

2SD1133, 2SD1134

Silicon NPN Triple Diffused

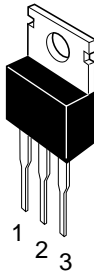
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Application

Low frequency power amplifier complementary pair with 2SB857 and 2SB858

Outline

TO-220AB



1. Base
2. Collector
(Flange)
3. Emitter

Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | Ratings | | Unit |
|------------------------------|---------------|-------------|-------------|------|
| | | 2SD1133 | 2SD1134 | |
| Collector to base voltage | V_{CBO} | 70 | 70 | V |
| Collector to emitter voltage | V_{CEO} | 50 | 60 | V |
| Emitter to base voltage | V_{EBO} | 5 | 5 | V |
| Collector current | I_C | 4 | 4 | A |
| Collector peak current | $I_{C(peak)}$ | 8 | 8 | A |
| Collector power dissipation | P_C^{*1} | 40 | 40 | W |
| Junction temperature | T_j | 150 | 150 | °C |
| Storage temperature | T_{stg} | -45 to +150 | -45 to +150 | °C |

Note: 1. Value at $T_c = 25^\circ\text{C}$.

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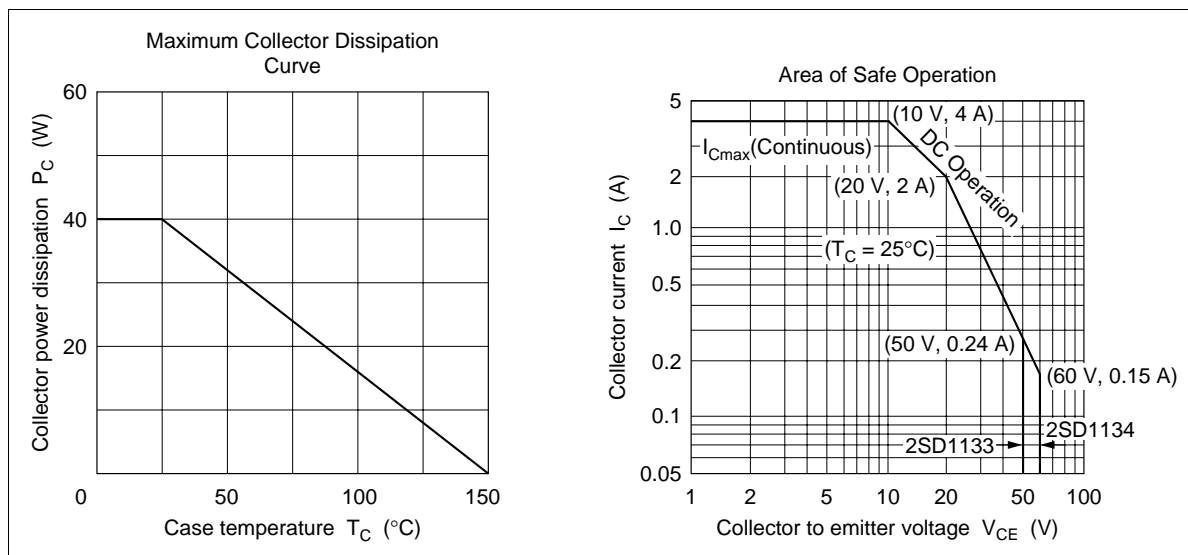
Electrical Characteristics (Ta = 25°C)

| Item | Symbol | 2SD1133 | | | 2SD1134 | | | Unit | Test conditions |
|---|----------------|---------|-----|-----|---------|-----|-----|---------|----------------------------------|
| | | Min | Typ | Max | Min | Typ | Max | | |
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | 70 | — | — | 70 | — | — | V | $I_C = 10 \mu A, I_E = 0$ |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | 50 | — | — | 60 | — | — | V | $I_C = 50 mA, R_{BE} = \infty$ |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | 5 | — | — | 5 | — | — | V | $I_E = 10 \mu A, I_C = 0$ |
| Collector cutoff current | I_{CBO} | — | — | 1 | — | — | 1 | μA | $V_{CB} = 50 V, I_E = 0$ |
| DC current transfer ratio | h_{FE1}^{*1} | 60 | — | 320 | 60 | — | 320 | | $V_{CE} = 4 V, I_C = 1 A^{*2}$ |
| | h_{FE2} | 35 | — | — | 35 | — | — | | $I_C = 0.1 A^{*2}$ |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | — | — | 1 | — | — | 1 | V | $I_C = 2 A, I_B = 0.2 A^{*2}$ |
| Base to emitter voltage | V_{BE} | — | — | 1 | — | — | 1 | V | $V_{CE} = 4 V, I_C = 1 A^{*2}$ |
| Gain bandwidth product | f_T | — | 7 | — | — | 7 | — | MHz | $V_{CE} = 4 V, I_C = 0.5 A^{*2}$ |

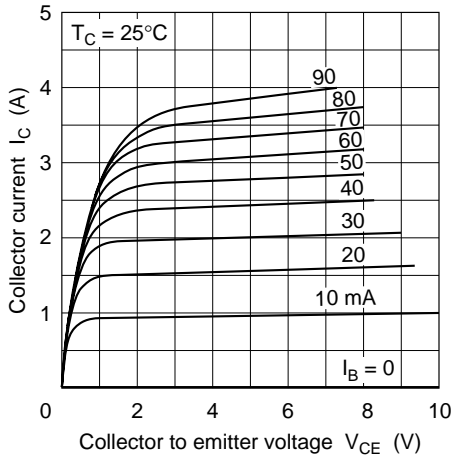
Notes: 1. The 2SD1133 and 2SD1134 are grouped by h_{FE1} as follows.

2. Pulse test.

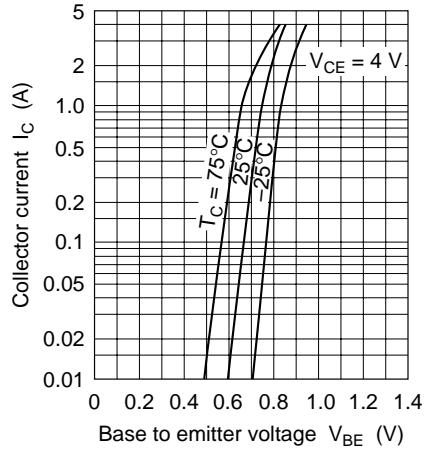
| B | C | D |
|-----------|------------|------------|
| 60 to 120 | 100 to 200 | 160 to 320 |



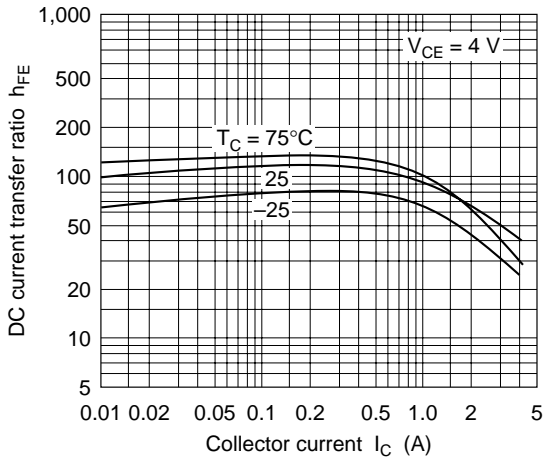
Typical Output Characteristics



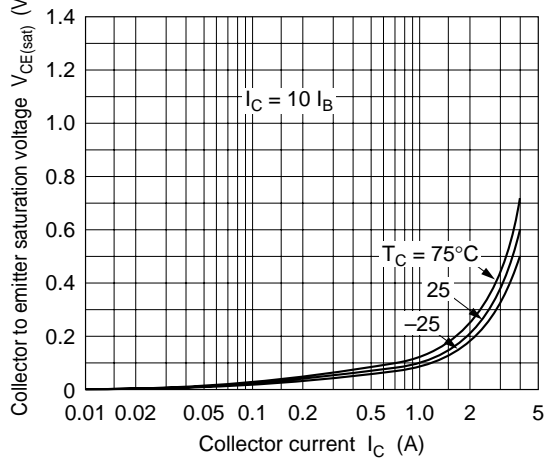
Typical Transfer Characteristics

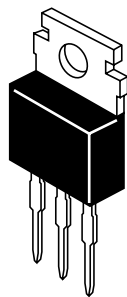
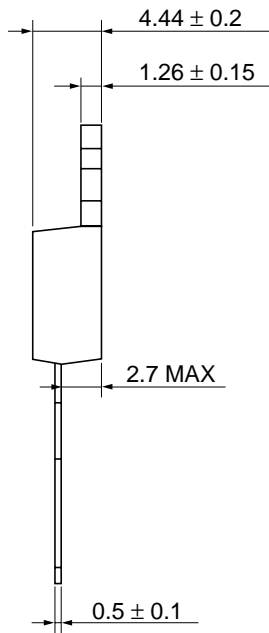
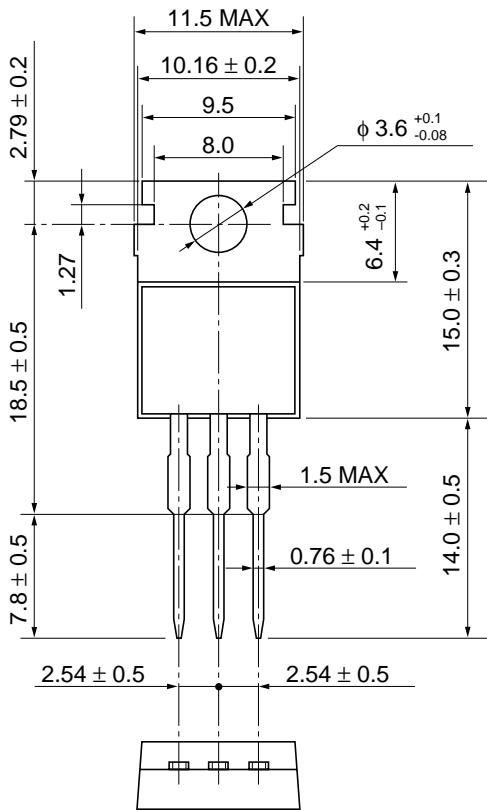


DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current





| | |
|--------------------------|----------|
| Hitachi Code | TO-220AB |
| JEDEC | Conforms |
| EIAJ | Conforms |
| Weight (reference value) | 1.8 g |

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