

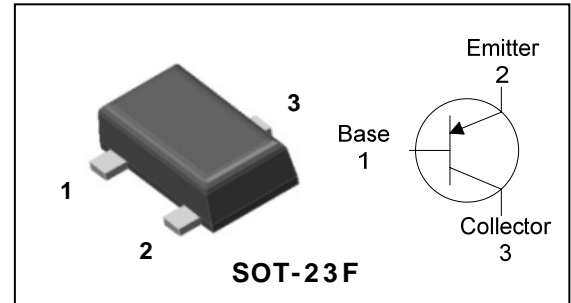
## Description

- General small signal amplifier

## Features

- Low collector saturation voltage :  
 $V_{CE(sat)} = -0.3V(\text{Max.})$
- Low output capacitance :  $C_{ob} = 4pF(\text{Typ.})$
- Complementary pair with 2SC5343SF

## PIN Connection



## Ordering Information

| Type NO.  | Marking         | Package Code |
|-----------|-----------------|--------------|
| 2SA1980SF | CA □ □<br>① ② ③ | SOT-23F      |

①Device Code ②hFE Rank ③Year&Week Code

## Absolute maximum ratings

( $T_a = 25^\circ\text{C}$ )

| Characteristic            | Symbol    | Ratings | Unit             |
|---------------------------|-----------|---------|------------------|
| Collector-Base voltage    | $V_{CBO}$ | -50     | V                |
| Collector-Emitter voltage | $V_{CEO}$ | -50     | V                |
| Emitter-Base voltage      | $V_{EBO}$ | -5      | V                |
| Collector current         | $I_C$     | -150    | mA               |
| Collector dissipation     | $P_C$     | 200     | mW               |
| Junction temperature      | $T_j$     | 150     | $^\circ\text{C}$ |
| Storage temperature       | $T_{stg}$ | -55~150 | $^\circ\text{C}$ |

## Electrical Characteristics

( $T_a = 25^\circ\text{C}$ )

| Characteristic                       | Symbol        | Test Condition                                                                          | Min. | Typ. | Max. | Unit          |
|--------------------------------------|---------------|-----------------------------------------------------------------------------------------|------|------|------|---------------|
| Collector-Base breakdown voltage     | $BV_{CBO}$    | $I_C = -100\mu\text{A}, I_E = 0$                                                        | -50  | -    | -    | V             |
| Collector-Emitter breakdown voltage  | $BV_{CEO}$    | $I_C = -1\text{mA}, I_B = 0$                                                            | -50  | -    | -    | V             |
| Emitter-Base breakdown voltage       | $BV_{EBO}$    | $I_E = -10\mu\text{A}, I_C = 0$                                                         | -5   | -    | -    | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = -50\text{V}, I_E = 0$                                                         | -    | -    | -0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -5\text{V}, I_C = 0$                                                          | -    | -    | -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 | $V_{CE(sat)}$ | $I_C = -100\text{mA}, I_B = -10\text{mA}$                                               | -    | -    | -0.3 | V             |
| Transition frequency                 | $f_T$         | $V_{CE} = -10\text{V}, I_C = -1\text{mA}$                                               | 80   | -    | -    | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$                                        | -    | 4    | 7    | pF            |
| Noise figure                         | NF            | $V_{CE} = -6\text{V}, I_C = -0.1\text{mA}$<br>$f = 1\text{KHz}, R_g = 10\text{K}\Omega$ | -    | -    | 10   | dB            |

\*:  $h_{FE}$  rank / O : 70~140, Y : 120~240, G : 200~400, L : 300~700.

Electrical Characteristic Curves

Fig. 1  $P_C$ - $T_a$

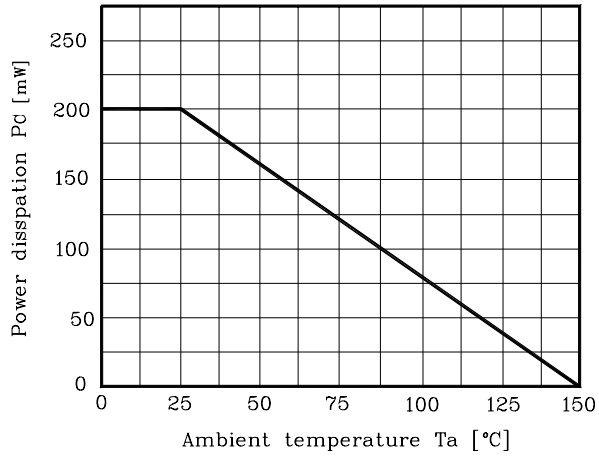


Fig. 2  $I_C$ - $V_{BE}$

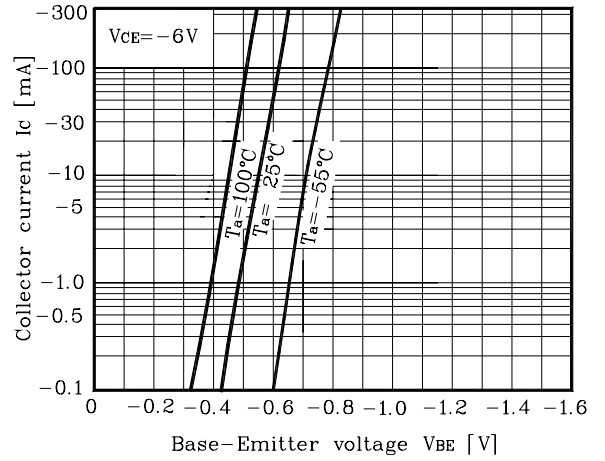


Fig. 3  $I_C$ - $V_{CE}$

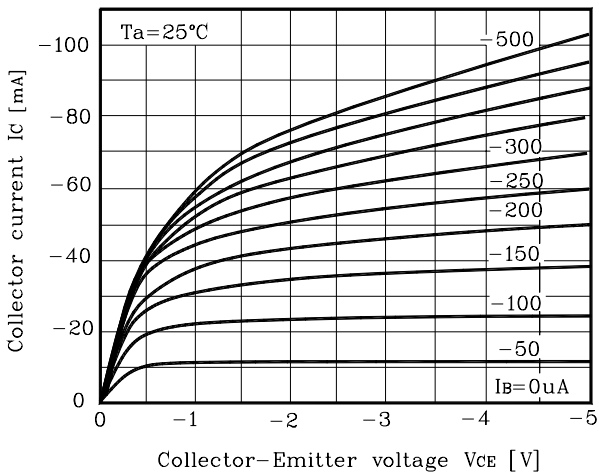


Fig. 4  $h_{FE}$ - $I_C$

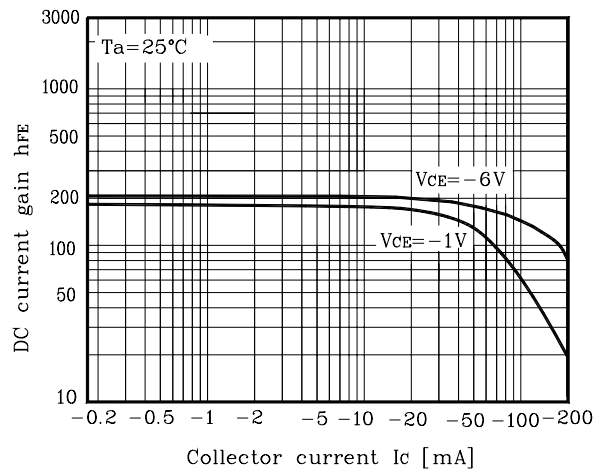
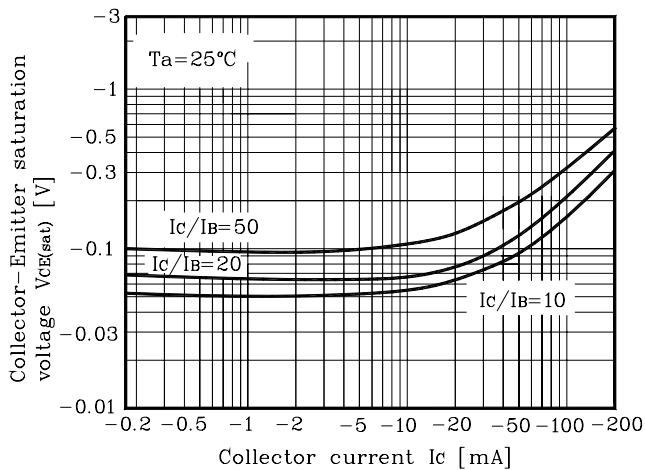
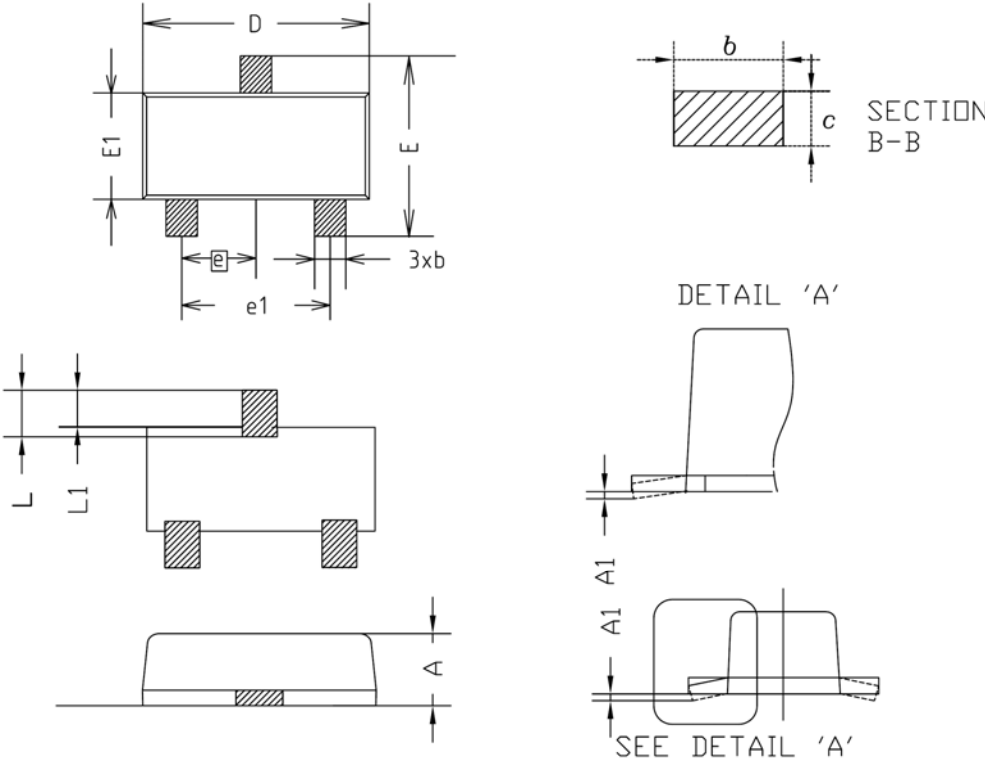


Fig. 5  $V_{CE(sat)}$ - $I_C$

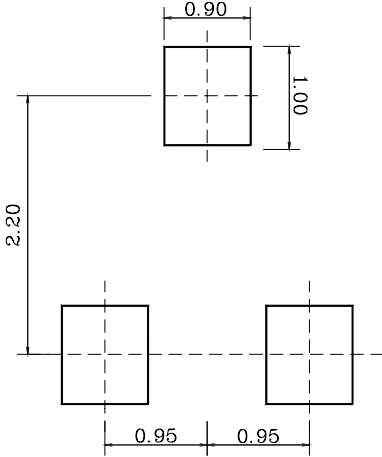


Outline Dimension



| SYMBOL | MILLIMETER(mm) |         |         | NOTE |
|--------|----------------|---------|---------|------|
|        | MINIMUM        | NOMINAL | MAXIMUM |      |
| A      | 0.80           | 0.90    | 1.00    |      |
| A1     | 0.00           | -       | 0.10    |      |
| b      | 0.35           | 0.40    | 0.45    |      |
| c      | 0.10           | 0.15    | 0.20    |      |
| D      | 2.80           | 2.90    | 3.00    |      |
| E      | 2.30           | 2.40    | 2.50    |      |
| E1     | 1.50           | 1.60    | 1.70    |      |
| e      | 0.95BSC        |         |         |      |
| e1     | 1.80           | 1.90    | 2.00    |      |
| L      | 0.48           | 0.58    | 0.68    |      |
| L1     | 0.30           | -       | 0.50    |      |

※Recommend PCB solder land [Unit: mm]



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