

# SOT89 PNP SILICON PLANAR MEDIUM POWER TRANSISTORS

**BCX51  
BCX52  
BCX53**

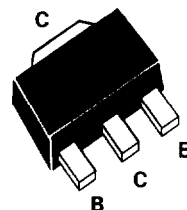
ISSUE 3 – FEBRUARY 1996



COMPLEMENTARY TYPE – BCX51 – BCX54  
BCX52 – BCX55  
BCX53 – BCX56

PARTMARKING DETAILS –

BCX51 – AA      BCX52 – AE      BCX53 – AH  
BCX51-10 – AC      BCX52-10 – AG      BCX53-10 – AK  
BCX51-16 – AD      BCX52-16 – AM      BCX53-16 – AL



**SOT89**

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | BCX51       | BCX52 | BCX53 | UNIT        |
|--------------------------------------------|----------------|-------------|-------|-------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | -45         | -60   | -100  | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | -45         | -60   | -80   | V           |
| Emitter-Base Voltage                       | $V_{EBO}$      | -5          |       |       | V           |
| Peak Pulse Current                         | $I_{CM}$       | -1.5        |       |       | A           |
| Continuous Collector Current               | $I_C$          | -1          |       |       | A           |
| 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 $T_{amb} = 25^{\circ}C$ unless otherwise stated).

| PARAMETER                             | SYMBOL        | MIN.                        | TYP. | MAX.              | UNIT    | CONDITIONS.                                                                                                                                                          |
|---------------------------------------|---------------|-----------------------------|------|-------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Collector-Base Breakdown Voltage      | $V_{(BR)CBO}$ | -100<br>-60<br>-45          |      |                   | V       | $I_C = -100\mu A$<br>$I_C = -100\mu A$<br>$I_C = -100\mu A$                                                                                                          |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$ | -80<br>-60<br>-45           |      |                   | V       | $I_C = -10mA^*$<br>$I_C = -10mA^*$<br>$I_C = -10mA^*$                                                                                                                |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | -5                          |      |                   | V       | $I_E = -10\mu A$                                                                                                                                                     |
| Collector Cut-Off Current             | $I_{CBO}$     |                             |      | -0.1<br>-20       | $\mu A$ | $V_{CB} = -30V$<br>$V_{CB} = -30V, T_{amb} = 150^{\circ}C$                                                                                                           |
| Emitter Cut-Off Current               | $I_{EBO}$     |                             |      | -20               | nA      | $V_{EB} = -4V$                                                                                                                                                       |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                             |      | -0.5              | V       | $I_C = -500mA, I_B = -50mA^*$                                                                                                                                        |
| Base-Emitter Turn-On Voltage          | $V_{BE(on)}$  |                             |      | -1.0              | V       | $I_C = -500mA, V_{CE} = -2V^*$                                                                                                                                       |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 25<br>40<br>25<br>63<br>100 |      | 250<br>160<br>250 |         | $I_C = -5mA, V_{CE} = -2V^*$<br>$I_C = -150mA, V_{CE} = -2V^*$<br>$I_C = -500mA, V_{CE} = -2V^*$<br>$I_C = -150mA, V_{CE} = -2V^*$<br>$I_C = -150mA, V_{CE} = -2V^*$ |
| Transition Frequency                  | $f_T$         | 150                         |      |                   | MHz     | $I_C = -50mA, V_{CE} = -10V, f = 100MHz$                                                                                                                             |
| Output Capacitance                    | $C_{obo}$     |                             |      | 25                | pF      | $V_{CB} = -10V, f = 1MHz$                                                                                                                                            |

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