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# 2SB1059

Silicon PNP Epitaxial

# HITACHI

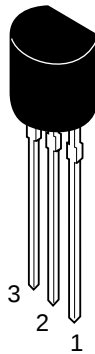
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## Application

- Low frequency power amplifier
- Complementary pair with 2SD1490

## Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

| Item                         | Symbol    | Ratings     | Unit |
|------------------------------|-----------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | -70         | V    |
| Collector to emitter voltage | $V_{CEO}$ | -50         | V    |
| Emitter to base voltage      | $V_{EBO}$ | -6          | V    |
| Collector current            | $I_C$     | -1          | A    |
| Collector power dissipation  | $P_C$     | 0.75        | W    |
| Junction temperature         | $T_j$     | 150         | °C   |
| Storage temperature          | $T_{stg}$ | -55 to +150 | °C   |

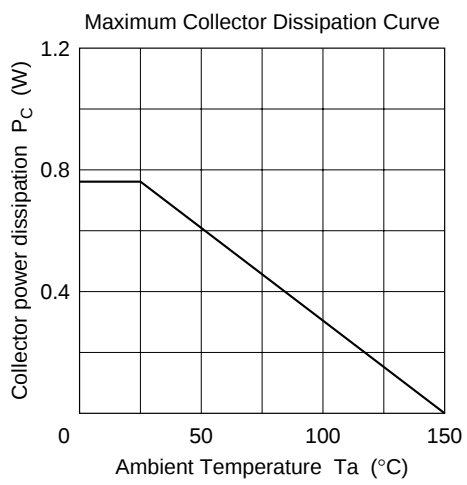
Electrical Characteristics (Ta = 25°C)

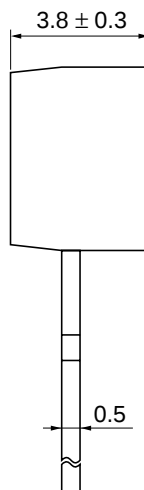
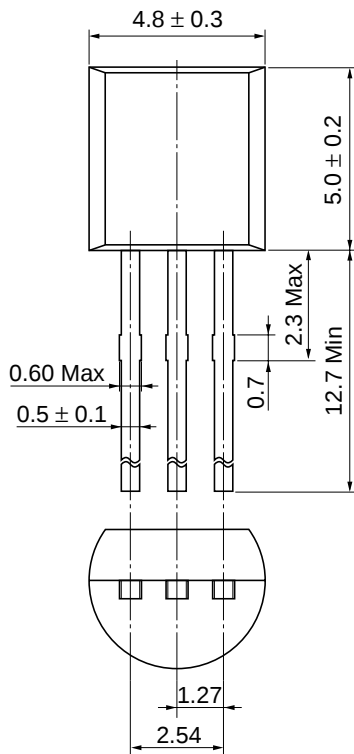
| Item                                    | Symbol        | Min | Typ | Max  | Unit    | Test conditions                        |
|-----------------------------------------|---------------|-----|-----|------|---------|----------------------------------------|
| Collector to base breakdown voltage     | $V_{(BR)CBO}$ | -70 | —   | —    | V       | $I_C = -10\ \mu A, I_E = 0$            |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$ | -50 | —   | —    | V       | $I_C = -1\ mA, R_{BE} = \infty$        |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$ | -6  | —   | —    | V       | $I_E = -10\ \mu A, I_C = 0$            |
| Collector cutoff current                | $I_{CBO}$     | —   | —   | -1   | $\mu A$ | $V_{CB} = -55\ V, I_E = 0$             |
| Emitter cutoff current                  | $I_{EBO}$     | —   | —   | -0.2 | $\mu A$ | $V_{EB} = -6\ V, I_C = 0$              |
| DC current transfer ratio               | $h_{FE}^{*1}$ | 100 | —   | 320  |         | $V_{CE} = -2\ V, I_C = -0.1\ A$        |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | —   | —   | -0.6 | V       | $I_C = -1\ A, I_B = -0.1\ A$           |
| Gain bandwidth product                  | $f_T$         | —   | 65  | —    | MHz     | $V_{CE} = -2\ V, I_C = -10\ mA$        |
| Collector output capacitance            | $C_{ob}$      | —   | 35  | —    | pF      | $V_{CB} = -10\ V, I_E = 0, f = 1\ MHz$ |

Note: 1. The 2SB1059 is grouped by  $h_{FE}$  as follows.

| B          | C          |
|------------|------------|
| 100 to 200 | 160 to 320 |

See characteristic curves of 2SB740.





|                          |           |
|--------------------------|-----------|
| Hitachi Code             | TO-92 (1) |
| JEDEC                    | Conforms  |
| EIAJ                     | Conforms  |
| Weight (reference value) | 0.25 g    |