

SOT223 NPN SILICON PLANAR HIGH PERFORMANCE TRANSISTOR

ISSUE 3- FEBRUARY 1995

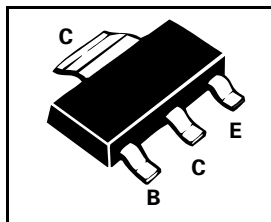
FEATURES

- * Low saturation voltage

COMPLEMENTARY TYPE – FZT753

PARTMARKING DETAIL – FZT653

FZT653



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	6	A
Continuous Collector Current	I_C	2	A
Power Dissipation at $T_{amb}=25^{\circ}C$	P_{tot}	2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

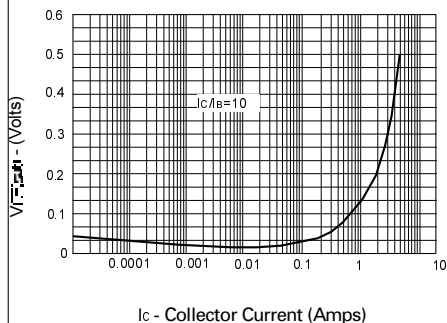
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	120			V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	100			V	$I_C=10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu A$
Collector Cut-Off Current	I_{CBO}			0.1 10	μA	$V_{CB}=100V$ $V_{CB}=100V, T_{amb}=100^{\circ}C$
Emitter Cut-Off Current	I_{EBO}			0.1	μA	$V_{EB}=4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.13 0.23	0.3 0.5	V	$I_C=1A, I_B=100mA^*$ $I_C=2A, I_B=200mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	$I_C=1A, I_B=100mA^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1.0	V	$I_C=1A, V_{CE}=2V^*$
Static Forward Current Transfer Ratio	h_{FE}	70 100 55 25	200 200 110 55	300		$I_C=50mA, V_{CE}=2V^*$ $I_C=500mA, V_{CE}=2V^*$ $I_C=1A, V_{CE}=2V^*$ $I_C=2A, V_{CE}=2V^*$
Transition Frequency	f_T	140	175		MHz	$I_C=100mA, V_{CE}=5V$ $f=100MHz$
Output Capacitance	C_{obo}			30	pF	$V_{CB}=10V, f=1MHz$
Switching Times	t_{on} t_{off}		80 1200		ns	$I_C=500mA, V_{CC}=10V$ $I_{B1}=I_{B2}=50mA$

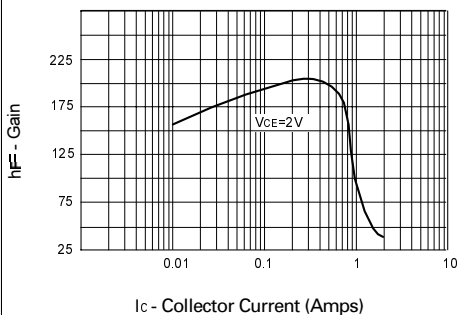
*Measured under pulsed conditions. Pulse Width=300 μs . Duty cycle $\leq 2\%$
Spice parameter data is available upon request for this device

FZT653

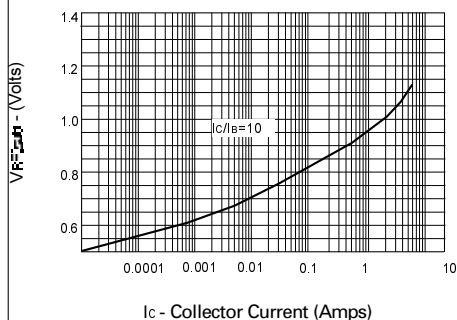
TYPICAL CHARACTERISTICS



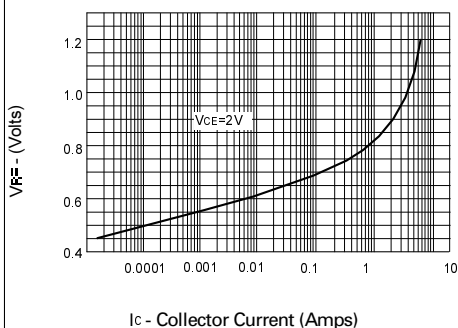
$V_{CE(sat)}$ v I_C



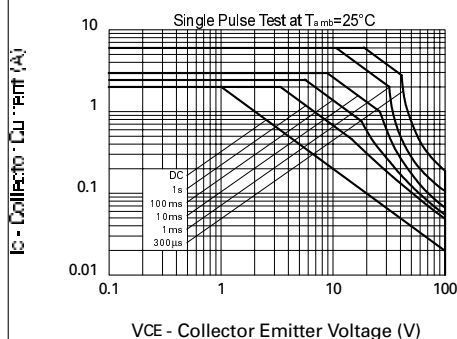
h_{FE} v I_C



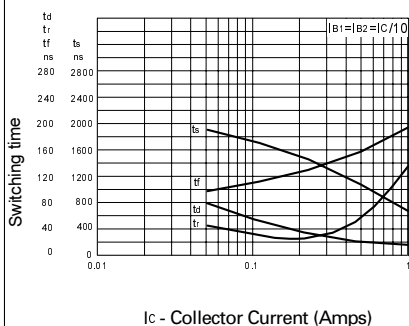
$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area



Switching Speeds