

# 2SD2185

## Silicon NPN epitaxial planer type

For low-frequency output amplification  
Complementary to 2SB1440

### ■ Features

- Low collector to emitter saturation voltage  $V_{CE(sat)}$
- Mini Power 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    | $V_{CBO}$ | 50         | V    |
| Collector to emitter voltage | $V_{CEO}$ | 50         | V    |
| Emitter to base voltage      | $V_{EBO}$ | 5          | V    |
| Peak collector current       | $I_{CP}$  | 4          | A    |
| Collector current            | $I_C$     | 3          | A    |
| Collector power dissipation  | $P_C^*$   | 1          | W    |
| Junction temperature         | $T_j$     | 150        | °C   |
| Storage temperature          | $T_{stg}$ | -55 ~ +150 | °C   |

\* Printed circuit board: Copper foil area of 1cm<sup>2</sup> or more, and the board thickness of 1.7mm for the collector portion

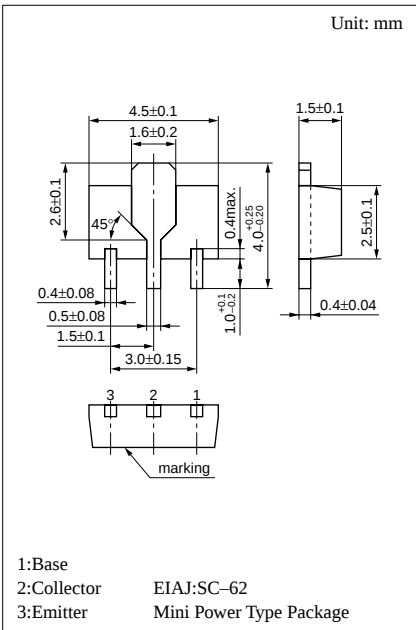
### ■ Electrical Characteristics (Ta=25°C)

| Parameter                               | Symbol         | Conditions                              | min | typ  | max | Unit |
|-----------------------------------------|----------------|-----------------------------------------|-----|------|-----|------|
| Collector cutoff current                | $I_{CBO}$      | $V_{CB} = 20V, I_E = 0$                 |     |      | 0.1 | μA   |
| Collector to base voltage               | $V_{CBO}$      | $I_C = 10\mu A, I_E = 0$                | 50  |      |     | V    |
| Collector to emitter voltage            | $V_{CEO}$      | $I_C = 1mA, I_B = 0$                    | 50  |      |     | V    |
| Emitter to base voltage                 | $V_{EBO}$      | $I_E = 10\mu A, I_C = 0$                | 5   |      |     | V    |
| Forward current transfer ratio          | $h_{FE1}^{*1}$ | $V_{CE} = 2V, I_C = 200mA$              | 120 |      | 340 |      |
|                                         | $h_{FE2}$      | $V_{CE} = 2V, I_C = 1.0A$               | 80  |      |     |      |
| Collector to emitter saturation voltage | $V_{CE(sat)}$  | $I_C = 1A, I_B = 50mA$                  |     | 0.15 | 0.3 | V    |
| Base to emitter saturation voltage      | $V_{BE(sat)}$  | $I_C = 1A, I_B = 50mA$                  |     | 0.82 | 1.2 | V    |
| Transition frequency                    | $f_T$          | $V_{CB} = 10V, I_E = -50mA, f = 200MHz$ |     | 110  |     | MHz  |
| Collector output capacitance            | $C_{ob}$       | $V_{CB} = 10V, I_E = 0, f = 1MHz$       |     | 23   | 35  | pF   |

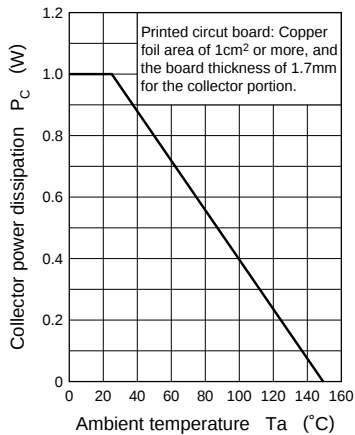
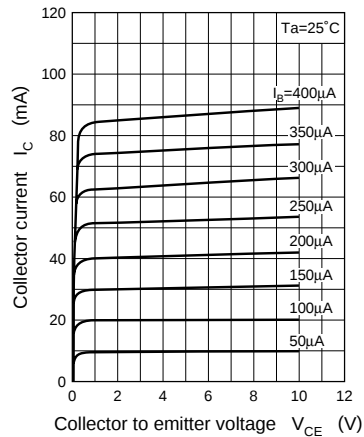
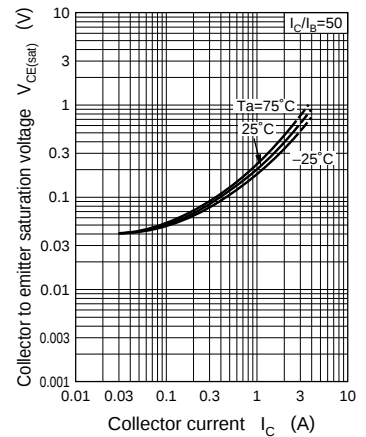
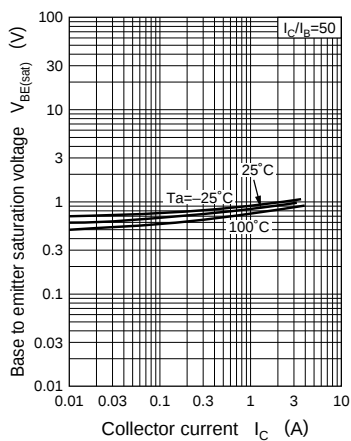
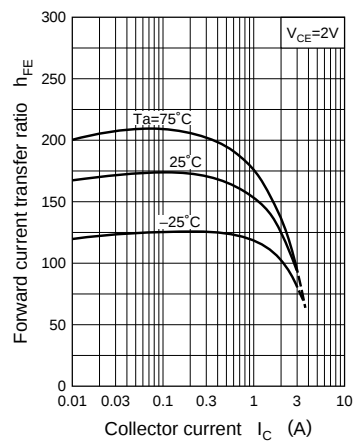
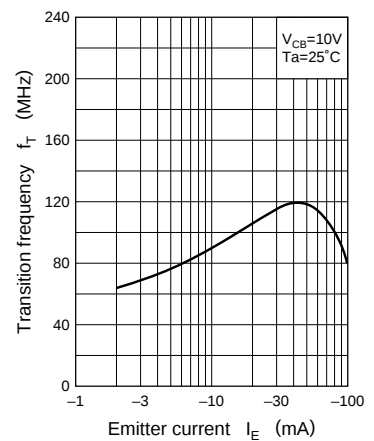
\*2 Pulse measurement

\*1  $h_{FE1}$  Rank classification

| Rank           | R         | S         |
|----------------|-----------|-----------|
| $h_{FE1}$      | 120 ~ 240 | 170 ~ 340 |
| Marking Symbol | 1HR       | 1HS       |



Marking symbol : 1H

$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_E$  $C_{ob} - V_{CB}$ 