

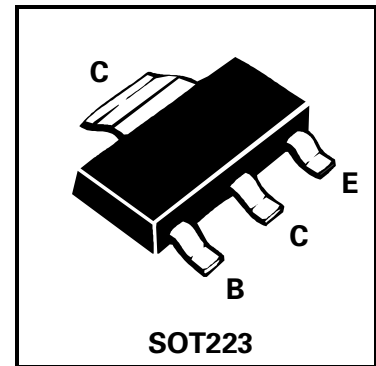
# PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 1 - JANUARY 1997

**FZT1149A**

## FEATURES

- \*  $V_{CE0} = -25V$
- \* 4 Amp Continuous Current
- \* 10 Amp Pulse Current
- \* Low Saturation voltage
- \* High Gain



## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	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	$I_C$	-4	A
Base Current	$I_B$	-500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$ †	$P_{tot}$	2.5	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

† The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 2 inches x 2 inches

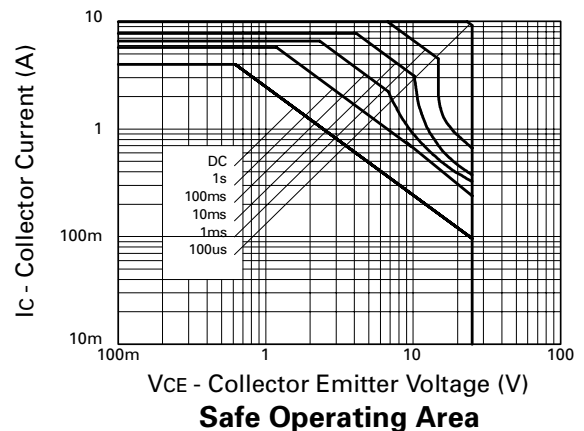
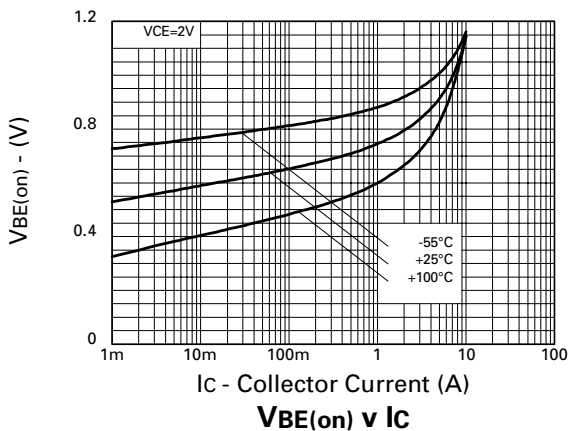
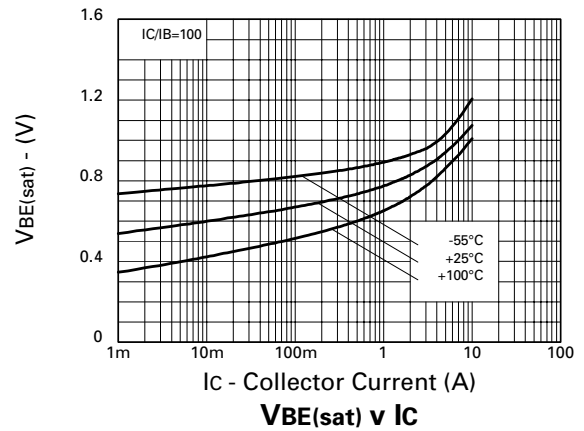
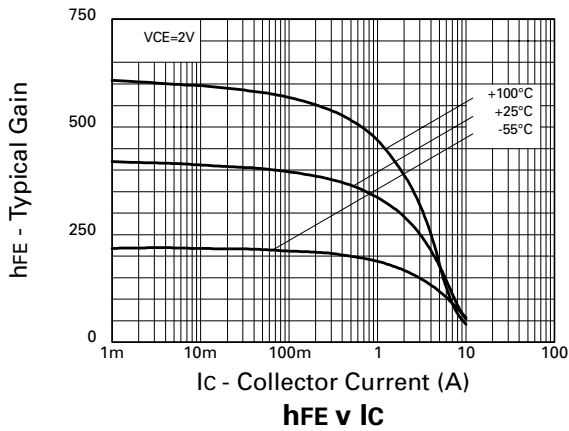
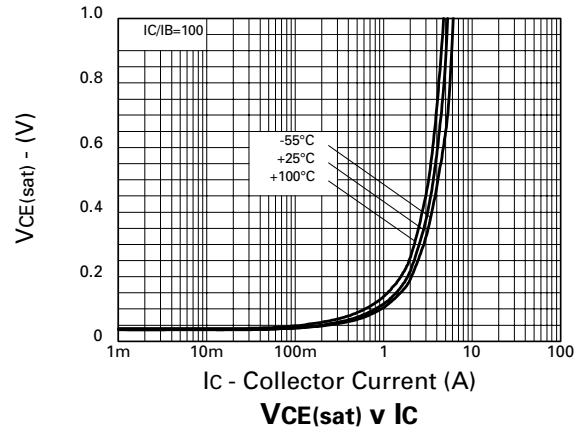
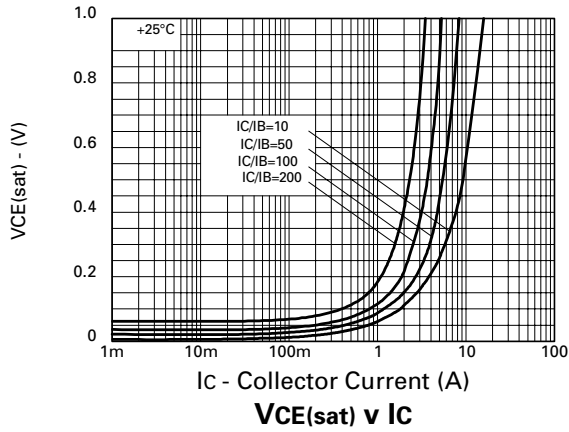
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## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ ).

PARAMETER	SYMBOL	VALUE			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	$V_{CES}$	-25	-60		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CEO}$	-25	-60		V	$I_C = -10\text{mA}$ *
Collector-Emitter Breakdown Voltage	$V_{CEV}$	-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 -230	-80 -170 -240 -260 -350	mV mV mV mV mV	$I_C = -0.1\text{A}$ , $I_B = -1.0\text{mA}$ * $I_C = -0.5\text{A}$ , $I_B = -3\text{mA}$ * $I_C = -1\text{A}$ , $I_B = -7\text{mA}$ * $I_C = -2\text{A}$ , $I_B = -30\text{mA}$ * $I_C = -4\text{A}$ , $I_B = -140\text{mA}$ *
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-960	-1050	mV	$I_C = -4\text{A}$ , $I_B = -140\text{mA}$ *
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-860	-1000	mV	$I_C = -4\text{A}$ , $V_{CE} = -2\text{V}$ *
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	$I_C = -4\text{A}$ , $I_B = \pm 40\text{mA}$ , $V_{CC} = -10\text{V}$

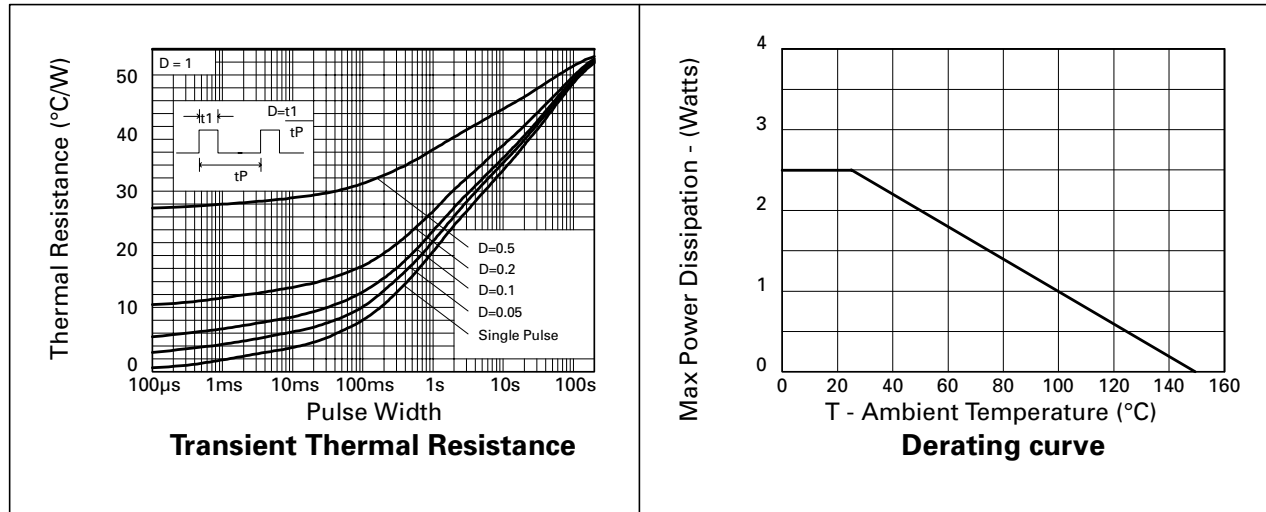
\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

## TYPICAL CHARACTERISTICS



# FZT1149A

## THERMAL CHARACTERISTICS



### SPICE PARAMETERS

\*ZETEX FZT1149A Spice model Last revision 10/1/97

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.MODEL FZT1149A 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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