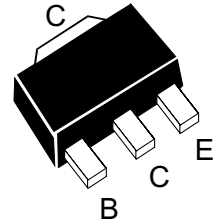


# SOT89 PNP SILICON PLANAR MEDIUM POWER TRANSISTOR

ISSUE 3 - OCTOBER 1995

## FCX591A

PART MARKING DETAIL - P2  
COMPLEMENTARY TYPE - FCX491A



### ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | VALUE       | UNIT        |
|--------------------------------------------|----------------|-------------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | -40         | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | -40         | V           |
| Emitter-Base Voltage                       | $V_{EBO}$      | -5          | V           |
| Peak Pulse Current                         | $I_{CM}$       | -2          | A           |
| Continuous Collector Current               | $I_C$          | -1          | A           |
| Base Current                               | $I_B$          | -200        | mA          |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | $P_{tot}$      | 1           | W           |
| Operating and Storage Temperature Range    | $T_j; T_{stg}$ | -65 to +150 | $^{\circ}C$ |

### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ ).

| PARAMETER                             | SYMBOL        | MIN.                           | MAX.  | UNIT | CONDITIONS.                                                                           |
|---------------------------------------|---------------|--------------------------------|-------|------|---------------------------------------------------------------------------------------|
| Breakdown Voltages                    | $V_{(BR)CBO}$ | -40                            |       | V    | $I_C = -100\mu A$                                                                     |
|                                       | $V_{(BR)CEO}$ | -40                            |       | V    | $I_C = -10mA^*$                                                                       |
|                                       | $V_{(BR)EBO}$ | -5                             |       | V    | $I_E = -100\mu A$                                                                     |
| Collector Cut-Off Current             | $I_{CBO}$     |                                | -100  | nA   | $V_{CB} = -30V$                                                                       |
| Emitter Cut-Off Current               | $I_{EBO}$     |                                | -100  | nA   | $V_{EB} = -4V$                                                                        |
| Collector-Emitter Cut-Off Current     | $I_{CES}$     |                                | -100  | nA   | $V_{CE} = -30V$                                                                       |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                                | -0.2  | V    | $I_C = -100mA, I_B = -1mA^*$                                                          |
|                                       |               |                                | -0.35 | V    | $I_C = -500mA, I_B = -20mA^*$                                                         |
|                                       |               |                                | -0.5  | V    | $I_C = -1A, I_B = -100mA^*$                                                           |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |                                | -1.1  | V    | $I_C = -1A, I_B = -50mA^*$                                                            |
| Base-Emitter Turn-on Voltage          | $V_{BE(on)}$  |                                | -1.0  | V    | $I_C = -1A, V_{CE} = -5V^*$                                                           |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 300<br>300<br>250<br>160<br>30 | 800   |      | $I_C = -1mA, I_C = -100mA^*, I_C = -500mA^*, V_{CE} = -5V, I_C = -1A^*, I_C = -2A^*,$ |
| Transition Frequency                  | $f_T$         | 150                            |       | MHz  | $I_C = -50mA, V_{CE} = -10V, f = 100MHz$                                              |
| Output Capacitance                    | $C_{obo}$     |                                | 10    | pF   | $V_{CB} = -10V, f = 1MHz$                                                             |

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

Spice parameter data is available upon request for this device

For typical characteristics graphs see FMMT591A datasheet