# 2SB1399

Silicon PNP Triple Diffused

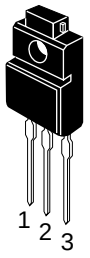
HITACHI

## Application

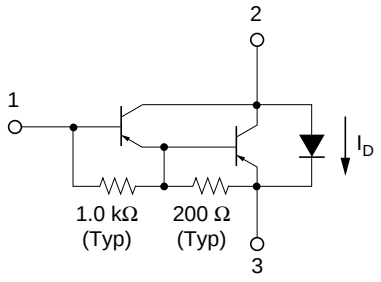
Low frequency power amplifier

## Outline

TO-220FM




1. Base
2. Collector
3. Emitter

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## Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|---|---|---|---|
| Collector to base voltage | $V_{CBO}$ | –120 | V |
| Collector to emitter voltage | $V_{CEO}$ | –120 | V |
| Emitter to base voltage | $V_{EBO}$ | –7 | V |
| Collector current | $I_C$ | –10 | A |
| Collector peak current | $I_{C\ (peak)}$ | –15 | A |
| Collector power dissipation | $P_C$ | 2 | W |
| | $P_C$*[1] | 30 | |
| Junction temperature | Tj | 150 | °C |
| Storage temperature | Tstg | –55 to +150 | °C |
| C to E diode forward current | $I_D$*[1] | 10 | A |

Note: 1. Value at $T_C$ = 25°C.

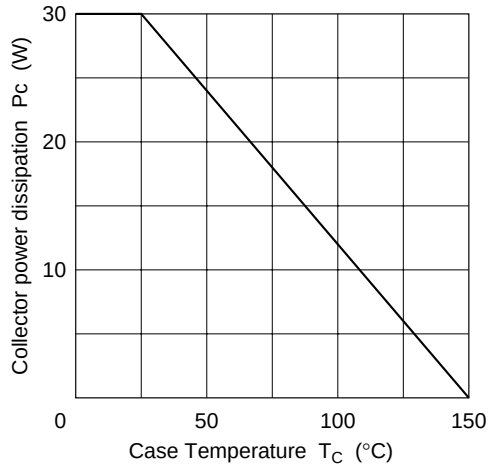
## Electrical Characteristics (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | –120 | — | — | V | $I_C$ = –0.1 mA, $I_E$ = 0 |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | –120 | — | — | V | $I_C$ = –25 mA, $R_{BE}$ = |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | –7 | — | — | V | $I_E$ = –50 mA, $I_C$ = 0 |
| Collector cutoff current | $I_{CBO}$ | — | — | –10 | µA | $V_{CB}$ = –100 V, $I_E$ = 0 |
| | $I_{CEO}$ | — | — | –10 | | $V_{CE}$ = –100 V, $R_{BE}$ = |
| DC current transfer ratio | $h_{FE}$ | 1000 | — | 20000 | | $V_{CE}$ = –3 V, $I_C$ = –5 A*[1] |
| Collector to emitter saturation | $V_{CE\ (sat)1}$ | — | — | –1.5 | V | $I_C$ = –5 A, $I_B$ = 10 mA*[1] |
| voltage | $V_{CE\ (sat)2}$ | — | — | –3.0 | | $I_C$ = –10 A, $I_B$ = –100 mA*[1] |
| Base to emitter saturation | $V_{BE\ (sat)1}$ | — | — | –2.0 | V | $I_C$ = –5 A, $I_B$ = 10 mA*[1] |
| voltage | $V_{BE\ (sat)2}$ | — | — | –3.5 | | $I_C$ = –10 A, $I_B$ = –100 mA*[1] |
| C to E diode forward voltage | $V_D$ | — | — | 3.0 | V | $I_D$ = 10 A*[1] |

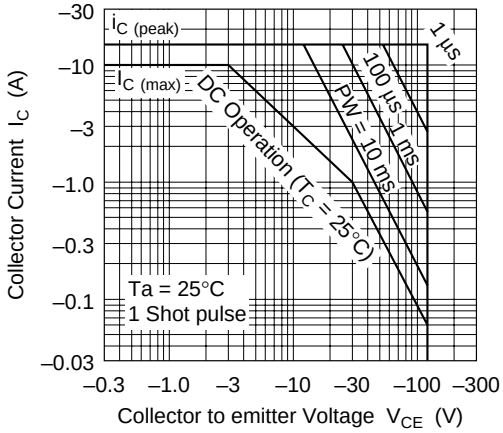
Note: 1. Pulse Test.

See switching characteristic curve of 2SB955(K).

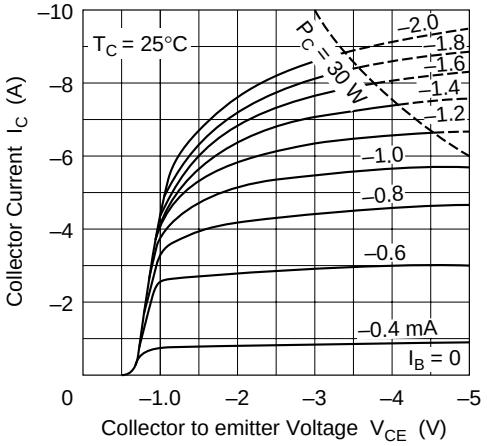
Maximum Collector Dissipation Curve



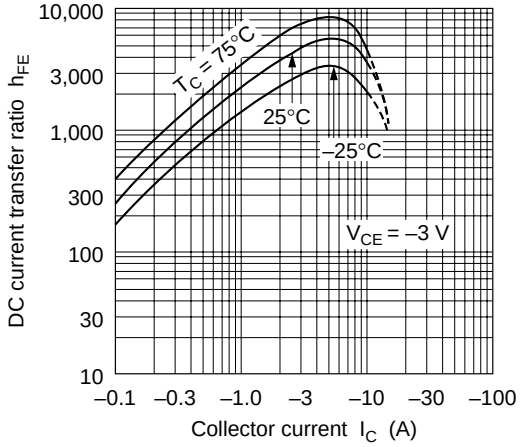

Area of Safe Operation



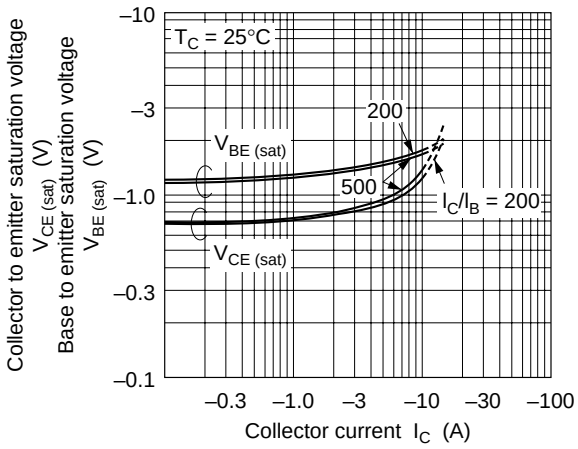

Typical Output Characteristics



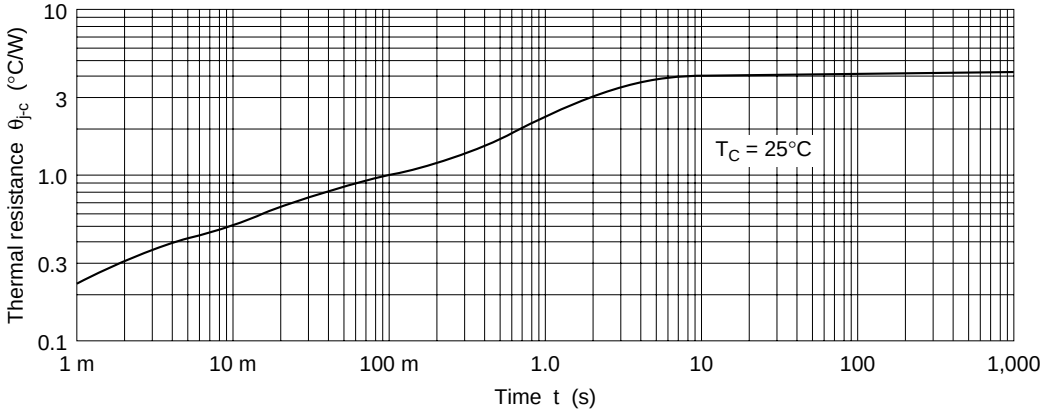

DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current




Transient Thermal Resistance



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