

Power Transistor (−60V, −3A)

2SB1370

●Features

- 1) Low saturation voltage, typically $V_{CE(sat)} = -0.3V$ at $I_C / I_E = -2A / -0.2A$.
- 2) Excellent DC current gain characteristics.
- 3) $P_C = 2W(T_a=25^\circ C) / 30W(T_c=25^\circ C)$
- 4) Wide SOA (safe operating area).

●Packaging specifications and h_{FE}

| | |
|------------------------------|----------|
| Type | 2SB1370 |
| Package | TO-220FN |
| h _{FE} | EF |
| Code | — |
| Basic ordering unit (pieces) | 500 |

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|----------|--------------------------|
| Collector-base voltage | V _{CBO} | -60 | V |
| Collector-emitter voltage | V _{CEO} | -60 | V |
| Emitter-base voltage | V _{EBO} | -5 | V |
| Collector current | I _C | -3 | A (DC) |
| | I _{CP} | -6 | A (Pulse) * |
| Collector power dissipation | P _C | 2 | W |
| | | 30 | W (T _c =25°C) |
| Junction temperature | T _J | 150 | °C |
| Storage temperature | T _{stg} | -55~+150 | °C |

* Single pulse, P_w=100ms

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CBO} | -60 | — | — | V | I _C = -50 μA |
| Collector-emitter breakdown voltage | BV _{CEO} | -60 | — | — | V | I _C = -1mA |
| Emitter-base breakdown voltage | BV _{EBO} | -5 | — | — | V | I _E = -50 μA |
| Collector cutoff current | I _{CBO} | — | — | -10 | μA | V _{CB} = -60V |
| Emitter cutoff current | I _{EBO} | — | — | -10 | μA | V _{EB} = -4V |
| Collector-emitter saturation voltage | V _{CE(sat)} | — | — | -1.5 | V | I _C /I _E = -2A/-0.2A * |
| Base-emitter saturation voltage | V _{BE(sat)} | — | — | -1.5 | V | I _C /I _E = -2A/-0.2A * |
| DC current transfer ratio | h _{FE} | 100 | — | 320 | — | V _{CE} /I _C = -5V/-0.5A |
| Transition frequency | f _T | — | 15 | — | MHz | V _{CE} = -5V, I _E = 0.5A, f = 5MHz * |
| Output capacitance | C _{ob} | — | 80 | — | pF | V _{CB} = -10V, I _E = 0A, f = 1MHz |

* Measured using pulse current.

(94L-411-B303)

Power Transistor (−60V, −3A)

2SB1655/2SB1565

●Features

- 1) Low saturation voltage, typically $V_{CE(sat)} = -0.3V$ at $I_C / I_E = -2A / -0.2A$.
- 2) Excellent DC current gain characteristics.
- 3) Wide SOA (safe operating area).

●Packaging specifications and h_{FE}

| | | |
|------------------------------|----------|----------|
| Type | 2SB1655 | 2SB1565 |
| Package | TO-220FN | TO-220FN |
| h _{FE} | E | EF |
| Code | — | — |
| Basic ordering unit (pieces) | 500 | 500 |

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|----------|--------------------------|
| Collector-base voltage | V _{CBO} | -80 | V |
| Collector-emitter voltage | V _{CEO} | -60 | V |
| Emitter-base voltage | V _{EBO} | -7 | V |
| Collector current | I _C | -3 | A (DC) |
| | I _{CP} | -6 | A (Pulse) * |
| Collector power dissipation | P _C | 2 | W |
| | | 25 | W (T _c =25°C) |
| Junction temperature | T _J | 150 | °C |
| Storage temperature | T _{stg} | -55~+150 | °C |

* Single pulse, P_w=100ms

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CBO} | -80 | — | — | V | I _C = -50 μA |
| Collector-emitter breakdown voltage | BV _{CEO} | -60 | — | — | V | I _C = -1mA |
| Emitter-base breakdown voltage | BV _{EBO} | -7 | — | — | V | I _E = -50 μA |
| Collector cutoff current | I _{CBO} | — | — | -10 | μA | V _{CB} = -60V |
| Emitter cutoff current | I _{EBO} | — | — | -10 | μA | V _{EB} = -7V |
| Collector-emitter saturation voltage | 2SB1655 | — | — | -1 | V | I _C /I _E = -2A/-0.2A * |
| | 2SB1565 | — | — | -1.5 | V | |
| Base-emitter saturation voltage | V _{BE(sat)} | — | — | -1.5 | V | I _C /I _E = -2A/-0.2A * |
| DC current transfer ratio | 2SB1655 | 100 | — | 200 | — | V _{CE} /I _C = -5V/-0.5A |
| | 2SB1565 | 100 | — | 320 | — | |
| Transition frequency | f _T | — | 15 | — | MHz | V _{CE} = -5V, I _E = 0.5A, f = 5MHz * |
| Output capacitance | C _{ob} | — | 50 | — | pF | V _{CB} = -10V, I _E = 0A, f = 1MHz |

* Measured using pulse current.

(94L-456-B349)

