

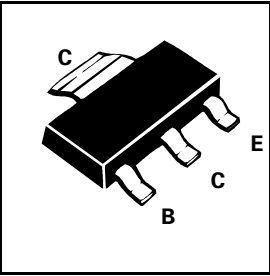
# SOT223 NPN SILICON PLANAR HIGH CURRENT (HIGH PERFORMANCE) TRANSISTORS

**FZT851**  
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ISSUE 2 - OCTOBER 1995

## FEATURES

- \* Extremely low equivalent on-resistance;  $R_{CE(sat)}$  **44mΩ at 5A**
- \* 6 Amps continuous current, up to 20 Amps peak current
- \* Very low saturation voltages
- \* Excellent  $h_{FE}$  characteristics specified up to 10 Amps



PARTMARKING DETAILS - DEVICE TYPE IN FULL

COMPLEMENTARY TYPES - FZT851 FZT951

FZT853 FZT953

## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	FZT851	FZT853	UNIT
Collector-Base Voltage	$V_{CBO}$	150	200	V
Collector-Emitter Voltage	$V_{CEO}$	60	100	V
Emitter-Base Voltage	$V_{EBO}$	6	6	V
Peak Pulse Current	$I_{CM}$	20	10	A
Continuous Collector Current	$I_C$	<b>6</b>		<b>A</b>
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	<b>3</b>		<b>W</b>
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150		$^{\circ}C$

\*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 4 square inch minimum

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	220		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	150	220		V	$I_C = 1\mu\text{A}$ , $R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60	85		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$			50 1	nA $\mu\text{A}$	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$ , $T_{amb} = 100^{\circ}\text{C}$
Collector Cut-Off Current	$I_{CER}$ $R \leq 1\text{k}\Omega$			50 1	nA $\mu\text{A}$	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$ , $T_{amb} = 100^{\circ}\text{C}$
Emitter Cut-Off Current	$I_{EBO}$			10	nA	$V_{EB} = 6\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			50 100 170 375	mV mV mV mV	$I_C = 0.1\text{A}$ , $I_B = 5\text{mA}^*$ $I_C = 1\text{A}$ , $I_B = 50\text{mA}^*$ $I_C = 2\text{A}$ , $I_B = 50\text{mA}^*$ $I_C = 6\text{A}$ , $I_B = 300\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1200	mV	$I_C = 6\text{A}$ , $I_B = 300\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1150	mV	$I_C = 6\text{A}$ , $V_{CE} = 1\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	100 100 75 25	200 200 120 50	300		$I_C = 10\text{mA}$ , $V_{CE} = 1\text{V}$ $I_C = 2\text{A}$ , $V_{CE} = 1\text{V}^*$ $I_C = 5\text{A}$ , $V_{CE} = 1\text{V}^*$ $I_C = 10\text{A}$ , $V_{CE} = 1\text{V}^*$
Transition Frequency	$f_T$		130		MHz	$I_C = 100\text{mA}$ , $V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	$C_{obo}$		45		pF	$V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$
Switching Times	$t_{on}$ $t_{off}$		45 1100		ns ns	$I_C = 1\text{A}$ , $I_{B1} = 100\text{mA}$ $I_{B2} = 100\text{mA}$ , $V_{CC} = 10\text{V}$

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

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## TYPICAL CHARACTERISTICS

