

# 2SB1252

## Silicon PNP epitaxial planar type Darlington

For power amplification

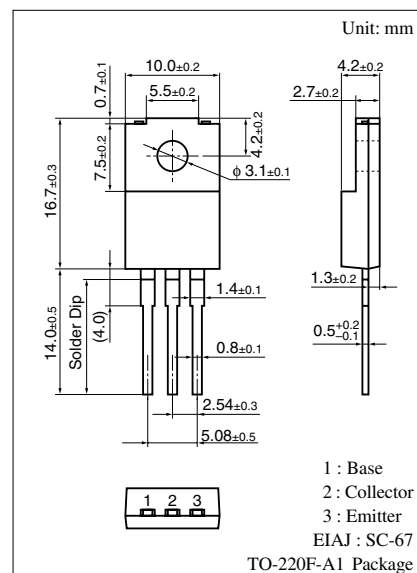
Complementary to 2SD1892

### ■ Features

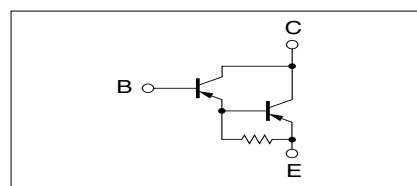
- Optimum for 35 W Hi-Fi output
- High forward current transfer ratio  $h_{FE}$ : 5 000 to 30 000
- Low collector to emitter saturation voltage  $V_{CE(sat)}$ : < 2.5 V
- Full-pack package which can be installed to the heat sink with one screw

### ■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

| Parameter                    | Symbol   | Rating      | Unit             |
|------------------------------|--|-------------|------------------|
| Collector to base voltage    | $V_{CBO}$  | -120        | V                |
| Collector to emitter voltage | $V_{CEO}$  | -100        | V                |
| Emitter to base voltage      | $V_{EBO}$  | -5          | V                |
| Peak collector current       | $I_{CP}$   | -8          | A                |
| Collector current            | $I_C$  | -5          | A                |
| Collector power dissipation  | $T_C = 25^\circ\text{C}$<br>$T_a = 25^\circ\text{C}$ | $P_C$       | W                |
|                              |  | 45<br>2     |                  |
| Junction temperature         | $T_j$  | 150         | $^\circ\text{C}$ |
| Storage temperature          | $T_{stg}$  | -55 to +150 | $^\circ\text{C}$ |



### Internal Connection

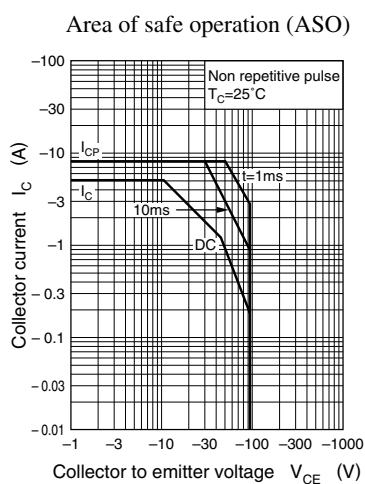
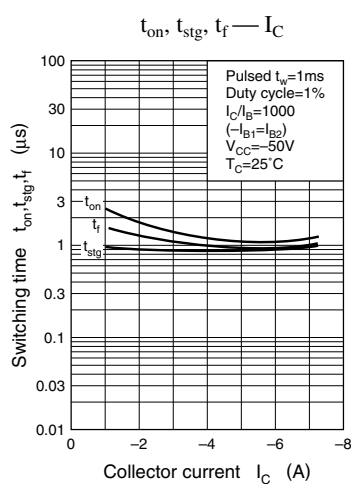
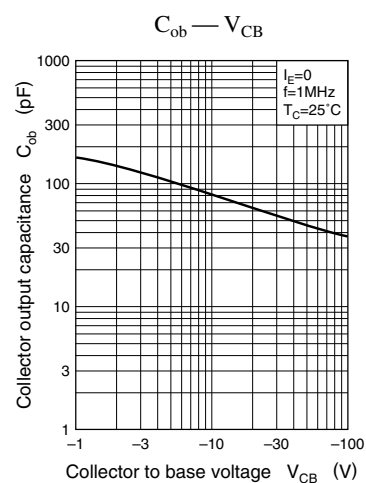
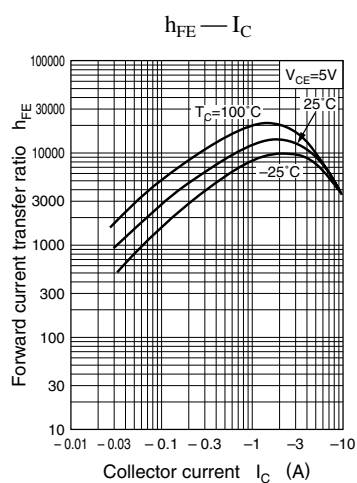
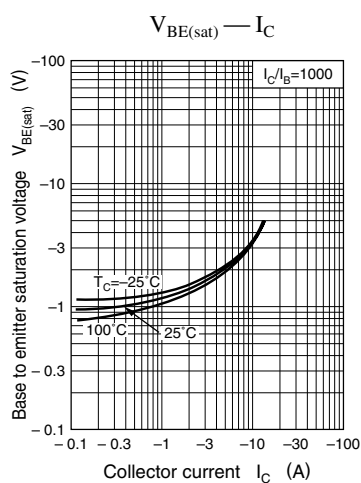
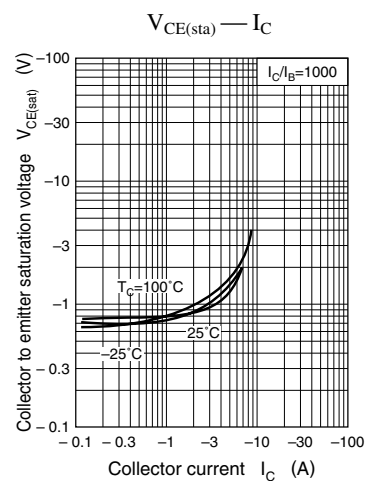
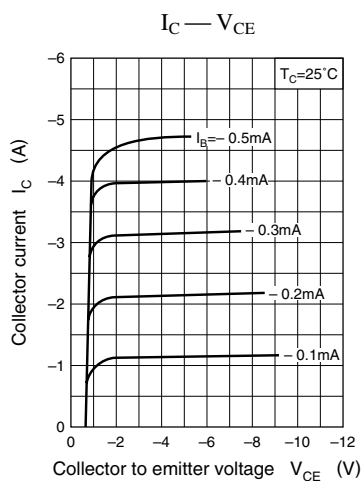
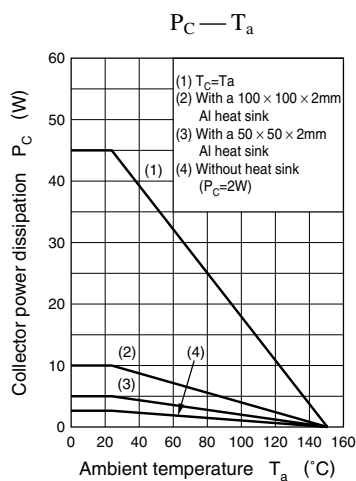


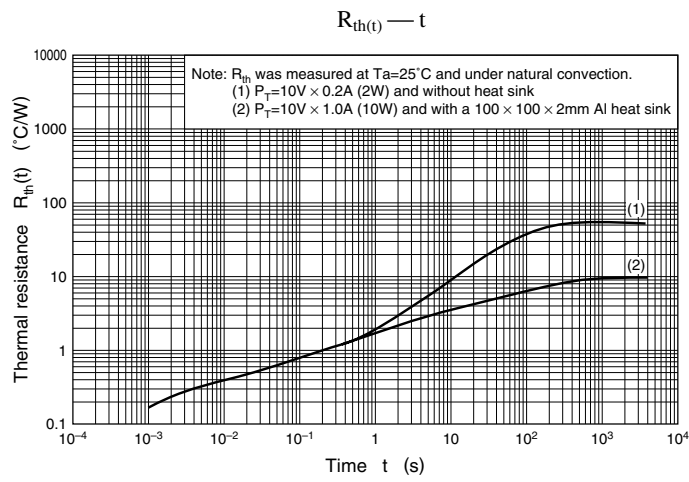
### ■ Electrical Characteristics $T_C = 25^\circ\text{C}$

| Parameter                               | Symbol        | Conditions   | Min   | Typ | Max    | Unit          |
|---|---------------|--|-------|-----|--------|---------------|
| Collector cutoff current                | $I_{CBO}$     | $V_{CB} = -120\text{ V}, I_E = 0$                                |       |     | -100   | $\mu\text{A}$ |
|   | $I_{CEO}$     | $V_{CE} = -100\text{ V}, I_B = 0$                                |       |     | -100   | $\mu\text{A}$ |
| Emitter cutoff current                  | $I_{EBO}$     | $V_{EB} = -5\text{ V}, I_C = 0$                                  |       |     | -100   | $\mu\text{A}$ |
| Collector to emitter voltage            | $V_{CEO}$     | $I_C = -30\text{ mA}, I_B = 0$                                   | -100  |     |        | V             |
| Forward current transfer ratio          | $h_{FE1}$     | $V_{CE} = -5\text{ V}, I_C = -1\text{ A}$                        | 2 000 |     |        |               |
|   | $h_{FE2}^*$   | $V_{CE} = -5\text{ V}, I_C = -4\text{ A}$                        | 5 000 |     | 30 000 |               |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -4\text{ A}, I_B = -4\text{ mA}$                          |       |     | -2.5   | V             |
| Base to emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = -4\text{ A}, I_B = -4\text{ mA}$                          |       |     | -3.0   | V             |
| Transition frequency                    | $f_T$         | $V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 1\text{ MHz}$   |       | 20  |        | MHz           |
| Turn-on time                            | $t_{on}$      | $I_C = -4\text{ A}, I_{B1} = -4\text{ mA}, I_{B2} = 4\text{ mA}$ |       | 1.0 |        | $\mu\text{s}$ |
| Storage time                            | $t_{stg}$     | $V_{CC} = -50\text{ V}$  |       | 0.8 |        | $\mu\text{s}$ |
| Fall time                               | $t_f$         |  |       | 1.0 |        | $\mu\text{s}$ |

Note) \*: Rank classification

| Rank      | Q               | P               |
|-----------|-----------------|-----------------|
| $h_{FE2}$ | 5 000 to 15 000 | 8 000 to 30 000 |





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