

## Plastic-Encapsulate Transistors

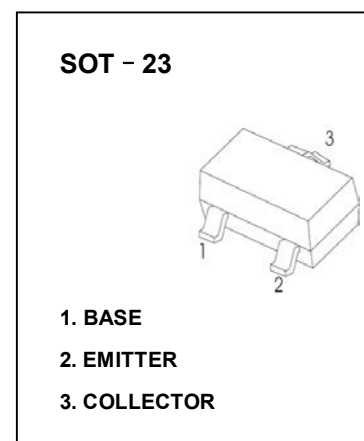
TRANSISTOR (NPN)

### FEATURES

- High Frequency Power Amplifier Application
- Power Switching Applications

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

| Symbol          | Parameter                                        | Value    | Unit                 |
|-----------------|--------------------------------------------------|----------|----------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | 180      | V                    |
| $V_{CEO}$       | Collector-Emitter Voltage                        | 160      | V                    |
| $V_{EBO}$       | Emitter-Base Voltage                             | 5        | V                    |
| $I_C$           | Collector Current                                | 50       | mA                   |
| $P_C$           | Collector Power Dissipation                      | 150      | mW                   |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient      | 833      | $^{\circ}\text{C/W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -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     | $V_{(BR)CBO}$ | $I_C=100\mu\text{A}, I_E=0$               | 180 |     |     | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$                   | 160 |     |     | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=100\mu\text{A}, I_C=0$               | 5   |     |     | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=130\text{V}, I_E=0$               |     |     | 0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=5\text{V}, I_C=0$                 |     |     | 0.1 | $\mu\text{A}$ |
| DC current gain                      | $h_{FE(1)}$   | $V_{CE}=3\text{V}, I_C=15\text{mA}$       | 90  |     | 400 |               |
|                                      | $h_{FE(2)}$   | $V_{CE}=3\text{V}, I_C=1\text{mA}$        | 70  |     |     |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=50\text{mA}, I_B=5\text{mA}$         |     |     | 0.3 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=50\text{mA}, I_B=5\text{mA}$         |     |     | 1   | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=10\text{V}, I_C=10\text{mA}$      |     | 120 |     | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ |     | 2.3 |     | pF            |

### CLASSIFICATION OF $h_{FE(1)}$

| RANK    | N5       | N6        | N7        |
|---------|----------|-----------|-----------|
| RANGE   | 90 - 180 | 135 - 270 | 200 - 400 |
| MARKING | N5       | N6        | N7        |

### Typical Characteristics

