

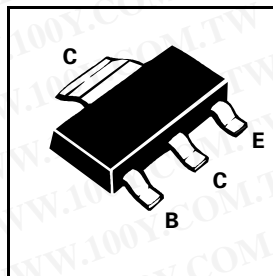
# SOT 223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 2 - JUNE 2007

**FZT1049A**

## FEATURES

- \*  $V_{CE0} = 25V$
- \* 5 Amp Continuous Current
- \* 20 Amp Pulse Current
- \* Low Saturation Voltage
- \* High Gain
- \* Extremely Low Equivalent On-resistance;  $R_{CE(sat)} = 50m\Omega$  at 5A



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                    | SYMBOL         | VALUE       | UNIT        |
|--|----------------|-------------|-------------|
| Collector-Base Voltage                       | $V_{CBO}$      | 80          | V           |
| Collector-Emitter Voltage                    | $V_{CEO}$      | 25          | V           |
| Emitter-Base Voltage                         | $V_{EBO}$      | 5           | V           |
| Peak Pulse Current                           | $I_{CM}$       | 20          | A           |
| Continuous Collector Current                 | $I_C$          | 5           | A           |
| Base Current                                 | $I_B$          | 500         | mA          |
| Power Dissipation at $T_{amb}=25^{\circ}C$ † | $P_{tot}$      | 2.5         | 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 typical manner on a PCB with copper equal to 2 inches x 2 inches.

勝特力材料 886-3-5753170  
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[Http://www.100y.com.tw](http://www.100y.com.tw)

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[Http://www.100y.com.tw](http://www.100y.com.tw)**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                             | 130                            |                         | V                    | $I_C=100\mu\text{A}$   |
| Collector-Emitter Breakdown Voltage   | $V_{CES}$     | 80                             | 130                            |                         | V                    | $I_C=100\mu\text{A}^*$   |
| Collector-Emitter Breakdown Voltage   | $V_{CEO}$     | 25                             | 30                             | V                       |                      | $I_C=10\text{mA}$  |
| Collector-Emitter Breakdown Voltage   | $V_{CEV}$     | 80                             | 130                            |                         | V                    | $I_C=100\mu\text{A}, V_{EB}=1\text{V}$   |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | 5                              | 9                              |                         | V                    | $I_E=100\mu\text{A}$   |
| Collector Cut-Off Current             | $I_{CBO}$     |                                | 0.3                            | 10                      | nA                   | $V_{CB}=35\text{V}$  |
| Emitter Cut-Off Current               | $I_{EBO}$     |                                | 0.3                            | 10                      | nA                   | $V_{EB}=4\text{V}$   |
| Collector Emitter Cut-Off Current     | $I_{CES}$     |                                | 0.3                            | 10                      | nA                   | $V_{CES}=35\text{V}$   |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                                | 35<br>70<br>180<br>250         | 60<br>100<br>250<br>330 | mV<br>mV<br>mV<br>mV | $I_C=0.5\text{A}, I_B=10\text{mA}^*$<br>$I_C=1\text{A}, I_B=10\text{mA}^*$<br>$I_C=3\text{A}, I_B=30\text{mA}^*$<br>$I_C=5\text{A}, I_B=50\text{mA}^*$   |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |                                | 950                            | 1050                    | mV                   | $I_C=5\text{A}, I_B=50\text{mA}^*$   |
| Base-Emitter Turn-On Voltage          | $V_{BE(on)}$  |                                | 900                            | 1000                    | mV                   | $I_C=5\text{A}, V_{CE}=2\text{V}^*$  |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 280<br>300<br>300<br>180<br>40 | 440<br>450<br>450<br>280<br>80 | 1200                    |                      | $I_C=10\text{mA}, V_{CE}=2\text{V}^*$<br>$I_C=0.5\text{A}, V_{CE}=2\text{V}^*$<br>$I_C=1\text{A}, V_{CE}=2\text{V}^*$<br>$I_C=5\text{A}, V_{CE}=2\text{V}^*$<br>$I_C=20\text{A}, V_{CE}=2\text{V}^*$ |
| Transition Frequency                  | $f_T$         |                                | 180                            |                         | MHz                  | $I_C=50\text{mA}, V_{CE}=10\text{V}$<br>$f=100\text{MHz}$  |
| Output Capacitance                    | $C_{obo}$     |                                | 45                             | 60                      | pF                   | $V_{CB}=10\text{V}, f=1\text{MHz}$   |
| Turn-on Time                          | $t_{on}$      |                                | 125                            |                         | ns                   | $I_C=4\text{A}, I_B=40\text{mA}, V_{CC}=10\text{V}$  |
| Turn-off Time                         | $t_{off}$     |                                | 380                            |                         | ns                   |  |

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

**TYPICAL CHARACTERISTICS**

