

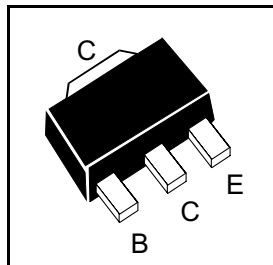
SOT89 PNP SILICON POWER (SWITCHING) TRANSISTOR

ISSUE 1 - NOVEMBER 1998

FCX1151A

FEATURES

- * **2W POWER DISSIPATION**
- * 5A Peak Pulse Current
- * Excellent H_{FE} Characteristics up to 5 Amps
- * Extremely Low Saturation Voltage E.g. 60mv Typ.
- * Extremely Low Equivalent On-resistance;
 $R_{CE(sat)}$ 66m Ω at 3A



Complimentary Type - FCX1051A
Partmarking Detail - 151

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|----------------|-------------|-------------|
| Collector-Base Voltage | V_{CBO} | -45 | V |
| Collector-Emitter Voltage | V_{CEO} | -40 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Peak Pulse Current ** | I_{CM} | -5 | A |
| Continuous Collector Current | I_C | -3 | A |
| Base Current | I_B | -500 | mA |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | P_{tot} | 1 † 2 ‡ | W W |
| Operating and Storage Temperature Range | $T_j; T_{stg}$ | -55 to +150 | $^{\circ}C$ |

† recommended P_{tot} calculated using FR4 measuring 15x15x0.6mm

‡ Maximum power dissipation is calculated assuming that the device is mounted on FR4 substrate measuring 40x40x0.6mm and using comparable measurement methods adopted by other suppliers.

**Measured under pulsed conditions. Pulse width=300 μ s. Duty cycle \leq 2%

Spice parameter data is available upon request for these devices

Refer to the handling instructions for soldering surface mount components.

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

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---------------------------------------|---------------|--------------------------|--------------------------------|-----------------------------|----------------------|--|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -45 | | | V | $I_C = -100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CES}$ | -40 | | | V | $I_C = -100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -40 | | | V | $I_C = -10\text{mA}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEV}$ | -40 | | | V | $I_C = -100\mu\text{A}$, $V_{EB} = +1\text{V}$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | | | V | $I_E = -100\mu\text{A}$ |
| Collector Cut-Off Current | I_{CBO} | | -0.3 | -100 | nA | $V_{CB} = -36\text{V}$ |
| Emitter Cut-Off Current | I_{EBO} | | -0.3 | -100 | nA | $V_{EB} = -4\text{V}$ |
| Collector Emitter Cut-Off Current | I_{CES} | | -0.3 | -100 | nA | $V_{CE} = -32\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | -60 -120 -140 -200 | -90 -180 -220 -300 | mV mV mV mV | $I_C = -0.1\text{A}$, $I_B = -1.0\text{mA}^*$ $I_C = -0.5\text{A}$, $I_B = -5\text{mA}^*$ $I_C = -1\text{A}$, $I_B = -20\text{mA}^*$ $I_C = -3\text{A}$, $I_B = -250\text{mA}^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | -985 | -1050 | mV | $I_C = -3\text{A}$, $I_B = -250\text{mA}^*$ |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | -850 | -950 | mV | $I_C = -3\text{A}$, $V_{CE} = -2\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 270 250 180 100 | 450 400 300 190 45 | 800 | | $I_C = -10\text{mA}$, $V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -2\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -3\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -5\text{A}$, $V_{CE} = -2\text{V}^*$ |
| Transition Frequency | f_T | | 145 | | MHz | $I_C = -50\text{mA}$, $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$ |
| Output Capacitance | C_{cb} | | 40 | | pF | $V_{CB} = -10\text{V}$, $f = 1\text{MHz}$ |
| Switching Times | t_{on} | | 170 | | ns | $I_C = -2\text{A}$, $I_B = -20\text{mA}$, $V_{CC} = -30\text{V}$ |
| | t_{off} | | 460 | | ns | $I_C = -2\text{A}$, $I_B = \pm 20\text{mA}$, $V_{CC} = -30\text{V}$ |

*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

TYPICAL CHARACTERISTICS

