

**FZT653**

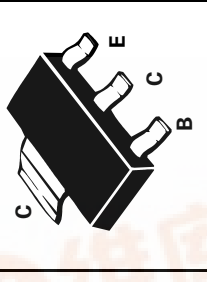
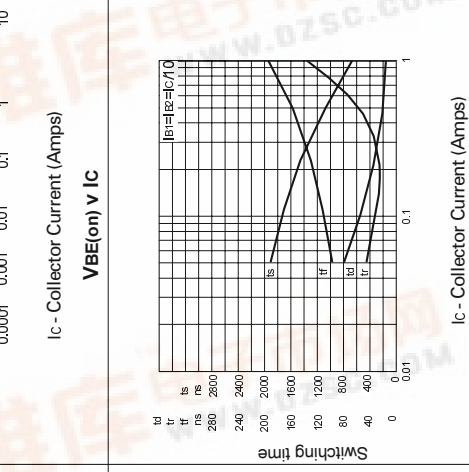
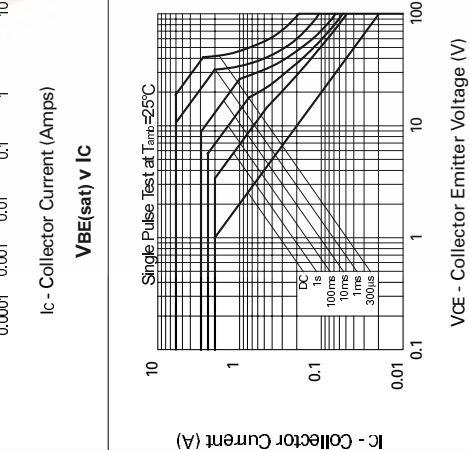
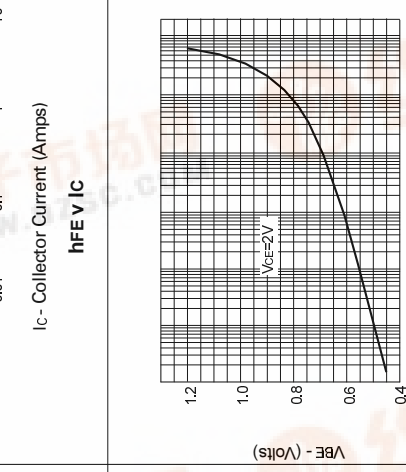
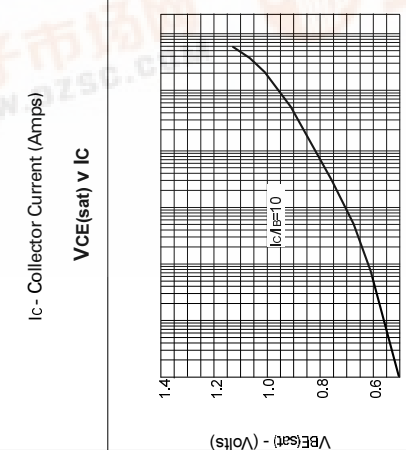
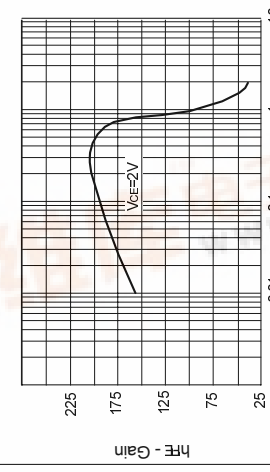
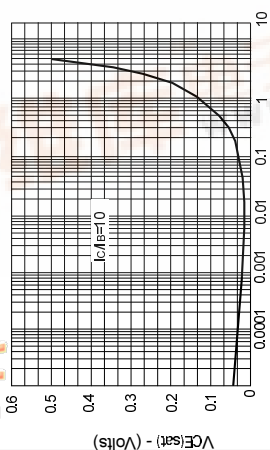
**SOT223 NPN SILICON PLANAR  
HIGH PERFORMANCE TRANSISTOR**

ISSUE 3—FEBRUARY, 1995

**FEATURES**

- \* Low saturation voltage

**TYPICAL CHARACTERISTICS**



**FZT653**

COMPLEMENTARY TYPE — FZT753

PARTMARKING DETAIL — FZT653

**ABSOLUTE MAXIMUM RATINGS.**

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	120	V
Collector-Emitter Voltage	V <sub>CEO</sub>	100	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Peak Pulse Current	I <sub>CM</sub>	6	A
Continuous Collector Current	I <sub>C</sub>	2	A
Power Dissipation at T <sub>amb</sub> =25°C	P <sub>tot</sub>	2	W
Operating and Storage Temperature Range	T <sub>j</sub> ; T <sub>stg</sub>	-55 to +150	°C

**ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated).**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	120			V	I <sub>C</sub> =100µA
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	100			V	I <sub>C</sub> =10mA*
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	5			V	I <sub>E</sub> =100µA
Collector Cut-Off Current	I <sub>CBO</sub>			0.1	µA	V <sub>CB</sub> =100V
Emitter Cut-Off Current	I <sub>EBO</sub>			10	µA	V <sub>CE</sub> =100V, T <sub>amb</sub> =100°C
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	0.13	0.23	0.3	V	V <sub>BE</sub> =4V
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	0.9	0.9	1.25	V	I <sub>C</sub> =1A, I <sub>B</sub> =100mA*
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>		0.8	1.0	V	I <sub>C</sub> =1A, V <sub>CE</sub> =2V*
Static Forward Current Transfer Ratio	h <sub>FE</sub>	70	200	300		I <sub>C</sub> =50mA, V <sub>CE</sub> =2V*
Transition Frequency	f <sub>T</sub>	140	175		MHz	I <sub>C</sub> =500mA, V <sub>CE</sub> =2V*
Output Capacitance	C <sub>ob0</sub>		80		pF	I <sub>C</sub> =1A, V <sub>CE</sub> =2V*
Switching Times	t <sub>on</sub>		1200		ns	I <sub>C</sub> =100mA, V <sub>CE</sub> =5V
	t <sub>off</sub>				ns	f=100MHz

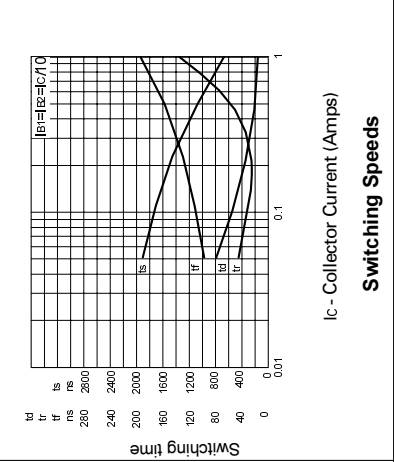
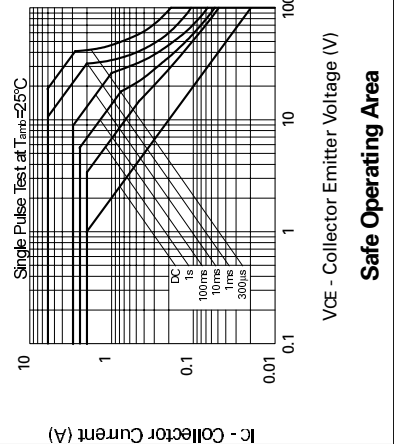
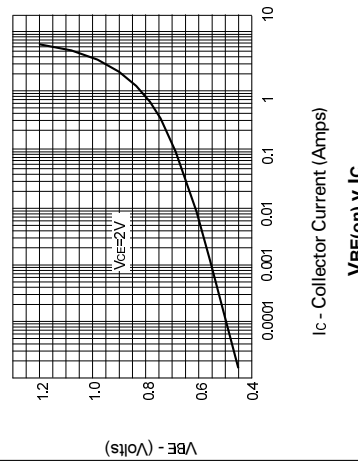
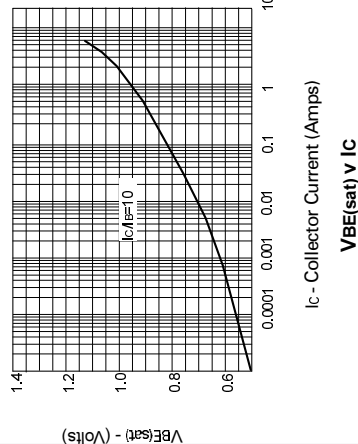
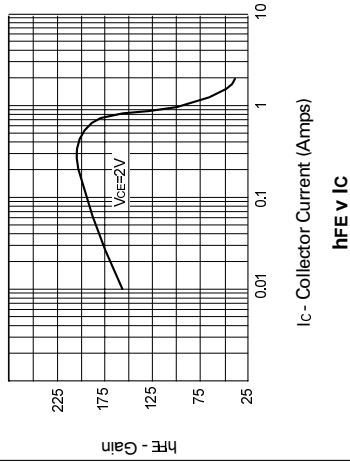
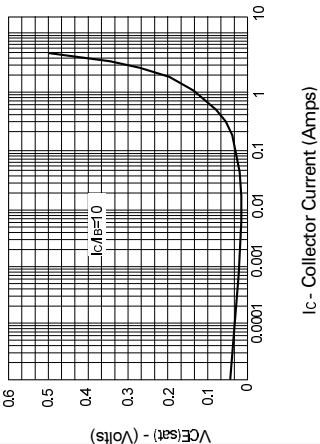
\*Measured under pulsed conditions. Pulse Width=300µs. Duty cycle ≤2%  
Spice parameter data is available upon request for this device

ISSUE 3 - FEBRUARY 1995

FEATURES

- \* Low saturation voltage

TYPICAL CHARACTERISTICS



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	120	V
Collector-Emitter Voltage	V <sub>CEO</sub>	100	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Peak Pulse Current	I <sub>CM</sub>	6	A
Continuous Collector Current	I <sub>C</sub>	2	A
Power Dissipation at T <sub>amb</sub> =25°C	P <sub>tot</sub>	2	W
Operating and Storage Temperature Range	T <sub>j</sub> ; T <sub>stg</sub>	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	120			V	I <sub>C</sub> =100μA
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	100			V	I <sub>C</sub> =10mA*
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	5			V	I <sub>E</sub> =100μA
Collector Cut-Off Current	I <sub>CBO</sub>			0.1	μA	V <sub>CE</sub> =100V
Emitter Cut-Off Current	I <sub>EBO</sub>			10	μA	V <sub>CE</sub> =100V, T <sub>amb</sub> =100°C
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		0.13	0.3	V	V <sub>BE</sub> =4V
			0.23	0.5	V	I <sub>C</sub> =1A, I <sub>B</sub> =100mA*
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		0.9	1.25	V	I <sub>C</sub> =1A, I <sub>B</sub> =100mA*
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>		0.8	1.0	V	I <sub>C</sub> =1A, V <sub>CE</sub> =2V*
Static Forward Current Transfer Ratio	h <sub>FE</sub>	70	200	300		I <sub>C</sub> =50mA, V <sub>CE</sub> =2V*
		100	200			I <sub>C</sub> =500mA, V <sub>CE</sub> =2V*
		55	110			I <sub>C</sub> =1A, V <sub>CE</sub> =2V*
		25	55			I <sub>C</sub> =2A, V <sub>CE</sub> =2V*
Transition Frequency	f <sub>T</sub>	140	175		MHz	I <sub>C</sub> =100mA, V <sub>CE</sub> =5V
						f=100MHz
Output Capacitance	C <sub>ob0</sub>			30	pF	V <sub>CE</sub> =10V, f=1MHz
Switching Times	t <sub>on</sub>		80		ns	I <sub>C</sub> =500mA, V <sub>CC</sub> =10V
	t <sub>off</sub>		1200		ns	I <sub>B</sub> =I <sub>BZ</sub> =50mA

\*Measured under pulsed conditions. Pulse Width=300μs. Duty cycle ≤2%  
Spice parameter data is available upon request for this device

