

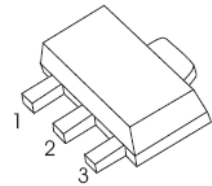
# TRANSISTOR

## FEATURES

- Power Transistor
- Excellent DC current Gain
- Low Collector-emitter Saturation Voltage

### SOT-89-3L

1. BASE
2. COLLECTOR
3. EMITTER



## MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol          | Parameter                                   | Value    | Unit                        |
|-----------------|---|----------|-----------------------------|
| $V_{CB0}$       | Collector-Base Voltage                      | -30      | V                           |
| $V_{CE0}$       | Collector-Emitter Voltage                   | -20      | V                           |
| $V_{EB0}$       | Emitter-Base Voltage                        | -6       | V                           |
| $I_C$           | Collector Current                           | -3       | A                           |
| $P_C$           | Collector Power Dissipation                 | 500      | mW                          |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 250      | $^{\circ}\text{C}/\text{W}$ |
| $T_j$           | Junction Temperature                        | 150      | $^{\circ}\text{C}$          |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | $^{\circ}\text{C}$          |

## ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                            | Symbol        | Test conditions                                       | Min | Typ | Max   | Unit          |
|--------------------------------------|---------------|---|-----|-----|-------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=-50\mu\text{A}, I_E=0$                           | -30 |     |       | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=-1\text{mA}, I_B=0$                              | -20 |     |       | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=-50\mu\text{A}, I_C=0$                           | -6  |     |       | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=-20\text{V}, I_E=0$                           |     |     | -0.5  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=-5\text{V}, I_C=0$                            |     |     | -0.5  | $\mu\text{A}$ |
| DC current gain                      | $h_{FE}$      | $V_{CE}=-2\text{V}, I_C=-0.5\text{A}$                 | 82  |     | 390   |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-1.5\text{A}, I_B=-0.15\text{A}$                 |     |     | -0.45 | V             |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=-20\text{V}, I_E=0, f=1\text{MHz}$            |     | 60  |       | pF            |
| Transition frequency                 | $f_T$         | $V_{CE}=-6\text{V}, I_C=-50\text{mA}, f=30\text{MHz}$ |     | 120 |       | MHz           |

## CLASSIFICATION OF $h_{FE}$

| RANK    | P        | Q         | R         |
|---------|----------|-----------|-----------|
| RANGE   | 82 - 180 | 120 - 270 | 180 - 390 |
| MARKING | BFP      | BFQ       | BFR       |