

SOT223 NPN SILICON PLANAR HIGH PERFORMANCE TRANSISTORS

FZT651

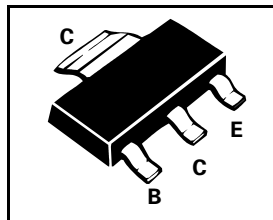
ISSUE 2 – FEBRUARY 1995

FEATURES

- * 60 Volt V_{CE0}
- * 3 Amp continuous current
- * Low saturation voltage

COMPLEMENTARY TYPE – FZT751

PARTMARKING DETAIL – FZT651



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	6	A
Continuous Collector Current	I_C	3	A
Power Dissipation at $T_{amb}=25^\circ\text{C}$	P_{tot}	2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

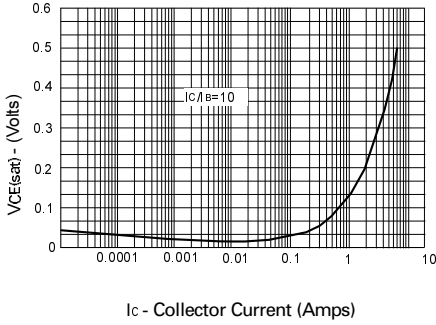
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80			V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60			V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			0.1 10	μA	$V_{CB}=60\text{V}$ $V_{CE}=60\text{V}, T_{amb}=100^\circ\text{C}$
Emitter Cut-Off Current	I_{EBO}			0.1	μA	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.12 0.43	0.3 0.6	V	$I_C=1\text{A}, I_B=100\text{mA}^*$ $I_C=3\text{A}, I_B=300\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	$I_C=1\text{A}, I_B=100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1	V	$I_C=1\text{A}, V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	70 100 80 40	200 200 170 80	300		$I_C=50\text{mA}, V_{CE}=2\text{V}^*$ $I_C=500\text{mA}, V_{CE}=2\text{V}^*$ $I_C=1\text{A}, V_{CE}=2\text{V}^*$ $I_C=2\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	f_T	140	175		MHz	$I_C=100\text{mA}, V_{CE}=5\text{V}$ $f=100\text{MHz}$
Switching Times	t_{on}		45		ns	$I_C=500\text{mA}, V_{CC}=10\text{V}$
	t_{off}		800		ns	$I_{B1}=I_{B2}=50\text{mA}$
Output Capacitance	C_{obo}			30	pF	$V_{CB}=10\text{V}, f=1\text{MHz}$

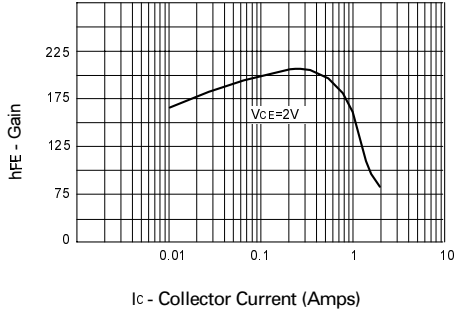
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$
Spice parameter data is available upon request for this device

FZT651

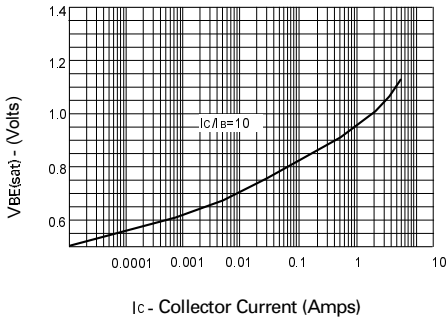
TYPICAL CHARACTERISTICS



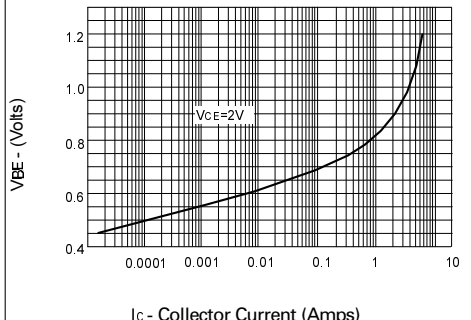
$V_{CE(sat)}$ v I_C



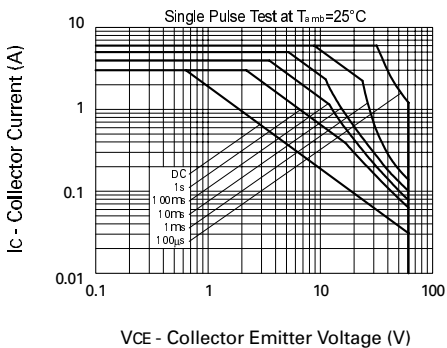
h_{FE} v I_C



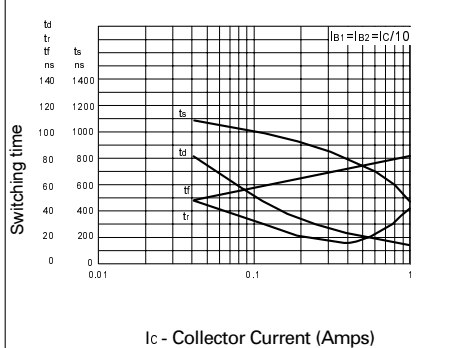
$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area



Switching Speeds