

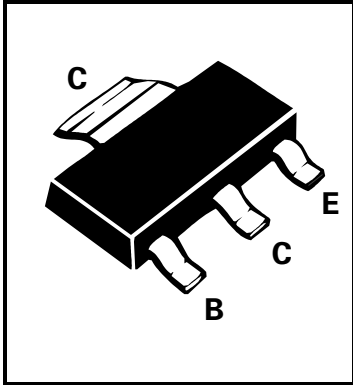
# SOT223 NPN SILICON PLANAR HIGH CURRENT (HIGH PERFORMANCE) TRANSISTOR

**FZT869**

ISSUE 2 - JANUARY 1996

## FEATURES

- \* Extremely low equivalent on-resistance;  $R_{CE(sat)} 36m\Omega$  at 5A
- \* **7 Amp** continuous collector current (20 Amp peak)
- \* Very low saturation voltages
- \* Excellent gain characteristics specified upto 20 Amp
- \*  $P_{tot} = 3$  Watts



PARTMARKING DETAILS - FZT869

## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	25	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Peak Pulse Current	$I_{CM}$	20	A
Continuous Collector Current	$I_C$	7	A
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	3	W
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 inch square minimum

# FZT869

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60	120		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	60	120		V	$I_C=1\mu\text{A}, R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25	35		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 $\mu\text{A}$	$V_{CB}=50\text{V}$ $V_{CB}=50\text{V}, T_{amb}=100^{\circ}\text{C}$
Collector Cut-Off Current	$I_{CER}$ $R \leq 1\text{k}\Omega$			50 1	nA $\mu\text{A}$	$V_{CB}=50\text{V}$ $V_{CB}=50\text{V}, T_{amb}=100^{\circ}\text{C}$
Emitter Cut-Off Current	$I_{EBO}$			10	nA	$V_{EB}=6\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		35 67 168	50 110 215 350	mV mV mV mV	$I_C=0.5\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=10\text{mA}^*$ $I_C=2\text{A}, I_B=10\text{mA}^*$ $I_C=6.5\text{A}, I_B=150\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.2	V	$I_C=6.5\text{A}, I_B=300\text{mA}$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1.13	V	$I_C=6.5\text{A}, V_{CE}=1\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	300 300 200 40	450 450 300 100			$I_C=10\text{mA}, V_{CE}=1\text{V}$ $I_C=1\text{A}, V_{CE}=1\text{V}^*$ $I_C=7\text{A}, V_{CE}=1\text{V}^*$ $I_C=20\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	$f_T$		100		MHz	$I_C=100\text{mA}, V_{CE}=10\text{V}$ $f=50\text{MHz}$
Output Capacitance	$C_{obo}$		70		pF	$V_{CB}=10\text{V}, f=1\text{MHz}^*$
Switching Times	$t_{on}$ $t_{off}$		60 680		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