

# 2SD968, 2SD968A

## Silicon NPN epitaxial planer type

For low-frequency driver amplification

Complementary to 2SB789 and 2SB789A

### Features

- High collector to emitter voltage  $V_{CEO}$ .
- Large collector power dissipation  $P_C$ .
- Mini Power type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

### Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

| Parameter                    | Symbol    | Ratings         | Unit             |
|------------------------------|-----------|-----------------|------------------|
| Collector to base voltage    | $V_{CBO}$ | 100             | V                |
| 2SD968A                      |           | 120             |                  |
| Collector to emitter voltage | $V_{CEO}$ | 100             | V                |
| 2SD968A                      |           | 120             |                  |
| Emitter to base voltage      | $V_{EBO}$ | 5               | V                |
| Peak collector current       | $I_{CP}$  | 1               | A                |
| Collector current            | $I_C$     | 0.5             | A                |
| Collector power dissipation  | $P_C^*$   | 1               | W                |
| Junction temperature         | $T_j$     | 150             | $^\circ\text{C}$ |
| Storage temperature          | $T_{stg}$ | $-55 \sim +150$ | $^\circ\text{C}$ |

\* Printed circuit board: Copper foil area of  $1\text{cm}^2$  or more, and the board thickness of 1.7mm for the collector portion

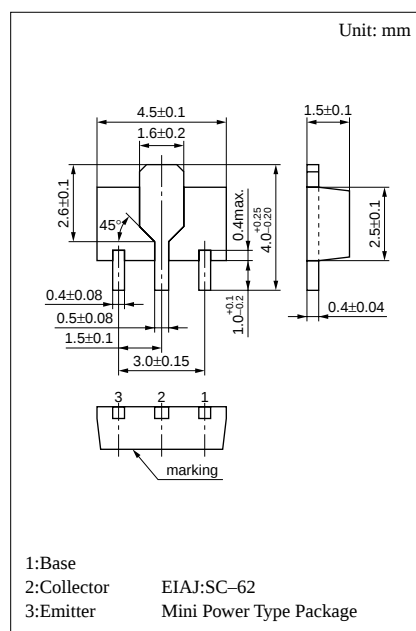
### Electrical Characteristics ( $T_a=25^\circ\text{C}$ )

| Parameter                               | Symbol         | Conditions                                                   | min | typ  | max | Unit |
|-----------------------------------------|----------------|--------------------------------------------------------------|-----|------|-----|------|
| Collector to emitter voltage            | $V_{CEO}$      | $I_C = 100\mu\text{A}, I_B = 0$                              | 100 |      |     | V    |
| 2SD968A                                 |                |                                                              | 120 |      |     |      |
| Emitter to base voltage                 | $V_{EBO}$      | $I_E = 10\mu\text{A}, I_C = 0$                               | 5   |      |     | V    |
| Forward current transfer ratio          | $h_{FE1}^{*1}$ | $V_{CE} = 10\text{V}, I_C = 150\text{mA}^{*2}$               | 90  |      | 220 |      |
|                                         | $h_{FE2}$      | $V_{CE} = 5\text{V}, I_C = 500\text{mA}^{*2}$                | 50  | 100  |     |      |
| Collector to emitter saturation voltage | $V_{CE(sat)}$  | $I_C = 500\text{mA}, I_B = 50\text{mA}^{*2}$                 |     | 0.2  | 0.6 | V    |
| Base to emitter saturation voltage      | $V_{BE(sat)}$  | $I_C = 500\text{mA}, I_B = 50\text{mA}^{*2}$                 |     | 0.85 | 1.2 | V    |
| Transition frequency                    | $f_T$          | $V_{CB} = 10\text{V}, I_E = -50\text{mA}, f = 200\text{MHz}$ |     | 120  |     | MHz  |
| Collector output capacitance            | $C_{ob}$       | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$              |     | 11   | 20  | pF   |

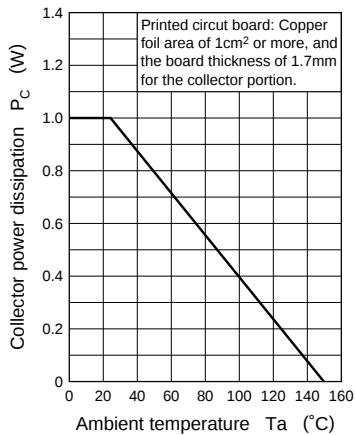
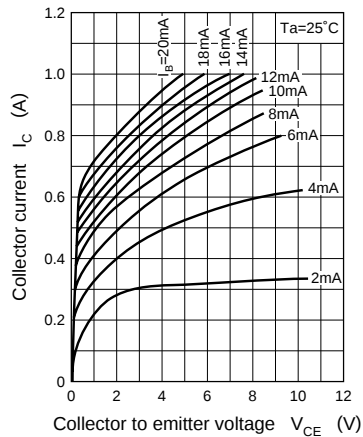
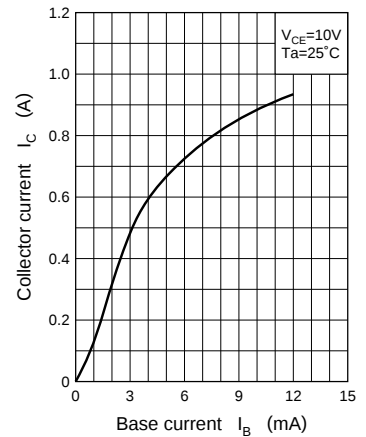
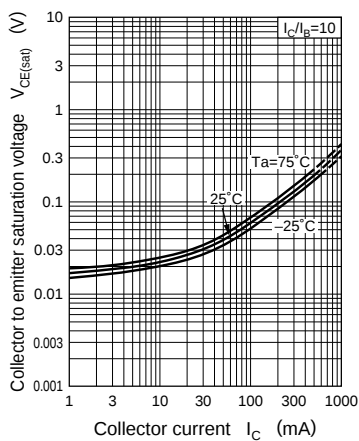
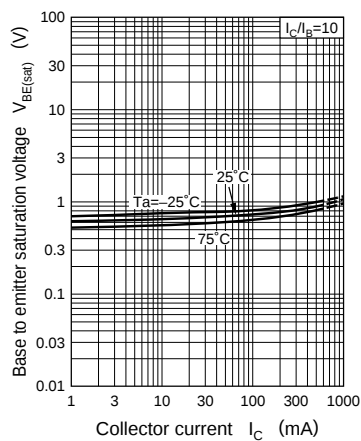
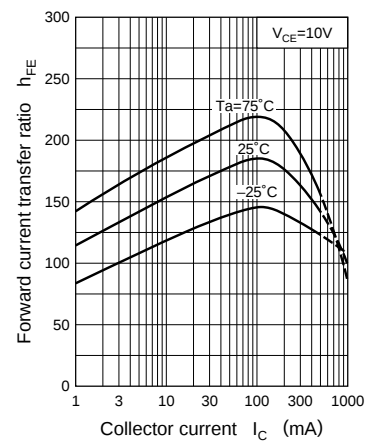
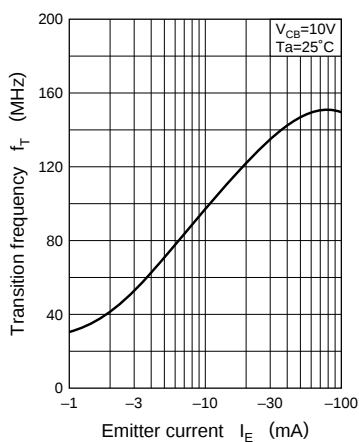
\*1  $h_{FE1}$  Rank classification

\*2 Pulse measurement

| Rank      | Q        | R         |
|-----------|----------|-----------|
| $h_{FE1}$ | 90 ~ 155 | 130 ~ 220 |
| Marking   | 2SD968   | WQ        |
| Symbol    | 2SD968A  | VR        |



Marking symbol : W(2SD968)  
V(2SD968A)

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