

## Description

- General small signal amplifier

## Features

- Low collector saturation voltage :  $V_{CE(sat)} = -0.3V$  (Max.)
- Low output capacitance :  $C_{ob} = 4pF$  (Typ.)
- Complementary pair with 2SC5343E

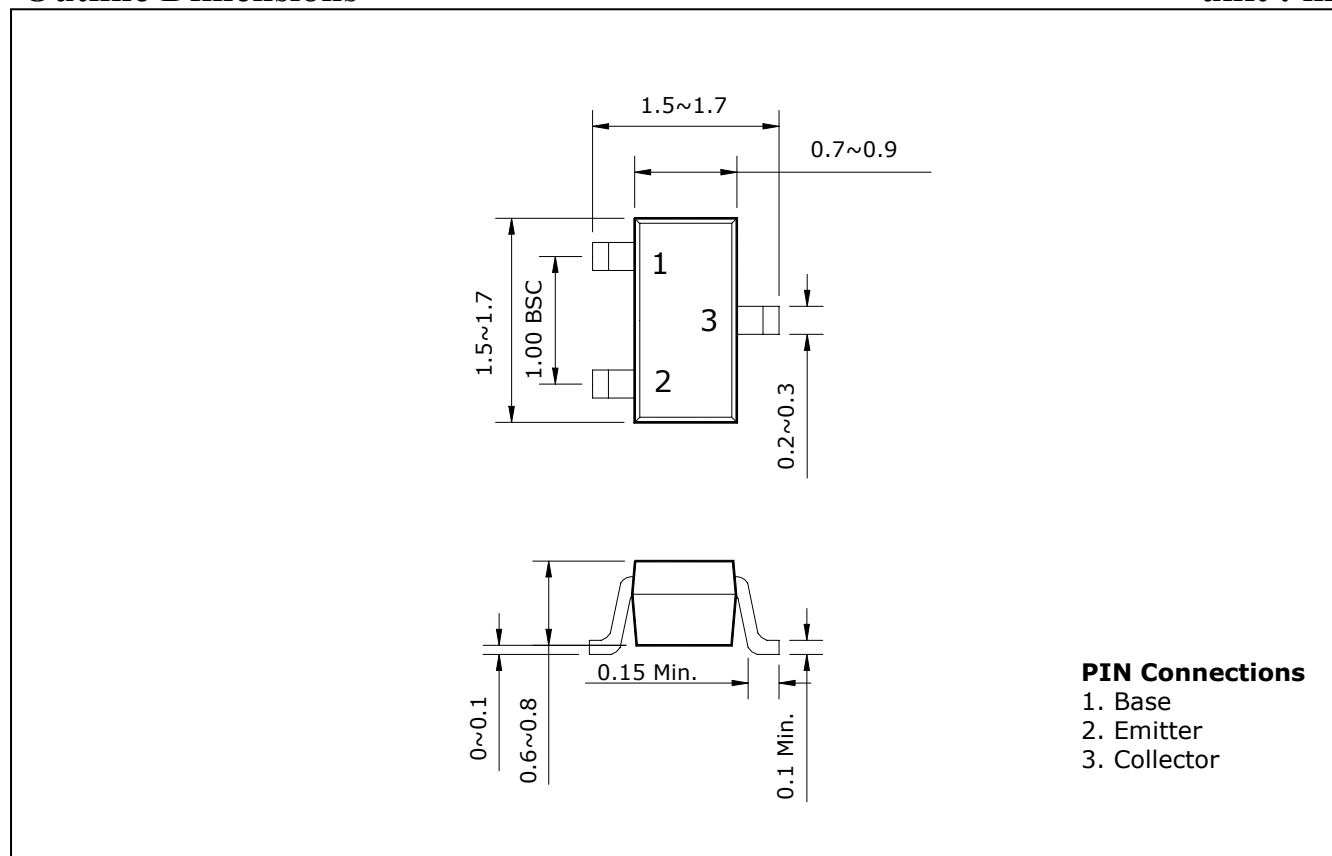
## Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| 2SA1980E | A□      | SOT-523      |

□ :  $h_{FE}$  rank

## Outline Dimensions

unit : mm



## Absolute maximum ratings

(Ta=25°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     | $P_C$     | 150     | mW   |
| Junction temperature      | $T_j$     | 150     | °C   |
| Storage temperature       | $T_{stg}$ | -55~150 | °C   |

## Electrical Characteristics

(Ta=25°C)

| Characteristic                       | Symbol        | Test Condition  | Min. | Typ. | Max. | Unit    |
|--------------------------------------|---------------|---|------|------|------|---------|
| Collector-Base breakdown voltage     | $BV_{CBO}$    | $I_C = -100\mu A, I_E = 0$                                  | -50  | -    | -    | V       |
| Collector-Emitter breakdown voltage  | $BV_{CEO}$    | $I_C = -1mA, I_B = 0$                                       | -50  | -    | -    | V       |
| Emitter-Base breakdown voltage       | $BV_{EBO}$    | $I_E = -10\mu A, I_C = 0$                                   | -5   | -    | -    | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = -50V, I_E = 0$                                    | -    | -    | -0.1 | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -5V, I_C = 0$                                     | -    | -    | -0.1 | $\mu A$ |
| DC current gain                      | $h_{FE}^*$    | $V_{CE} = -6V, I_C = -2mA$                                  | 70   | -    | 700  | -       |
| Collector-Emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -100mA, I_B = -10mA$                                 | -    | -    | -0.3 | V       |
| Transition frequency                 | $f_T$         | $V_{CE} = -10V, I_C = -1mA$                                 | 80   | -    | -    | MHz     |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10V, I_E = 0, f = 1MHz$                          | -    | 4    | 7    | pF      |
| Noise figure                         | NF            | $V_{CE} = -6V, I_C = -0.1mA$<br>$f = 1KHz, R_g = 10K\Omega$ | -    | -    | 10   | dB      |

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

Electrical Characteristic Curves

Fig. 1  $P_C$ - $T_a$

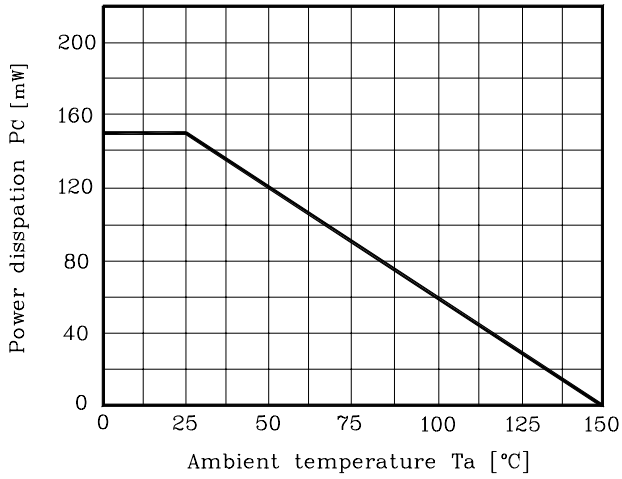


Fig. 2  $I_C$ - $V_{BE}$

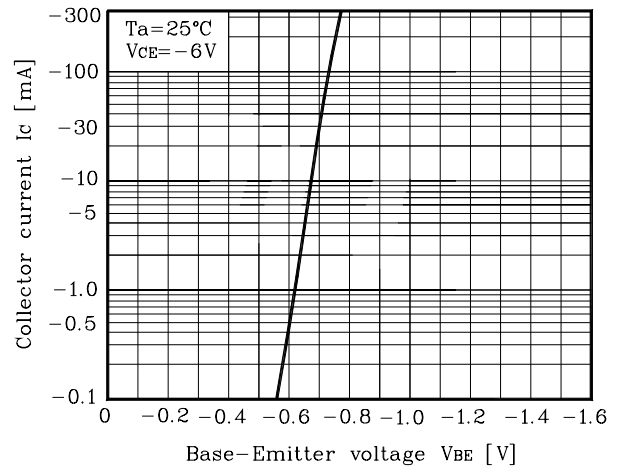


Fig. 3  $I_C$ - $V_{CE}$

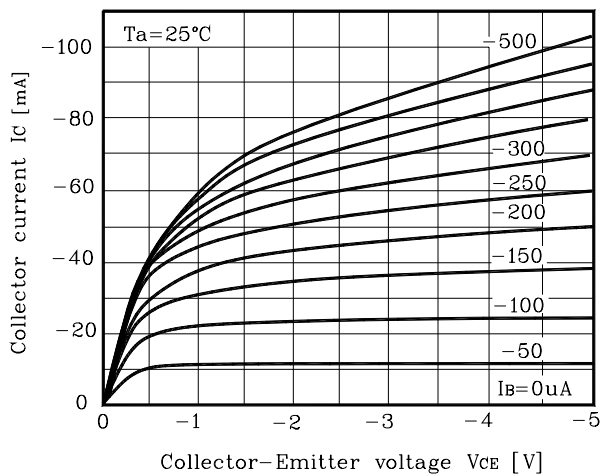


Fig. 4  $h_{FE}$ - $I_C$

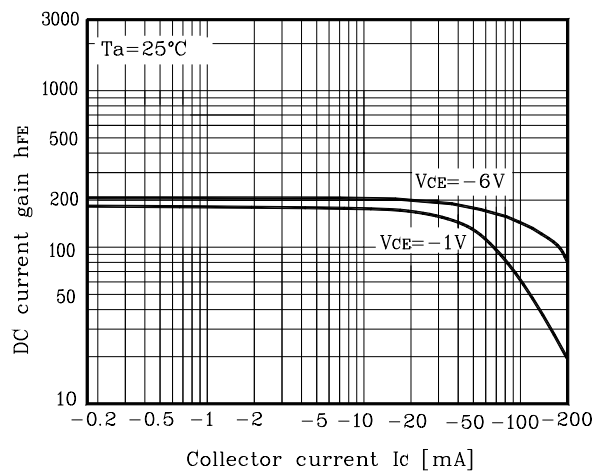
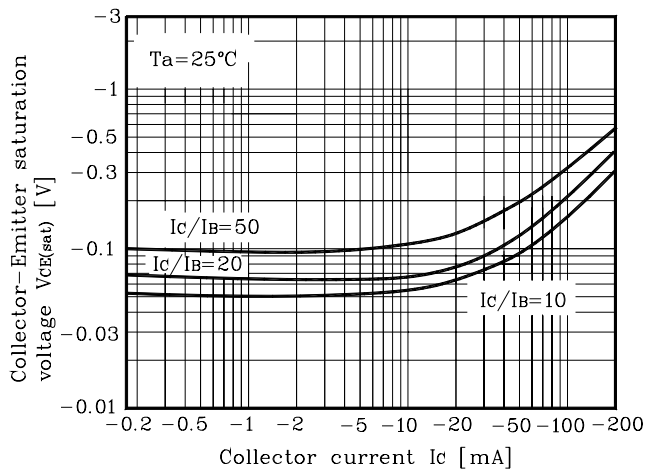


Fig. 5  $V_{CE(sat)}$ - $I_C$



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