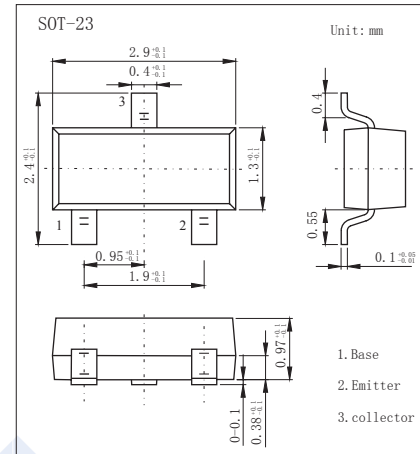


## NPN Transistors

## 2SC3130

## ■ Features

- Collector Current Capability  $I_C=50\text{mA}$
- Collector Emitter Voltage  $V_{CEO}=10\text{V}$

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

| Parameter                      | Symbol    | Rating     | Unit             |
|--------------------------------|-----------|------------|------------------|
| Collector - Base Voltage       | $V_{CBO}$ | 15         | V                |
| Collector - Emitter Voltage    | $V_{CEO}$ | 10         |                  |
| Emitter - Base Voltage         | $V_{EBO}$ | 3          |                  |
| Collector Current - Continuous | $I_C$     | 50         | mA               |
| Collector Power Dissipation    | $P_C$     | 150        | mW               |
| Junction Temperature           | $T_J$     | 150        | $^\circ\text{C}$ |
| Storage Temperature Range      | $T_{stg}$ | -55 to 150 |                  |

■ Electrical Characteristics  $T_a = 25^\circ\text{C}$ 

| Parameter                                   | Symbol          | Test Conditions                                                      | Min  | Typ  | Max | Unit          |
|---------------------------------------------|-----------------|----------------------------------------------------------------------|------|------|-----|---------------|
| Collector- base breakdown voltage           | $V_{CBO}$       | $I_C = 100\text{ }\mu\text{A}$ , $I_E = 0$                           | 15   |      |     | V             |
| Collector- emitter breakdown voltage        | $V_{CEO}$       | $I_C = 2\text{ mA}$ , $I_B = 0$                                      | 10   |      |     |               |
| Emitter - base breakdown voltage            | $V_{EBO}$       | $I_E = 100\text{ }\mu\text{A}$ , $I_C = 0$                           | 3    |      |     |               |
| Collector-base cut-off current              | $I_{CBO}$       | $V_{CB} = 10\text{ V}$ , $I_E = 0$                                   |      |      | 1   | $\mu\text{A}$ |
| Emitter cut-off current                     | $I_{EBO}$       | $V_{EB} = 3\text{ V}$ , $I_C = 0$                                    |      |      | 0.1 |               |
| Collector-emitter saturation voltage        | $V_{CE(sat)}$   | $I_C = 20\text{ mA}$ , $I_B = 4\text{ mA}$                           |      |      | 0.5 | V             |
| Base - emitter saturation voltage           | $V_{BE(sat)}$   | $I_C = 20\text{ mA}$ , $I_B = 4\text{ mA}$                           |      |      | 1.2 |               |
| DC current gain                             | $h_{FE}$        | $V_{CE} = 4\text{ V}$ , $I_C = 5\text{ mA}$                          | 75   |      | 400 |               |
| $h_{FE}$ ratio                              | $\Delta h_{FE}$ | $V_{CE} = 4\text{ V}$ , $I_C = 100\text{ }\mu\text{A}$               | 0.75 |      | 1.6 |               |
|                                             |                 | $V_{CE} = 4\text{ V}$ , $I_C = 5\text{ mA}$                          |      |      |     |               |
| Base time constant                          | $r_{bb'}/C_c$   | $V_{CB} = 4\text{ V}$ , $I_E = -5\text{ mA}$ , $f = 31.9\text{ MHz}$ |      | 11   |     | ps            |
| Common emitter reverse transfer capacitance | $C_{rb}$        | $V_{CB} = 4\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$               |      | 0.45 |     | pF            |
| Collector output capacitance                | $C_{ob}$        | $V_{CB} = 4\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$               |      | 1.4  |     | pF            |
| Transition frequency                        | $f_T$           | $V_{CE} = 4\text{ V}$ , $I_E = -5\text{ mA}$ , $f = 200\text{ MHz}$  | 1.4  |      | 2.5 | GHz           |

■ Classification of  $h_{FE}(1)$ 

| Type    | 2SC3130-P | 2SC3130-Q | 2SC3130-R |
|---------|-----------|-----------|-----------|
| Range   | 75-130    | 110-220   | 200-400   |
| Marking | 1SP       | 1SQ       | 1SR       |

## NPN Transistors

## 2SC3130

## ■ Typical Characteristics

