

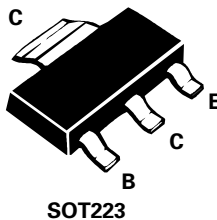
NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

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FZT1048A

FEATURES

- * $V_{CEO} = 17.5V$
- * 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} | 50 | V |
| Collector-Emitter Voltage | V_{CEO} | 17.5 | 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.

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

| PARAMETER | SYMBOL | VALUE | | | UNIT | CONDITIONS. |
|---------------------------------------|---------------|--------------------------------|--------------------------------|------------------------|------|--|
| | | MIN. | TYP. | MAX. | | |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 50 | 85 | | V | $I_C=100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | V_{CES} | 50 | 85 | | V | $I_C=100\mu\text{A}^*$ |
| Collector-Emitter Breakdown Voltage | V_{CEO} | 17.5 | 24 | | V | $I_C=10\text{mA}$ |
| Collector-Emitter Breakdown Voltage | V_{CEV} | 50 | 85 | | V | $I_C=100\mu\text{A}, V_{EB}=1\text{V}$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | 8.7 | | 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 | $V_{CE}=35\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | 27 55 155 250 | 45 75 210 350 | mV | $I_C=0.5\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=10\text{mA}^*$ $I_C=3\text{A}, I_B=15\text{mA}^*$ $I_C=5\text{A}, I_B=25\text{mA}^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | 920 | 1000 | mV | $I_C=5\text{A}, I_B=25\text{mA}^*$ |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | 880 | 970 | mV | $I_C=5\text{A}, V_{CE}=2\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 280 300 300 180 50 | 440 450 450 300 80 | 1200 | | $I_C=10\text{mA}, V_{CE}=2\text{V}^*$ $I_C=0.5\text{A}, V_{CE}=2\text{V}^*$ $I_C=1\text{A}, V_{CE}=2\text{V}^*$ $I_C=5\text{A}, V_{CE}=2\text{V}^*$ $I_C=20\text{A}, V_{CE}=2\text{V}^*$ |
| Transition Frequency | f_T | | 150 | | MHz | $I_C=50\text{mA}, V_{CE}=10\text{V}$ $f=50\text{MHz}$ |
| Output Capacitance | C_{obo} | | 60 | 80 | pF | $V_{CB}=10\text{V}, f=1\text{MHz}$ |
| Switching Times | t_{on} | | 120 | | ns | $I_C=4\text{A}, I_B=40\text{mA}, V_{CC}=10\text{V}$ |
| | t_{off} | | 310 | | ns | $I_C=4\text{A}, I_B=40\text{mA}, V_{CC}=10\text{V}$ |

TYPICAL CHARACTERISTICS

