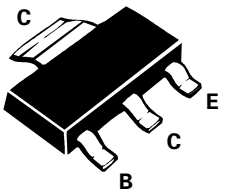
PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

FZT1149A

ISSUE 1 - JANUARY 1997

FEATURES
* V_{CEO}= -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°C †	P_{tot}	2.5	W
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°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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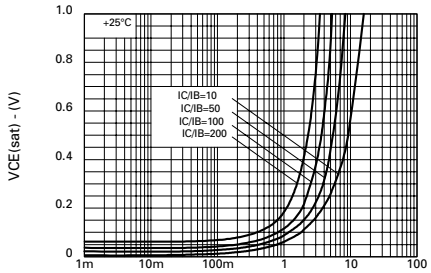
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C).

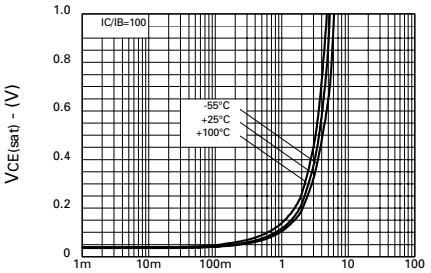
PARAMETER	SYMBOL	VALUE			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-30	-70		V	I_C=-100μA
Collector-Emitter Breakdown Voltage	V_{CES}	-25	-60		V	I_C=-100μA
Collector-Emitter Breakdown Voltage	V_{CEO}	-25	-60		V	I_C=-10mA *
Collector-Emitter Breakdown Voltage	V_{CEV}	-25	-60		V	I_C=-100μA, V_{EB}=+1V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.5		V	I_E=-100μA
Collector Cut-Off Current	I_{CBO}		-0.3	-100	nA	V_{CB}=-24V
Emitter Cut-Off Current	I_{EBO}		-0.3	-100	nA	V_{EB}=-4V
Collector Emitter Cut-Off Current	I_{CES}		-0.3	-100	nA	V_{CE}=-20V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-45 -100 -140 -170 -230	-80 -170 -240 -260 -350	mV mV mV mV mV	I_C=-0.1A, I_B=-1.0mA* I_C=-0.5A, I_B=-3mA* I_C=-1A, I_B=-7mA* I_C=-2A, I_B=-30mA* I_C=-4A, I_B=-140mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-960	-1050	mV	I_C=-4A, I_B=-140mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-860	-1000	mV	I_C=-4A, V_{CE}=-2V*
Static Forward Current Transfer Ratio	h_{FE}	270 250 195 115	450 400 320 190 50	800		I_C=-10mA, V_{CE}=-2V* I_C=-0.5A, V_{CE}=-2V* I_C=-2A, V_{CE}=-2V* I_C=-5A, V_{CE}=-2V* I_C=-10A, V_{CE}=-2V*
Transition Frequency	f_T		135		MHz	I_C=-50mA, V_{CE}=-10V f=50MHz
Output Capacitance	C_{cb}		50		pF	VCB=- 10V, f= 1MHz
Switching Times	t_{on}		150		ns	I_C=-4A, I_B=-40mA, V_{CC}=-10V
	t_{off}		270		ns	I_C=-4A, I_B=±40mA, V_{CC}=-10V

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%.

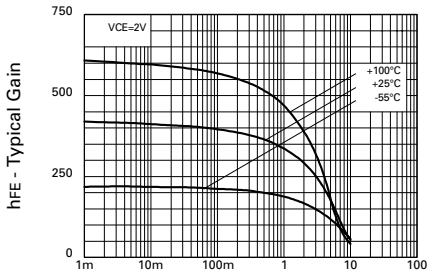
TYPICAL CHARACTERISTICS



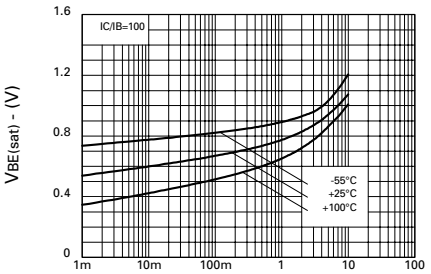
VCE(sat) v IC



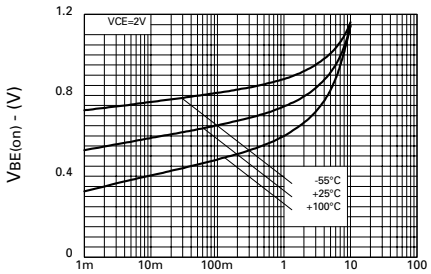
VCE(sat) v IC



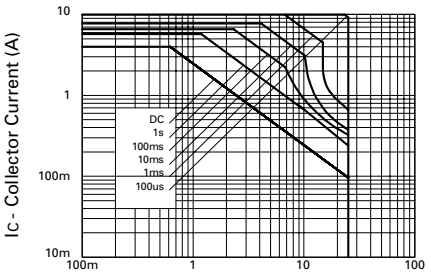
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area

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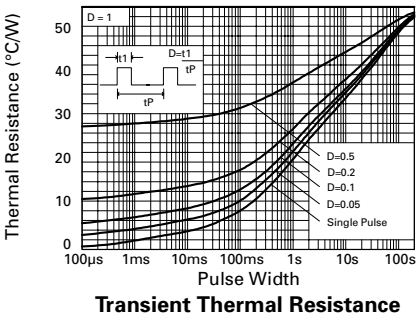
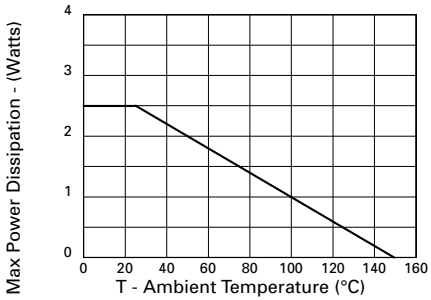
THERMAL CHARACTERISTICS



Transient Thermal Resistance



Derating curve

SPICE PARAMETERS

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*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
*
*
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