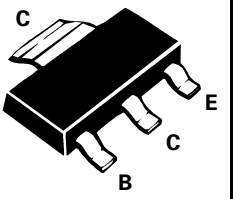
SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

FZT1053A

ISSUE 2 - MARCH 2001

FEATURES

* V_{CEO} = 75V
* 4.5 Amp Continuous Current
* 10 Amp Pulse Current
* Low Saturation Voltage
* High Gain
* Extremely Low Equivalent On-resistance; **$R_{CE(sat)}$ = 78mΩ at 4.5A**



SOT223

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	75	V
Emitter-Base Voltage	V_{EBO}	7.5	V
Peak Pulse Current	I_{CM}	10	A
Continuous Collector Current	I_C	**4.5**	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

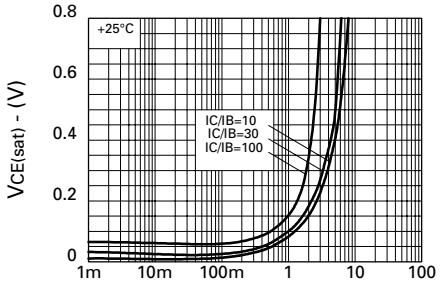
† The power which can be dissipated assuming the device is mounted in typical manner on a PCB with copper equal to 2 inches x 2 inches.

FZT1053A

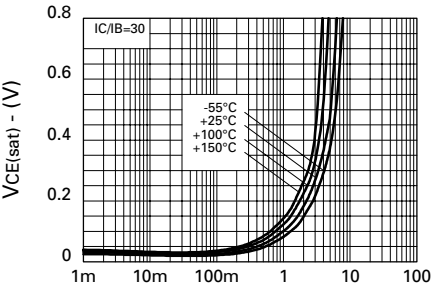
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	250		V	I_C=100μA
Collector-Emitter Breakdown Voltage	V_{CES}	150	250		V	I_C=100μA
Collector-Emitter Breakdown Voltage	V_{CEO}	75	100		V	I_C=10mA
Collector-Emitter Breakdown Voltage	V_{CEV}	150	250		V	I_C=100μA, V_{EB}=1V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	7.5	8.8		V	I_E=100μA
Collector Cut-Off Current	I_{CBO}		0.9	10	nA	V_{CB}=120V
Emitter Cut-Off Current	I_{EBO}		0.3	10	nA	V_{EB}=4V
Collector Emitter Cut-Off Current	I_{CES}		1.5	10	nA	V_{CES}=120V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		21 55 150 160 350	30 75 200 210 440	mV mV mV mV mV	I_C=0.2A, I_B=20mA* I_C=0.5A, I_B=20mA* I_C=1A, I_B=10mA* I_C=2A, I_B=100mA* I_C=4.5A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		900	1000	mV	I_C=3A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		825	950	mV	I_C=3A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	270 300 300 40	440 450 450 60 20	1200		I_C=10mA, V_{CE}=2V* I_C=0.5A, V_{CE}=2V* I_C=1A, V_{CE}=2V* I_C=4.5A, V_{CE}=2V* I_C=10A, V_{CE}=2V*
Switching Times	t_{on}		162		ns	I_C=2A, I_{B1}=I_{B2}=±20mA, V_{CC}=50V
	t_{off}		900		ns	I_C=2A, I_{B1}=I_{B2}=±20mA, V_{CC}=50V
Transition Frequency	f_T		140		MHz	I_C=50mA, V_{CE}=10V f=100MHz
Output Capacitance	C_{obo}		21	30	pF	V_{CB}=10V, f=1MHz

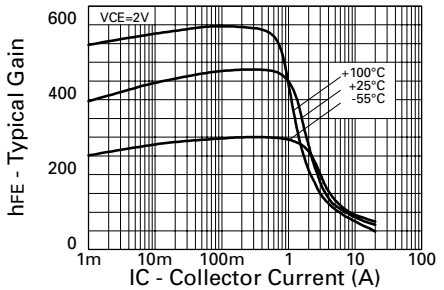
TYPICAL CHARACTERISTICS



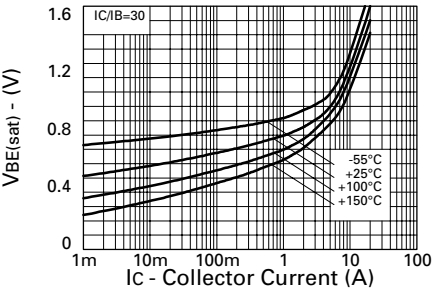
VCE(sat) v IC



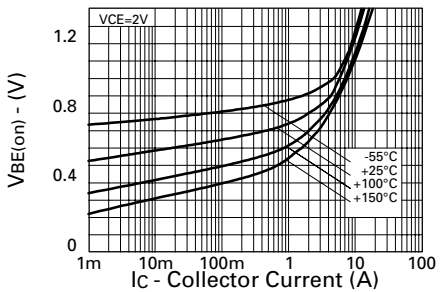
VCE(sat) v IC



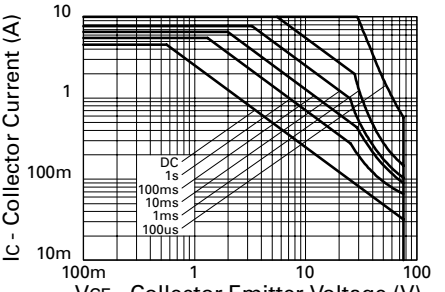
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area

FZT1053A

SPICE PARAMETERS

```
*ZETEX  FZT1053A Spice model   Last revision 18/3/97
*
 .MODEL FZT1053A
NPN IS=2.1E-12  NF=1.0  BF=600  IKF=2.2  VAF=100
+            ISE=0.9E-13  NE=1.25  NR=0.99  BR=150  IKR=2.5  VAR=15
+            ISC=5.0E-10  NC=1.76  RB=0.1  RE=0.028  RC=0.016
+            CJC=75.1E-12  CJE=520E-12  MJC=0.415  MJE=0.367
+            VJC=0.512  VJE=0.766  TF=550E-12  TR=22E-9
*
```


Zetex plc.
Fields New Road, Chadderton, Oldham, OL9-8NP, United Kingdom.
Telephone: (44)161 622 4422 (Sales), (44)161 622 4444 (General Enquiries)
Fax: (44)161 622 4420

Zetex GmbH
Streitfeldstraße 19
D-81673 München
Germany
Telefon: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49

Zetex Inc.
47 Mall Drive, Unit 4
Commack NY 11725
USA
Telephone: (631) 543-7100
Fax: (631) 864-7630

Zetex (Asia) Ltd.
3701-04 Metroplaza, Tower 1
Hing Fong Road,
Kwai Fong, Hong Kong
Telephone:(852) 26100 611
Fax: (852) 24250 494

These are supported by
agents and distributors in
major countries world-wide

http://www.zetex.com

littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.