS =9.5e-13 NF=1.002 ISE=1.2e-13 NE =1.4 BF =520

+ VAF=24.97 IKF=5 NR =0.997 ISC=4.5E-13 NC =1.25

+ BR = 40 VAR=2.51 IKR=0.7 RE =20e-3 RB =150e-3

+ RC =10e-3 CJE=490e-12 CJC=150e-12 VJC=1.094

+ MJC= 0.4739 TF =1e-9 TR = 3.5e-9

\*

\*

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