

# 2SD1499

## Silicon NPN triple diffusion planar type

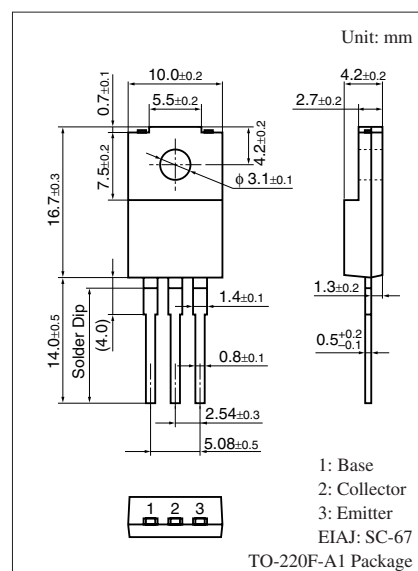
For high power amplification  
Complementary to 2SB1063

### ■ Features

- Extremely satisfactory linearity of the forward current transfer ratio  $h_{FE}$
- Wide safe operation area
- High transition frequency  $f_T$
- 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-base voltage (Emitter open) | $V_{CBO}$                | 100         | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$                | 100         | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$                | 5           | V                |
| Collector current                     | $I_C$                    | 5           | A                |
| Peak collector current                | $I_{CP}$                 | 8           | A                |
| Collector power dissipation           | $P_C$                    | 40          | W                |
|                                       | $T_a = 25^\circ\text{C}$ | 2.0         |                  |
| Junction temperature                  | $T_j$                    | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$                | -55 to +150 | $^\circ\text{C}$ |



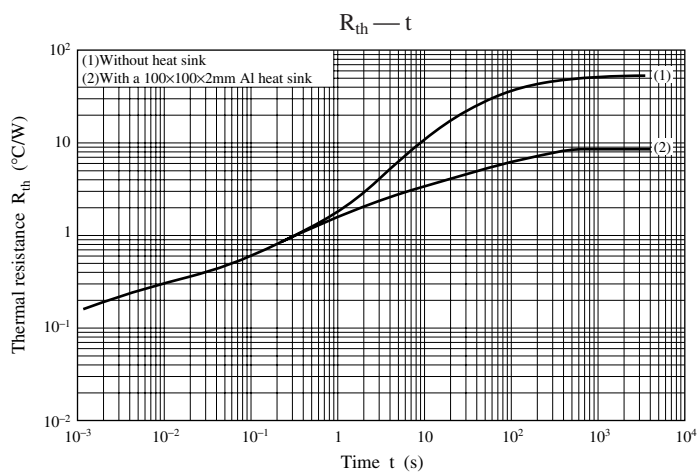
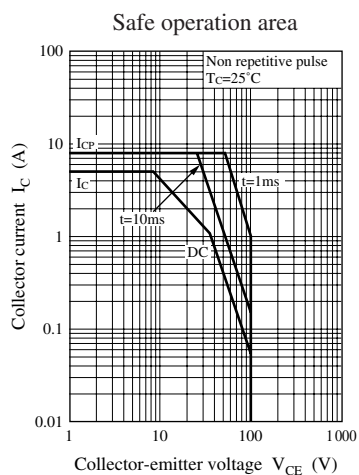
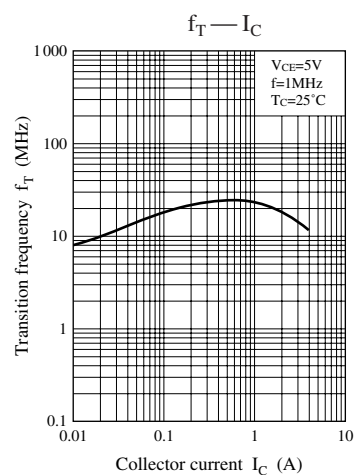
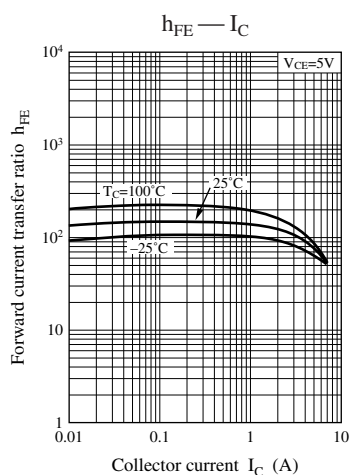
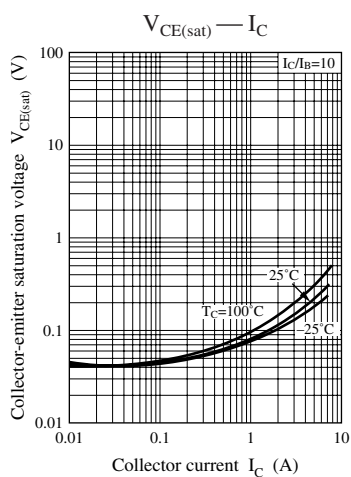
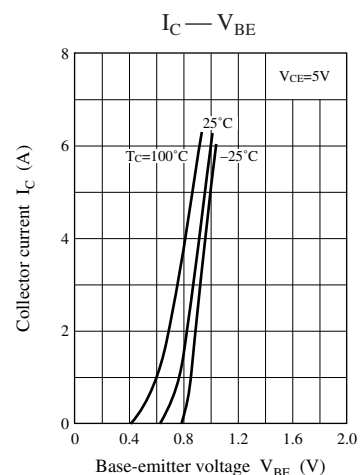
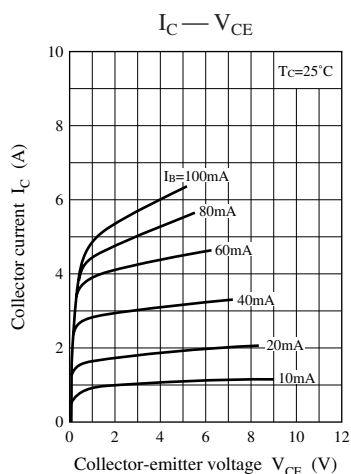
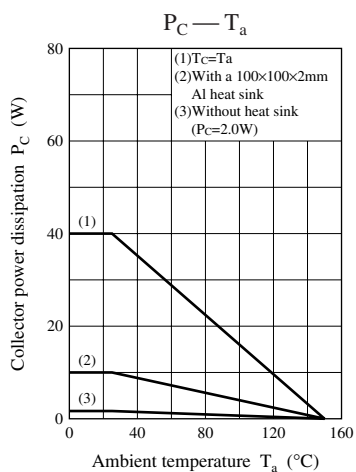
### ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter                                                        | Symbol        | Conditions                                                  | Min | Typ | Max | Unit          |
|------------------------------------------------------------------|---------------|-------------------------------------------------------------|-----|-----|-----|---------------|
| Base-emitter voltage                                             | $V_{BE}$      | $V_{CE} = 5\text{ V}, I_C = 3\text{ A}$                     |     |     | 1.8 | V             |
| Collector-base cutoff current (Emitter open)                     | $I_{CBO}$     | $V_{CB} = 100\text{ V}, I_E = 0$                            |     |     | 50  | $\mu\text{A}$ |
| Emitter-base cutoff current (Collector open)                     | $I_{EBO}$     | $V_{EB} = 3\text{ V}, I_C = 0$                              |     |     | 50  | $\mu\text{A}$ |
| Forward current transfer ratio                                   | $h_{FE1}$     | $V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$                   | 20  |     |     | —             |
|                                                                  | $h_{FE2}^*$   | $V_{CE} = 5\text{ V}, I_C = 1\text{ A}$                     | 40  |     | 200 |               |
|                                                                  | $h_{FE3}$     | $V_{CE} = 5\text{ V}, I_C = 3\text{ A}$                     | 20  |     |     |               |
| Collector-emitter saturation voltage                             | $V_{CE(sat)}$ | $I_C = 3\text{ A}, I_B = 0.3\text{ A}$                      |     |     | 2.0 | V             |
| Transition frequency                                             | $f_T$         | $V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}, f = 1\text{ MHz}$ |     | 20  |     | MHz           |
| Collector output capacitance (Common base, input open circuited) | $C_{ob}$      | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$           |     | 90  |     | pF            |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

| Rank      | R        | Q         | P          |
|-----------|----------|-----------|------------|
| $h_{FE2}$ | 40 to 80 | 60 to 120 | 100 to 200 |



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