



**SOT-23 Plastic-Encapsulate Transistors**

**2SC2712** TRANSISTOR (NPN)

**FEATURE**

- Low Noise: NF=1 dB (Typ),10dB(MAX)
- Complementary to 2SA1162

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

| Symbol    | Parameter                     | Value   | Units              |
|-----------|-------------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage        | 60      | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage     | 50      | V                  |
| $V_{EBO}$ | Emitter-Base Voltage          | 5       | V                  |
| $I_C$     | Collector Current -Continuous | 150     | mA                 |
| $P_C$     | Collector Power Dissipation   | 150     | mW                 |
| $T_J$     | Junction Temperature          | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature           | -55-150 | $^{\circ}\text{C}$ |



**ELECTRICAL CHARACTERISTICS** ( $T_{amb}=25^{\circ}\text{C}$  unless otherwise specified)

| Parameter                            | Symbol        | Test conditions   | MIN | TYP | MAX  | UNIT          |
|--------------------------------------|---------------|---|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=100\mu\text{A}, I_E=0$   | 60  |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$   | 50  |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=100\mu\text{A}, I_C=0$   | 5   |     |      | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=60\text{V}, I_E=0$  |     |     | 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                      | $h_{FE}$      | $V_{CE}=6\text{V}, I_C=2\text{mA}$  | 70  |     | 700  |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=100\text{mA}, I_B=10\text{mA}$                                       |     | 0.1 | 0.25 | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=10\text{V}, I_C=1\text{mA}$                                       | 80  |     |      | MHz           |
| Output capacitance                   | $C_{ob}$      | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$                                 |     | 2.0 | 3.5  | pF            |
| Noise Figure                         | NF            | $V_{CE}=6\text{V}, I_C=0.1\text{mA}, f=1\text{kHz}, R_g=10\text{k}\Omega$ |     | 1.0 | 10   | dB            |

**CLASSIFICATION OF  $h_{FE}$**

| Rank    | O      | Y       | GR      | BL      |
|---------|--------|---------|---------|---------|
| Range   | 70-140 | 120-240 | 200-400 | 350-700 |
| Marking | LO     | LY      | LG      | LL      |