



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

## SOT-23-3L Plastic-Encapsulate Transistors

### **2SC3928A** TRANSISTOR (NPN)

#### FEATURES

- Excellent  $h_{FE}$  Linearity of DC forward current gain
- small collector to emitter saturation voltage
- supper mini package easy mounting

#### SOT-23-3L



1. BASE
2. EMITTER
3. COLLECTOR

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

| Symbol    | Parameter                     | Value   | Units              |
|-----------|-------------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage        | 50      | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage     | 50      | V                  |
| $V_{EBO}$ | Emitter-Base Voltage          | 6       | V                  |
| $I_C$     | Collector Current -Continuous | 200     | 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     | $V_{(BR)CBO}$ | $I_C=100\mu\text{A}, I_E=0$                                              | 50  |     |     | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=0.1\text{mA}, I_B=0$                                                | 50  |     |     | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=100\mu\text{A}, I_C=0$                                              | 6   |     |     | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=50\text{V}, I_E=0$                                               |     |     | 0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=4\text{V}, I_C=0$                                                |     |     | 0.1 | $\mu\text{A}$ |
| DC current gain                      | $h_{FE(1)}$   | $V_{CE}=6\text{V}, I_C=1\text{mA}$                                       | 120 |     | 820 |               |
|                                      | $h_{FE(2)}$   | $V_{CE}=6\text{V}, I_C=0.1\text{mA}$                                     | 70  |     |     |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=100\text{mA}, I_B=10\text{mA}$                                      |     |     | 0.3 | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=6\text{V}, I_C=10\text{mA}$                                      |     | 200 |     | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=6\text{V}, I_E=0, f=1\text{MHz}$                                 |     | 2.5 |     | pF            |
| Noise figure                         | NF            | $V_{CB}=6\text{V}, I_E=0.1\text{mA}, f=1\text{KHz}, R_G=2\text{K}\Omega$ |     |     | 15  | dB            |

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

| Rank    | Q       | R       | S       | T       |
|---------|---------|---------|---------|---------|
| Range   | 120-270 | 180-390 | 270-560 | 390-820 |
| Marking | HQ1     | HR1     | HS1     | HT1     |

# Typical Characteristics

2SC3928A

