

# 2SA683, 2SA684

## Silicon PNP epitaxial planer type

For low-frequency power amplification and driver amplification

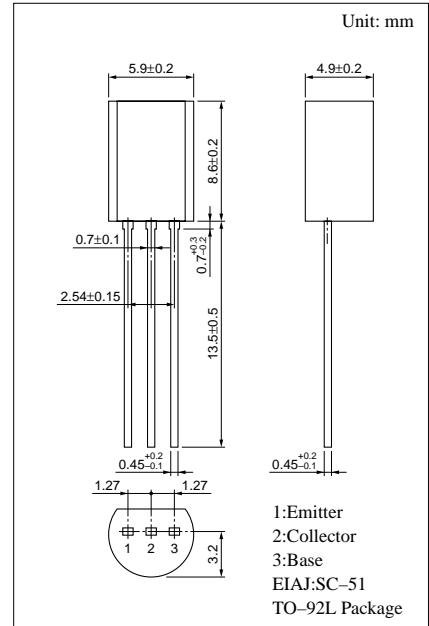
Complementary to 2SC1383 and 2SC1384

### Features

- Complementary pair with 2SC1383 and 2SC1384.
- Allowing supply with the radial taping.

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

| Parameter                    |        | Symbol    | Rated      | Unit |
|------------------------------|--------|-----------|------------|------|
| Collector to base voltage    | 2SA683 | $V_{CB0}$ | -30        | V    |
|                              | 2SA684 |           | -60        |      |
| Collector to emitter voltage | 2SA683 | $V_{CE0}$ | -25        | V    |
|                              | 2SA684 |           | -50        |      |
| Emitter to base voltage      |        | $V_{EBO}$ | -5         | V    |
| Peak collector current       |        | $I_{CP}$  | -1.5       | A    |
| Collector current            |        | $I_C$     | -1         | A    |
| Collector power dissipation  |        | $P_C$     | 1          | W    |
| Junction temperature         |        | $T_j$     | 150        | °C   |
| Storage temperature          |        | $T_{stg}$ | -55 ~ +150 | °C   |



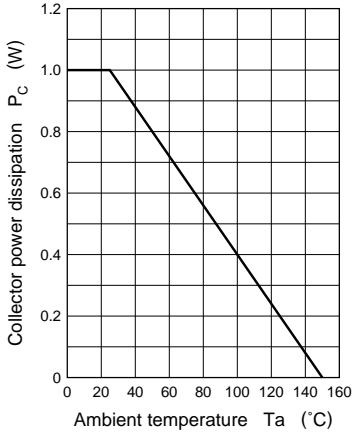
### Electrical Characteristics (Ta=25°C)

| Parameter                               |        | Symbol        | Conditions                              | min | typ   | max  | Unit    |
|---|--------|---------------|---|-----|-------|------|---------|
| Collector cutoff current                |        | $I_{CBO}$     | $V_{CB} = -20V, I_E = 0$                |     |       | -0.1 | $\mu A$ |
| Collector to base voltage               | 2SA683 | $V_{CB0}$     | $I_C = -10\mu A, I_E = 0$               | -30 |       |      | V       |
|   | 2SA684 |               |   | -60 |       |      |         |
| Collector to emitter voltage            | 2SA683 | $V_{CE0}$     | $I_C = -2mA, I_B = 0$                   | -25 |       |      | V       |
|   | 2SA684 |               |   | -50 |       |      |         |
| Emitter to base voltage                 |        | $V_{EBO}$     | $I_E = -10\mu A, I_C = 0$               | -5  |       |      | V       |
| Forward current transfer ratio          |        | $h_{FE1}^*$   | $V_{CE} = -10V, I_C = -500mA$           | 85  |       | 340  |         |
|   |        | $h_{FE2}$     | $V_{CE} = -5V, I_C = -1A$               | 50  |       |      |         |
| Collector to emitter saturation voltage |        | $V_{CE(sat)}$ | $I_C = -500mA, I_B = -50mA$             |     | -0.2  | -0.4 | V       |
| Base to emitter saturation voltage      |        | $V_{BE(sat)}$ | $I_C = -500mA, I_B = -50mA$             |     | -0.85 | -1.2 | V       |
| Transition frequency                    |        | $f_T$         | $V_{CB} = -10V, I_E = 50mA, f = 200MHz$ |     | 200   |      | MHz     |
| Collector output capacitance            |        | $C_{ob}$      | $V_{CB} = -10V, I_E = 0, f = 1MHz$      |     | 20    | 30   | pF      |

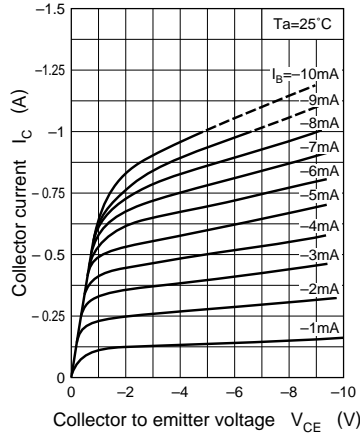
\* $h_{FE1}$  Rank classification

| Rank      | Q        | R         | S         |
|-----------|----------|-----------|-----------|
| $h_{FE1}$ | 85 ~ 170 | 120 ~ 240 | 170 ~ 340 |

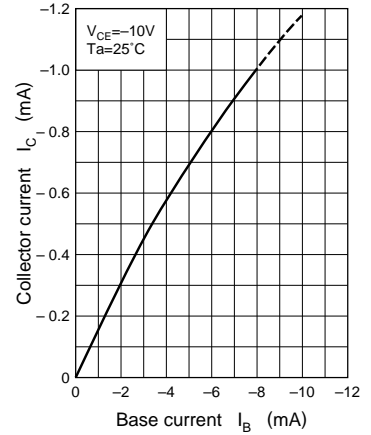
$P_C - T_a$



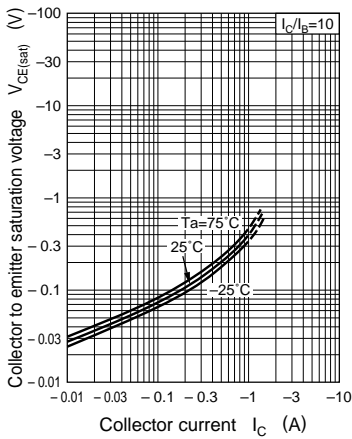
$I_C - V_{CE}$



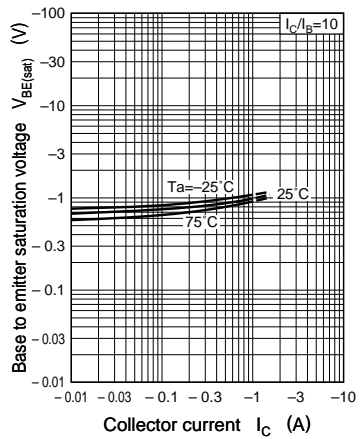
$I_C - I_B$



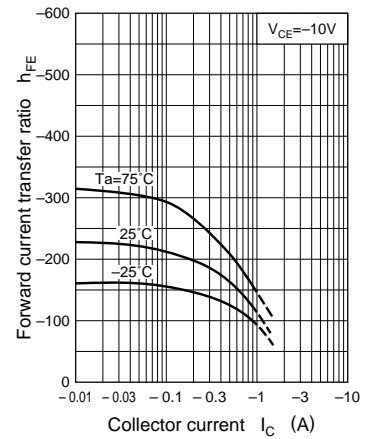
$V_{CE(sat)} - I_C$



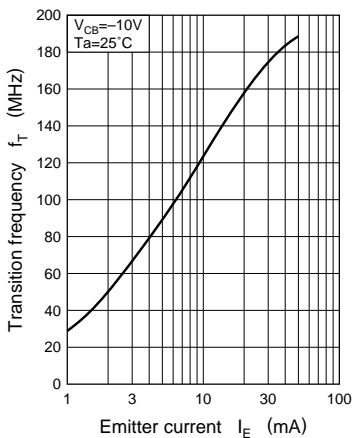
$V_{BE(sat)} - I_C$



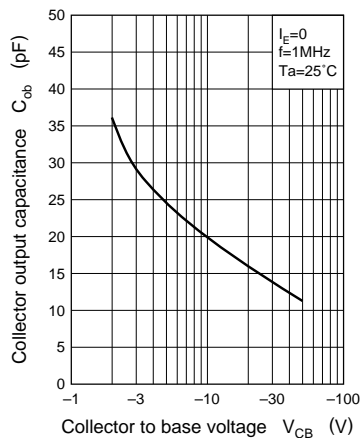
$h_{FE} - I_C$



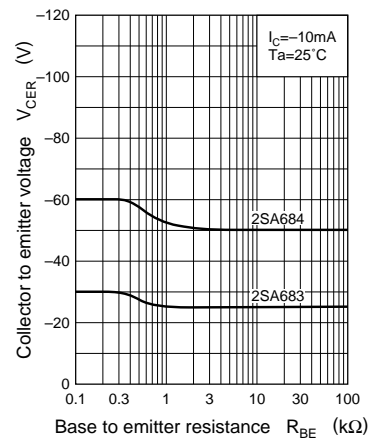
$f_T - I_E$



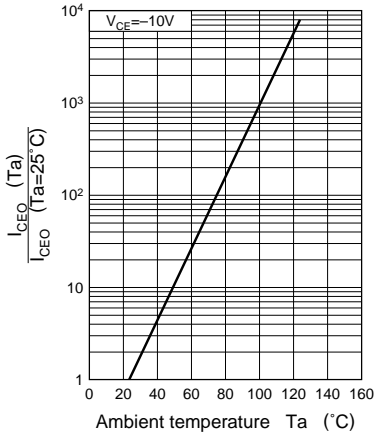
$C_{ob} - V_{CB}$



$V_{CER} - R_{BE}$



$I_{CEO} - T_a$



Area of safe operation (ASO)

