

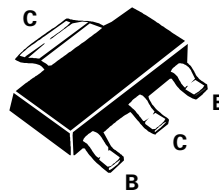
PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 1 - JANUARY 1997

FZT1149A

FEATURES

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



SOT223

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

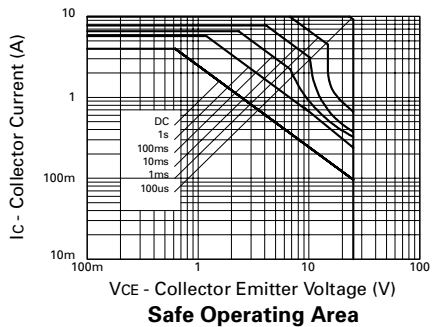
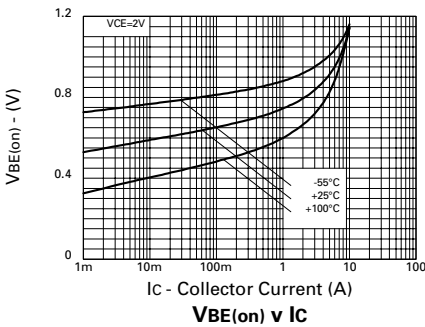
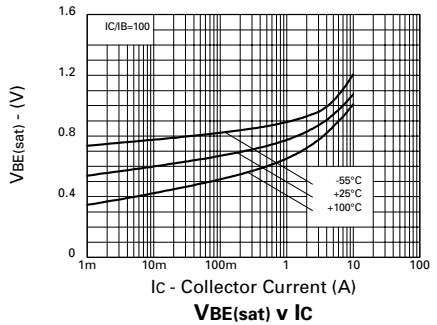
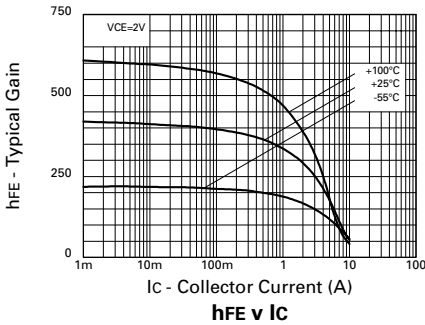
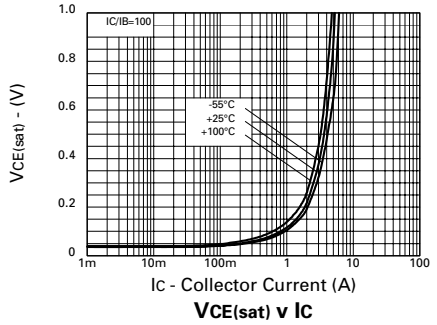
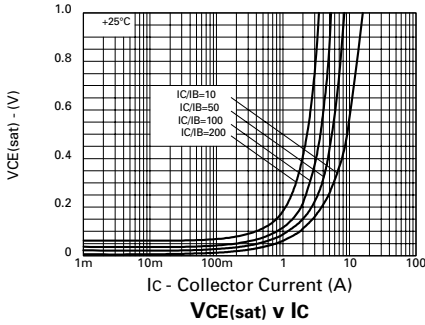
FZT1149A

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_r		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	$I_C = -4\text{A}$, $I_B = \pm 40\text{mA}$, $V_{CC} = -10\text{V}$

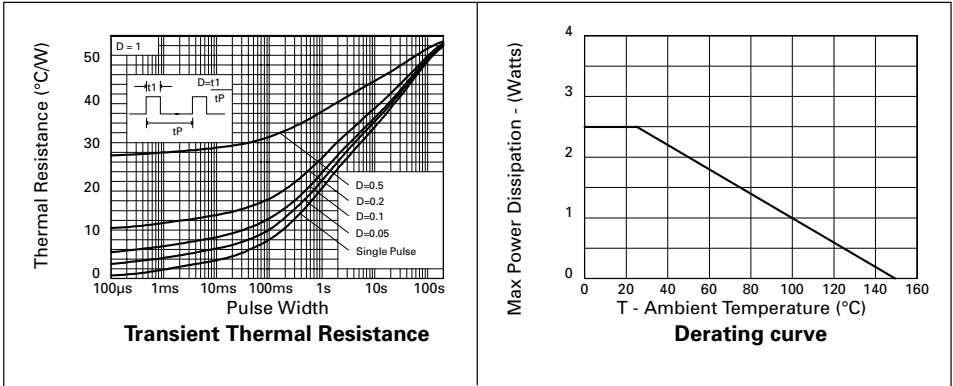
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



FZT1149A

THERMAL CHARACTERISTICS



SPICE PARAMETERS

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

*

```
.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
```

*

*

© 1995 ZETEX PLC

The copyright in this model and the design embodied belong to Zetex PLC ("Zetex"). It is supplied free of charge by Zetex for the purpose of research and design and may be used or copied intact (including this notice) for that purpose only. All other rights are reserved. The model is believed accurate but no condition or warranty as to its merchantability or fitness for purpose is given and no liability in respect of any use is accepted by Zetex PLC, its distributors or agents.