

# 2SC3931

## Silicon NPN epitaxial planer type

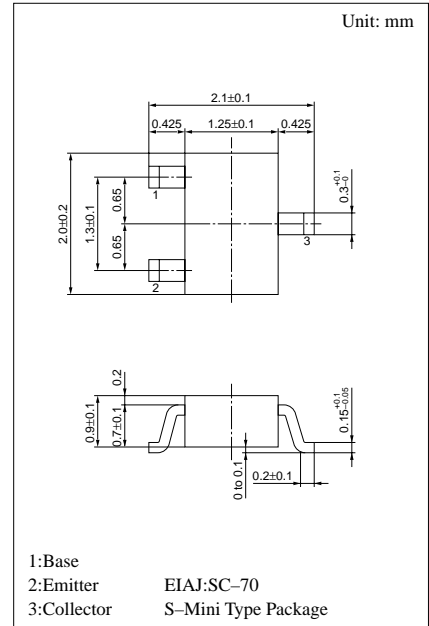
For high-frequency amplification

### Features

- Optimum for RF amplification of FM/AM radios.
- High transition frequency  $f_T$ .
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

### Absolute Maximum Ratings (Ta=25°C)

| Parameter                    | Symbol    | Ratings    | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage    | $V_{CBO}$ | 30         | V    |
| Collector to emitter voltage | $V_{CEO}$ | 20         | V    |
| Emitter to base voltage      | $V_{EBO}$ | 3          | V    |
| Collector current            | $I_C$     | 15         | mA   |
| Collector power dissipation  | $P_C$     | 150        | mW   |
| Junction temperature         | $T_j$     | 150        | °C   |
| Storage temperature          | $T_{stg}$ | -55 ~ +150 | °C   |



Marking symbol : U

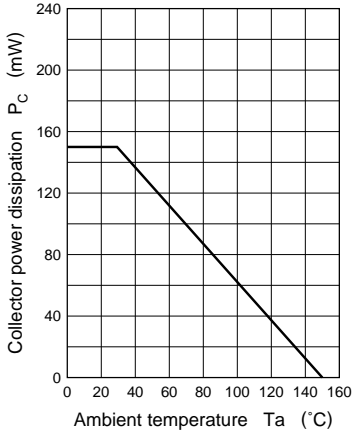
### Electrical Characteristics (Ta=25°C)

| Parameter                                   | Symbol     | Conditions                            | min | typ  | max | Unit |
|---|------------|---------------------------------------|-----|------|-----|------|
| Collector to base voltage                   | $V_{CBO}$  | $I_C = 10\mu A, I_E = 0$              | 30  |      |     | V    |
| Emitter to base voltage                     | $V_{EBO}$  | $I_E = 10\mu A, I_C = 0$              | 3   |      |     | V    |
| Forward current transfer ratio              | $h_{FE}^*$ | $V_{CB} = 6V, I_E = -1mA$             | 65  |      | 260 |      |
| Base to emitter voltage                     | $V_{BE}$   | $V_{CB} = 6V, I_E = 1mA$              |     | 0.72 |     | V    |
| Transition frequency                        | $f_T$      | $V_{CB} = 6V, I_E = -1mA, f = 200MHz$ | 450 | 650  |     | MHz  |
| Common emitter reverse transfer capacitance | $C_{re}$   | $V_{CE} = 6V, I_C = 1mA, f = 10.7MHz$ |     | 0.8  | 1   | pF   |
| Power gain                                  | PG         | $V_{CB} = 6V, I_E = -1mA, f = 100MHz$ |     | 24   |     | dB   |
| Noise figure                                | NF         | $V_{CB} = 6V, I_E = -1mA, f = 100MHz$ |     | 3.3  |     | dB   |

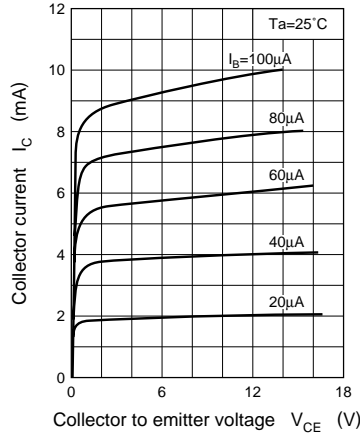
\* $h_{FE}$  Rank classification

| Rank           | C        | D         |
|----------------|----------|-----------|
| $h_{FE}$       | 65 ~ 160 | 100 ~ 260 |
| Marking Symbol | UC       | UD        |

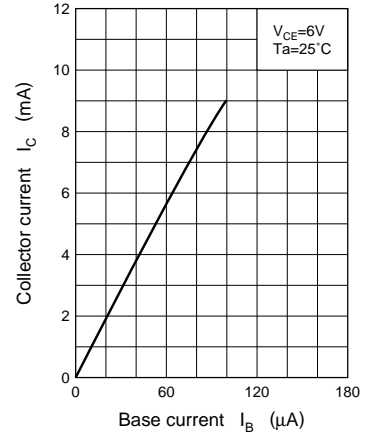
$P_C - T_a$



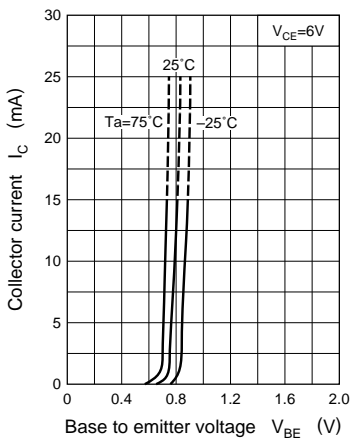
$I_C - V_{CE}$



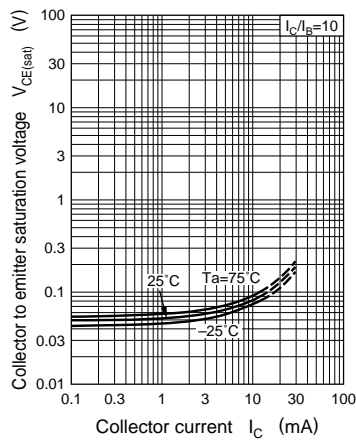
$I_C - I_B$



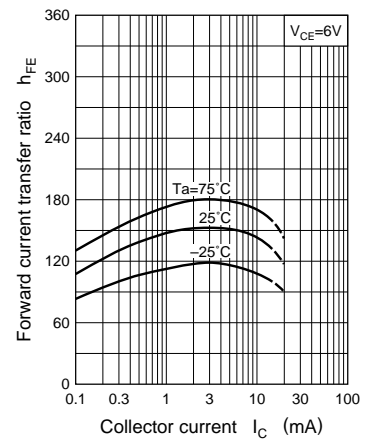
$I_C - V_{BE}$



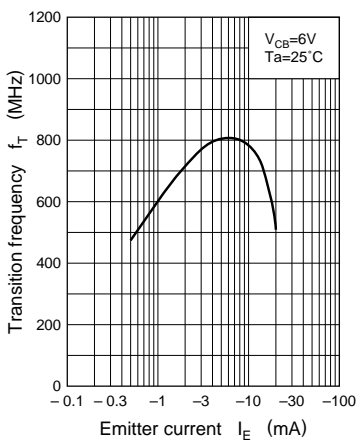
$V_{CE(sat)} - I_C$



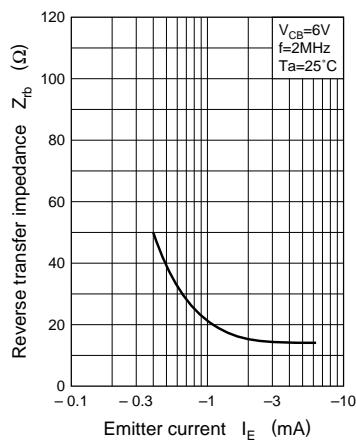
$h_{FE} - I_C$



$f_T - I_E$



$Z_{rb} - I_E$



$C_{re} - V_{CE}$

