

2SD1138

Silicon NPN Triple Diffused

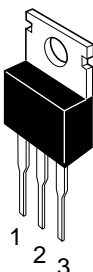
HITACHI

Application

Low frequency high voltage power amplifier TV vertical deflection output complementary pair with 2SB861

Outline

TO-220AB



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

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

| Item | Symbol | Rating | Unit |
|------------------------------|-----------------------|-------------|------------------|
| Collector to base voltage | V_{CBO} | 200 | V |
| Collector to emitter voltage | V_{CEO} | 150 | V |
| Emitter to base voltage | V_{EBO} | 6 | V |
| Collector current | I_{C} | 2 | A |
| Collector peak current | $I_{\text{C (peak)}}$ | 5 | A |
| Collector power dissipation | P_{C} | 1.8 | W |
| | P_{C}^{*1} | 30 | W |
| Junction temperature | T_{j} | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -45 to +150 | $^\circ\text{C}$ |

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

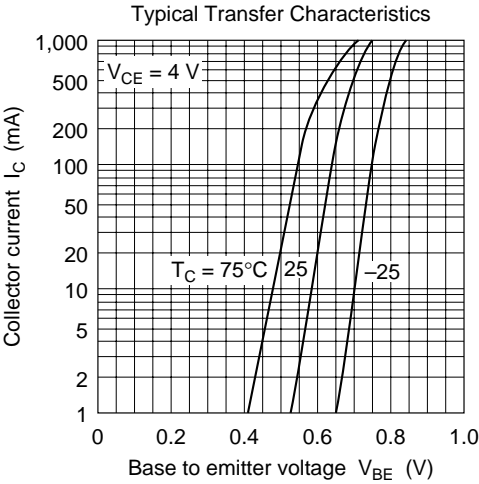
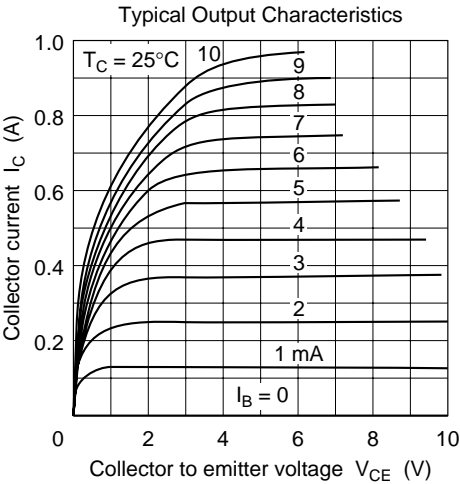
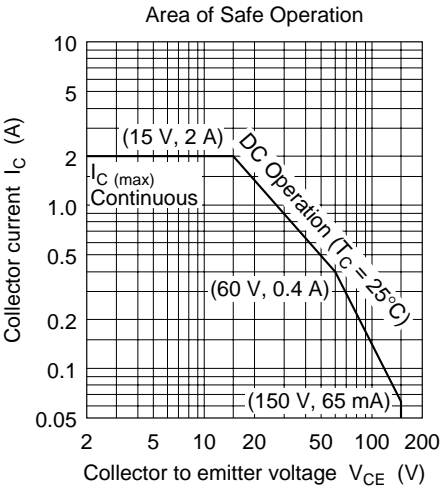
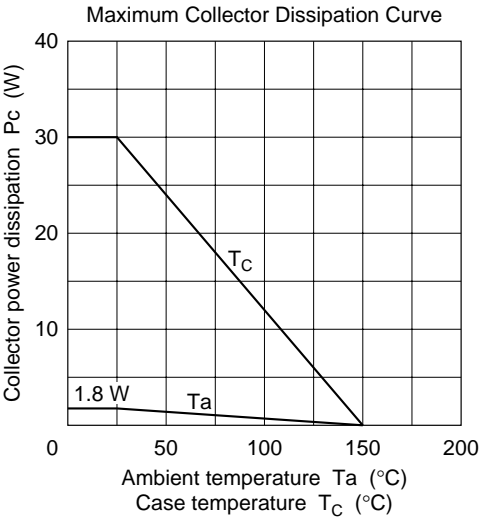
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|-----------------------------|-----|-----|-----|---------------|--|
| Collector to emitter breakdown voltage | $V_{(\text{BR})\text{CEO}}$ | 150 | — | — | V | $I_{\text{C}} = 50 \text{ mA}$, $R_{\text{BE}} = \infty$ |
| Emitter to base breakdown voltage | $V_{(\text{BR})\text{EBO}}$ | 6 | — | — | V | $I_{\text{E}} = 5 \text{ mA}$, $I_{\text{C}} = 0$ |
| Collector cutoff current | I_{CBO} | — | — | 1 | μA | $V_{\text{CB}} = 120 \text{ V}$, $I_{\text{E}} = 0$ |
| DC current transfer ratio | h_{FE1}^{*1} | 60 | — | 320 | | $V_{\text{CE}} = 4 \text{ V}$, $I_{\text{C}} = 50 \text{ mA}$ |
| | h_{FE2} | 60 | — | — | | $V_{\text{CE}} = 10 \text{ V}$, $I_{\text{C}} = 500 \text{ mA}^{*2}$ |
| Collector to emitter saturation voltage | $V_{\text{CE (sat)}}$ | — | — | 3.0 | V | $I_{\text{C}} = 500 \text{ mA}$, $I_{\text{B}} = 50 \text{ mA}^{*2}$ |
| Base to emitter voltage | V_{BE} | — | — | 1.0 | V | $V_{\text{CB}} = 4 \text{ V}$, $I_{\text{C}} = 50 \text{ mA}$ |
| Collector output capacitance | C_{ob} | — | 20 | — | pF | $V_{\text{CB}} = 100 \text{ V}$, $I_{\text{E}} = 0$, $f = 1 \text{ MHz}$ |

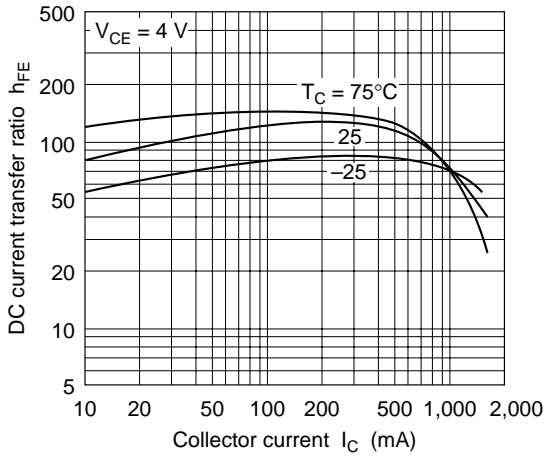
Note: 1. The 2SD1138 is grouped by h_{FE1} as follows.

2. Pulse test.

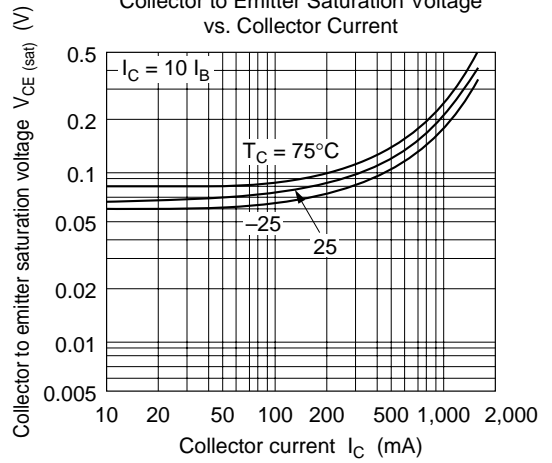
| B | C | D |
|-----------|------------|------------|
| 60 to 120 | 100 to 200 | 160 to 320 |

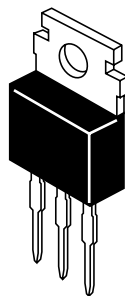
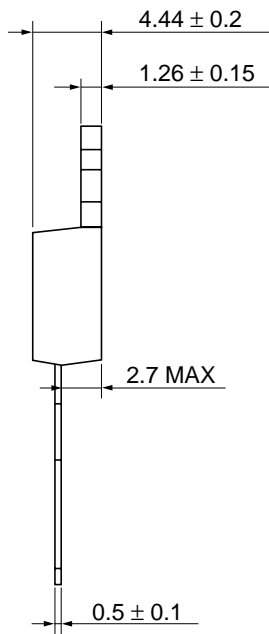
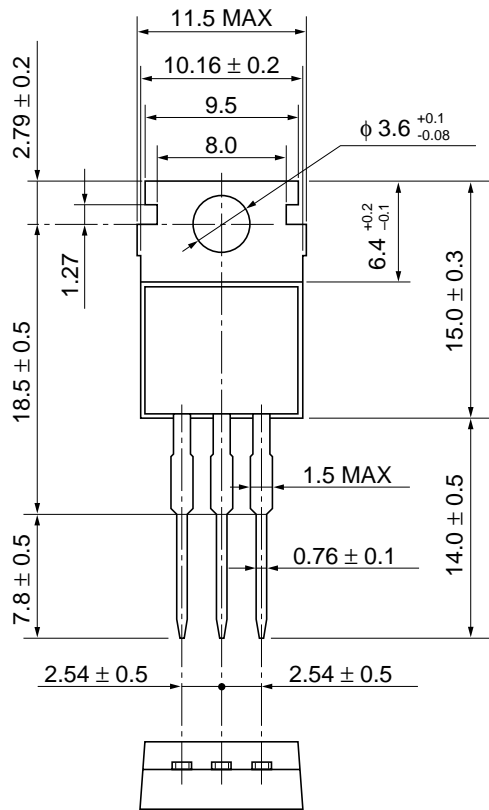


DC Current Transfer Ratio
vs. Collector Current



Collector to Emitter Saturation Voltage
vs. Collector Current





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

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