

2SB1645

Silicon PNP triple diffusion planar type Darlington

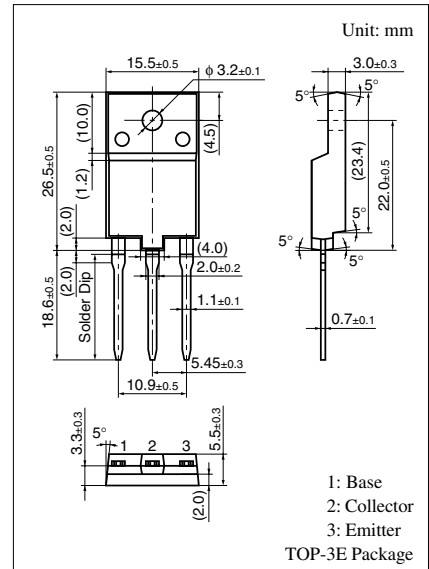
For power amplification

■ Features

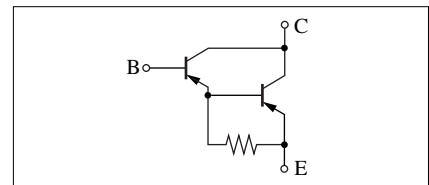
- Satisfactory forward current transfer ratio h_{FE} characteristics
- Wide area of safe operation (ASO)
- Optimum for the output stage of a HiFi audio amplifier

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

| Parameter | Symbol | Rating | Unit | |
|------------------------------|--------------------------|-------------|------------------|---|
| Collector to base voltage | V_{CBO} | -160 | V | |
| Collector to emitter voltage | V_{CEO} | -160 | V | |
| Emitter to base voltage | V_{EBO} | -5 | V | |
| Peak collector current | I_{CP} | -15 | A | |
| Collector current | I_C | -8 | A | |
| Collector power dissipation | $T_C = 25^\circ\text{C}$ | P_C | 100 | W |
| | $T_a = 25^\circ\text{C}$ | | 3 | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ | |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ | |



Internal Connection



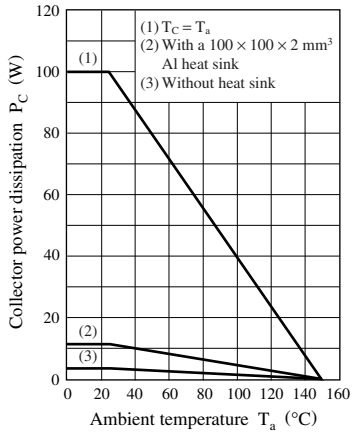
■ Electrical Characteristics $T_C = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------|---|-------|-----|--------|---------------|
| Collector cutoff current | I_{CBO} | $V_{CB} = -160\text{ V}, I_E = 0$ | | | -100 | μA |
| | I_{CEO} | $V_{CB} = -160\text{ V}, I_E = 0$ | | | -100 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = -5\text{ V}, I_C = 0$ | | | -100 | μA |
| Collector to emitter voltage | V_{CEO} | $I_C = -10\text{ mA}, I_B = 0$ | -160 | | | V |
| Forward current transfer ratio | h_{FE1} | $V_{CE} = -5\text{ V}, I_C = -1\text{ A}$ | 500 | | | |
| | h_{FE2}^* | $V_{CE} = -5\text{ V}, I_C = -7\text{ A}$ | 3 500 | | 15 000 | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -7\text{ A}, I_B = -7\text{ mA}$ | | | -3 | V |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | $I_C = -7\text{ A}, I_B = -7\text{ mA}$ | | | -3 | 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} | $I_C = 7\text{ A}, I_{B1} = -7\text{ mA}, I_{B2} = 7\text{ mA}$ | | 1.0 | | μs |
| Storage time | t_{stg} | $V_{CC} = -50\text{ V}$ | | 1.5 | | μs |
| Fall time | t_f | | | 1.2 | | μs |

Note) *: Rank classification

| Rank | P | Q |
|-----------|-----------------|-----------------|
| h_{FE2} | 5 000 to 15 000 | 3 500 to 10 000 |

$P_C - T_a$



Area of safe operation (ASO)

