

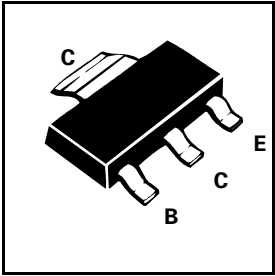
SOT223 NPN SILICON PLANAR HIGH CURRENT (HIGH PERFORMANCE) TRANSISTORS

FZT851
FZT853

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 | 6 | | 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 square inch minimum

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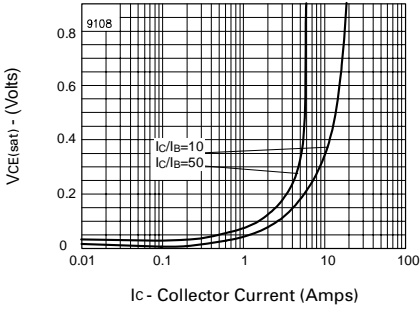
ELECTRICAL CHARACTERISTICS $T_{amb} = 25^{\circ}\text{C}$ (atunless otherwise stated)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---------------------------------------|---------------------------------------|------------------------|-------------------------|------------------|---------------------|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 200 | 300 | | V | $I_C=100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CER}$ | 200 | 300 | | V | $I_C=1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 100 | 120 | | 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} | | | 10 1 | nA μA | $V_{CB}=150\text{V}$, $T_{amb}=25^{\circ}\text{C}$ $V_{CB}=150\text{V}$ $T_{amb}=100^{\circ}\text{C}$ |
| Collector Cut-Off Current | I_{CER} $R \leq 1\text{k}\Omega$ | | | 10 1 | nA μA | $V_{CB}=150\text{V}$, $T_{amb}=25^{\circ}\text{C}$ $V_{CB}=150\text{V}$ $T_{amb}=100^{\circ}\text{C}$ |
| Emitter Cut-Off Current | I_{EBO} | | | 10 | nA | $V_{EB}=6\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | 14 100 | 50 150 340 | mV mV mV | $I_C=0.1\text{A}$, $I_B=5\text{mA}^*$ $I_C=2\text{A}$, $I_B=100\text{mA}^*$ $I_C=5\text{A}$, $I_B=500\text{mA}^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | | 1250 | mV | $I_C=5\text{A}$, $I_B=500\text{mA}^*$ |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | | 1100 | mV | $I_C=5\text{A}$, $V_{CE}=2\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 100 100 50 20 | 200 200 100 30 | 300 | | $I_C=10\text{mA}$, $V_{CE}=2\text{V}$ $I_C=2\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=4\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=10\text{A}$, $V_{CE}=2\text{V}^*$ |
| Transition Frequency | f_T | | 130 | | MHz | $I_C=100\text{mA}$, $V_{CE}=10\text{V}$ $f=50\text{MHz}$ |
| Output Capacitance | C_{obo} | | 35 | | pF | $V_{CB}=10\text{V}$, $f=1\text{MHz}$ |
| Switching Times | t_{on} t_{off} | | 50 1650 | | ns ns | $I_C=1\text{A}$, $V_{CC}=10\text{V}$ $I_{B1}=I_{B2}=100\text{mA}$, |

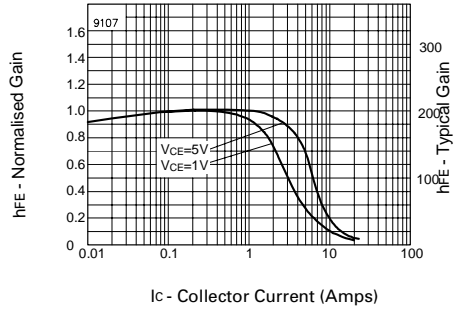
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$
Spice parameter data is available upon request for this device

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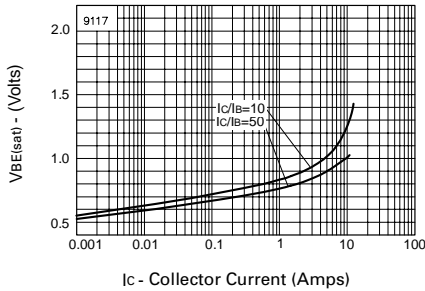
TYPICAL CHARACTERISTICS



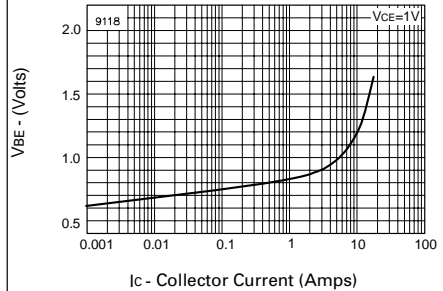
$V_{CE(sat)}$ v I_C



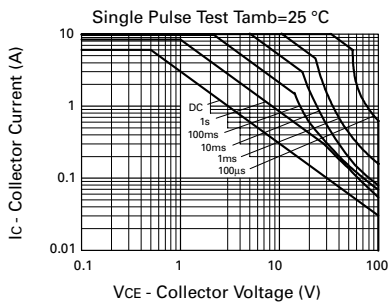
hFE v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



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