

## Silicon PNP Power Transistors

2SB863

## DESCRIPTION

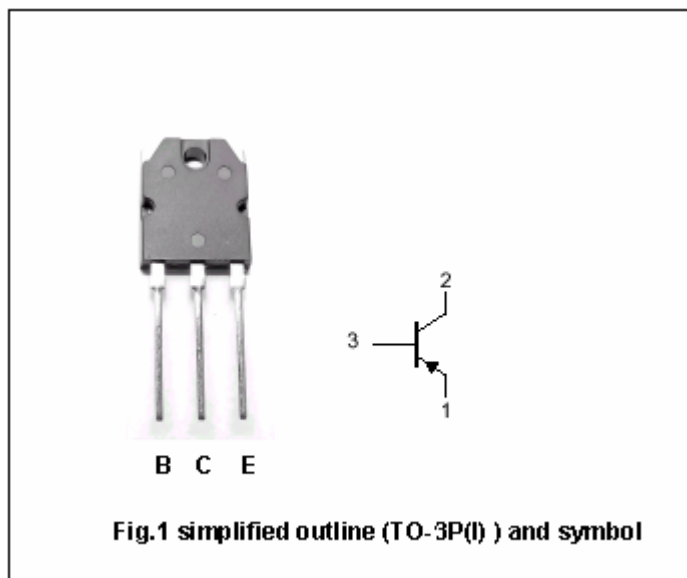
- With TO-3P(I) package
- Complement to type 2SD1148

## APPLICATIONS

- Power amplifier applications
- Recommend for 70W high fidelity audio frequency amplifier output stage

## PINNING

| PIN | DESCRIPTION                          |
|-----|--------------------------------------|
| 1   | Emitter                              |
| 2   | Collector;connected to mounting base |
| 3   | Base                                 |

Absolute maximum ratings( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                   | CONDITIONS             | VALUE   | UNIT             |
|-----------|-----------------------------|------------------------|---------|------------------|
| $V_{CBO}$ | Collector-base voltage      | Open emitter           | -140    | V                |
| $V_{CEO}$ | Collector-emitter voltage   | Open base              | -140    | V                |
| $V_{EBO}$ | Emitter-base voltage        | Open collector         | -5      | V                |
| $I_C$     | Collector current           |                        | -10     | A                |
| $I_B$     | Base current                |                        | -1      | A                |
| $P_C$     | Collector power dissipation | $T_C=25^\circ\text{C}$ | 100     | W                |
| $T_j$     | Junction temperature        |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature         |                        | -55~150 | $^\circ\text{C}$ |

## Silicon PNP Power Transistors

## 2SB863

## CHARACTERISTICS

Tj=25°C unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS                         | MIN  | TYP.  | MAX  | UNIT    |
|---------------|--------------------------------------|------------------------------------|------|-------|------|---------|
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage  | $I_C = -50mA; I_B = 0$             | -140 |       |      | V       |
| $V_{CEsat}$   | Collector-emitter saturation voltage | $I_C = -5.0A; I_B = -0.5A$         |      | -0.60 | -2.0 | V       |
| $V_{BE}$      | Base-emitter on voltage              | $I_C = -5A; V_{CE} = -5V$          |      | -0.96 | -1.5 | V       |
| $I_{CBO}$     | Collector cut-off current            | $V_{CB} = -140V; I_E = 0$          |      |       | -5.0 | $\mu A$ |
| $I_{EBO}$     | Emitter cut-off current              | $V_{EB} = -5V; I_C = 0$            |      |       | -5.0 | $\mu A$ |
| $h_{FE-1}$    | DC current gain                      | $I_C = -1A; V_{CE} = -5V$          | 55   |       | 160  |         |
| $h_{FE-2}$    | DC current gain                      | $I_C = -5A; V_{CE} = -5V$          | 25   |       |      |         |
| $f_T$         | Transition frequency                 | $I_C = -1A; V_{CE} = -10V$         |      | 15    |      | MHz     |
| $C_{OB}$      | Collector output capacitance         | $I_C = 0; f = 1MHz; V_{CB} = -10V$ |      | 400   |      | pF      |

◆  $h_{FE-1}$  Classifications

| R      | O      |
|--------|--------|
| 55-110 | 80-160 |

# 2SB863

Technical drawing of a mechanical part showing three views: front, side, and top. The front view shows a rectangular body with three vertical pins at the bottom. Dimensions include overall width 15.60, overall height 35.50, and pin diameter 3-ø2.00. The side view shows a profile with a 3° chamfer and a 5° taper. The top view shows a square footprint with a central hole of diameter ø3.30. Unindicated tolerance is ±0.10 mm.

## Silicon PNP Power Transistors

2SB863

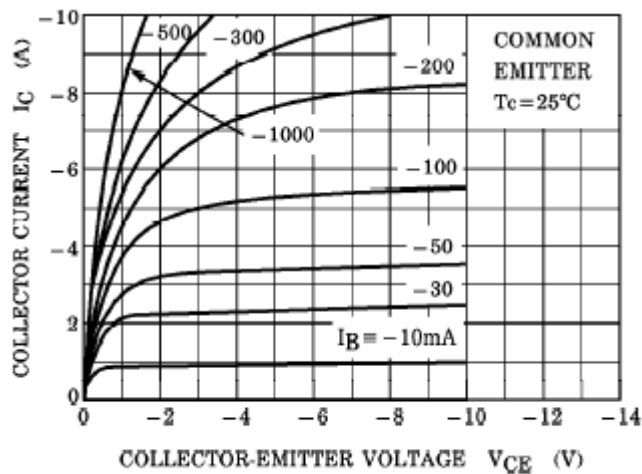


Fig.3 Static Characteristic

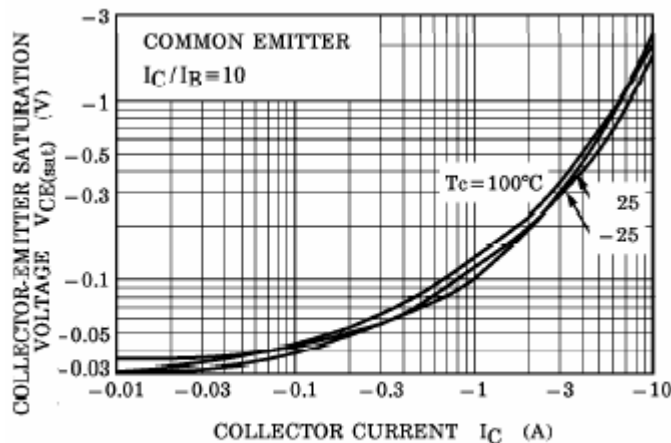


Fig.5 Collector-Emitter Saturation Voltage

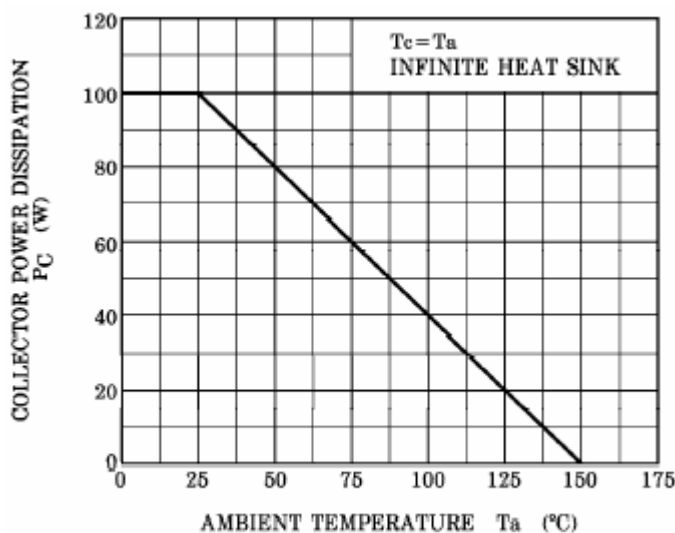


Fig.6 Pc-Ta Derating

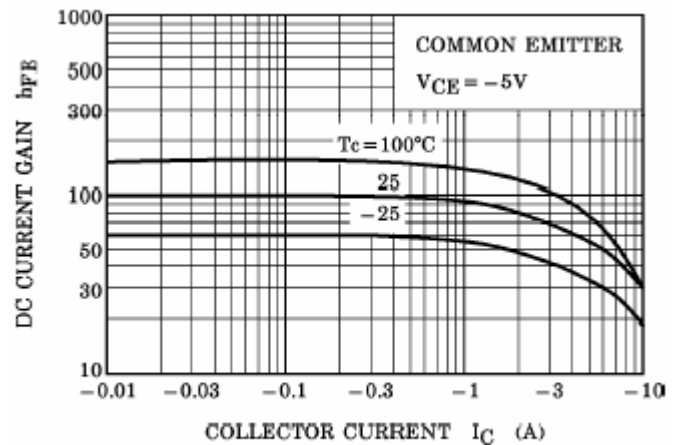


Fig.4 DC current Gain

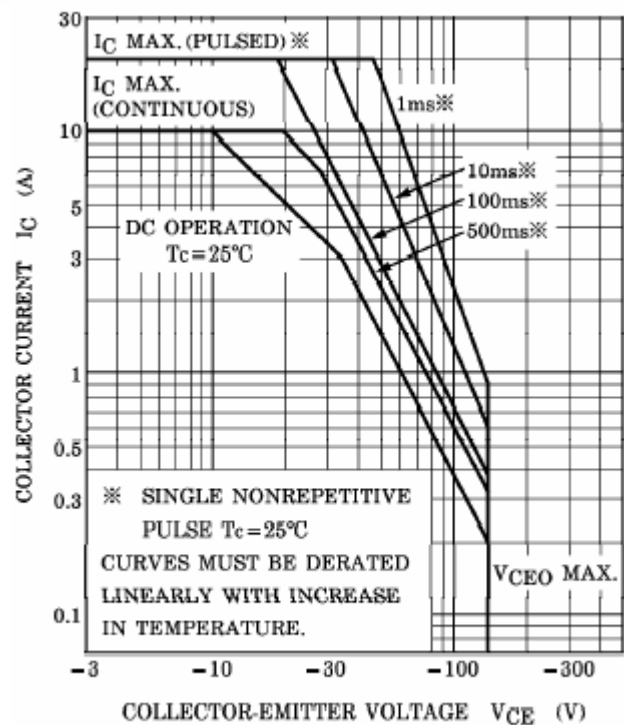


Fig.5 Safe Operating Area