

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

FZT849

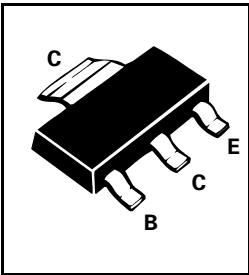
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## FEATURES

- \* 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<sub>tot</sub> =3 Watts**

PARTMARKING DETAILS - FZT849

COMPLEMENTARY TYPE - FZT949



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | VALUE       | UNIT        |
|--|----------------|-------------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | 80          | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | 30          | 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

# FZT849

## 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                      | 120                     |                         | V                    | $I_C=100\mu\text{A}$  |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CER}$                         | 80                      | 120                     |                         | V                    | $I_C=1\mu\text{A}$ , $R_B \leq 1\text{k}\Omega$   |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$                         | 30                      | 40                      |                         | 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<br>1                 | nA<br>$\mu\text{A}$  | $V_{CB}=70\text{V}$<br>$V_{CB}=70\text{V}$ , $T_{amb}=100^{\circ}\text{C}$  |
| Collector Cut-Off Current             | $I_{CER}$<br>$R \leq 1\text{k}\Omega$ |                         |                         | 50<br>1                 | nA<br>$\mu\text{A}$  | $V_{CB}=70\text{V}$<br>$V_{CB}=70\text{V}$ , $T_{amb}=100^{\circ}\text{C}$  |
| Emitter Cut-Off Current               | $I_{EBO}$                             |                         |                         | 10                      | nA                   | $V_{EB}=6\text{V}$  |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$                         |                         | 35<br>67<br>168         | 50<br>110<br>215<br>350 | mV<br>mV<br>mV<br>mV | $I_C=0.5\text{A}$ , $I_B=20\text{mA}^*$<br>$I_C=1\text{A}$ , $I_B=20\text{mA}^*$<br>$I_C=2\text{A}$ , $I_B=20\text{mA}^*$<br>$I_C=6.5\text{A}$ , $I_B=300\text{mA}^*$ |
| 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 | $h_{FE}$                              | 100<br>100<br>100<br>30 | 200<br>200<br>150<br>65 | 300                     |                      | $I_C=10\text{mA}$ , $V_{CE}=1\text{V}$<br>$I_C=1\text{A}$ , $V_{CE}=1\text{V}^*$<br>$I_C=7\text{A}$ , $V_{CE}=1\text{V}^*$<br>$I_C=20\text{A}$ , $V_{CE}=2\text{V}^*$ |
| Transition Frequency                  | $f_T$                                 |                         | 100                     |                         | MHz                  | $I_C=100\text{mA}$ , $V_{CE}=10\text{V}$<br>$f=50\text{MHz}$  |
| Output Capacitance                    | $C_{obo}$                             |                         | 75                      |                         | pF                   | $V_{CB}=10\text{V}$ , $f=1\text{MHz}^*$   |
| Switching Times                       | $t_{on}$<br>$t_{off}$                 |                         | 45<br>630               |                         | ns<br>ns             | $I_C=1\text{A}$ , $I_{B1}=100\text{mA}$<br>$I_{B2}=100\text{mA}$ , $V_{CC}=10\text{V}$  |

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

## TYPICAL CHARACTERISTICS

