

# 2SB791(K)

Silicon PNP Epitaxial

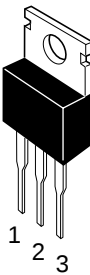
# HITACHI

## Application

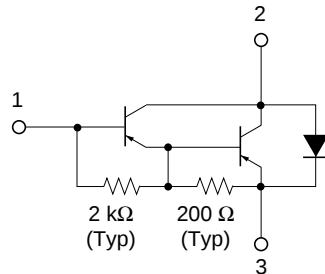
Medium speed and power switching complementary pair with 2SD970(K)

## Outline

TO-220AB



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



## Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

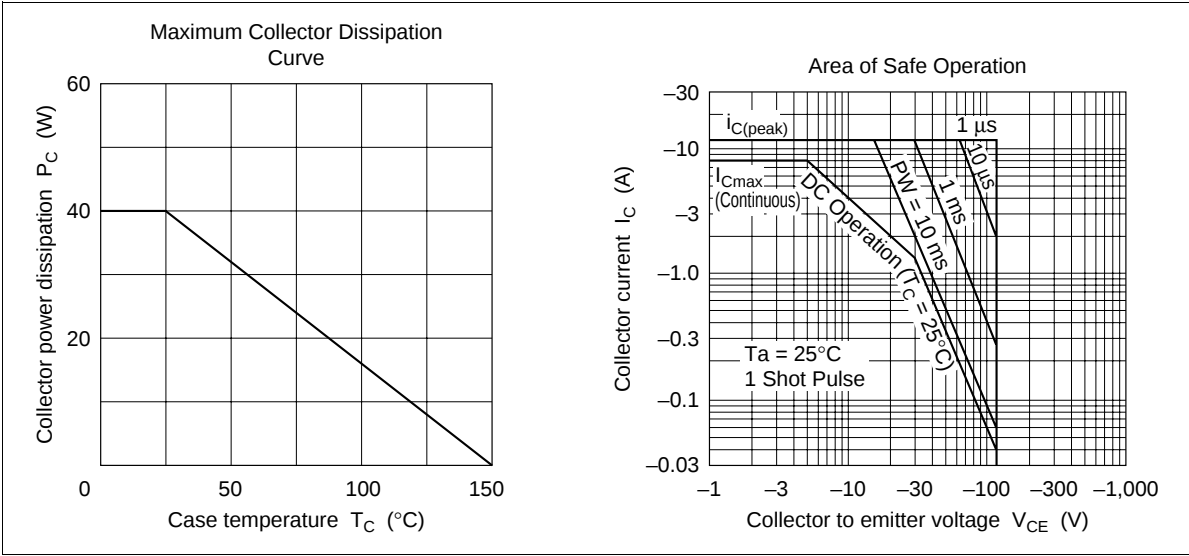
| Item                         | Symbol        | Rating      | Unit |
|------------------------------|---------------|-------------|------|
| Collector to base voltage    | $V_{CBO}$     | -120        | V    |
| Collector to emitter voltage | $V_{CEO}$     | -120        | V    |
| Emitter to base voltage      | $V_{EBO}$     | -7          | V    |
| Collector current            | $I_C$         | -8          | A    |
| Collector peak current       | $I_{C(peak)}$ | -12         | A    |
| Collector power dissipation  | $P_C^{*1}$    | 40          | W    |
| Junction temperature         | $T_j$         | 150         | °C   |
| Storage temperature          | $T_{stg}$     | -55 to +150 | °C   |

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

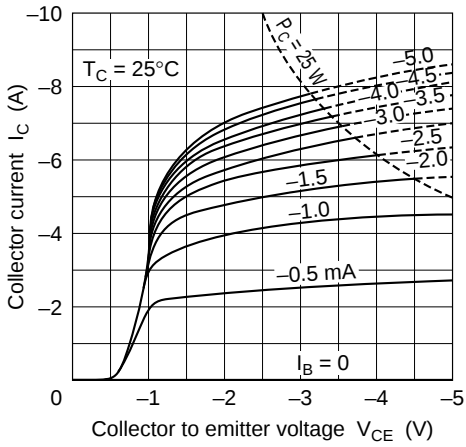
Electrical Characteristics (Ta = 25°C)

| Item                                    | Symbol           | Min  | Typ | Max   | Unit          | Test conditions                                        |
|-----------------------------------------|------------------|------|-----|-------|---------------|--------------------------------------------------------|
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$    | -120 | —   | —     | V             | $I_C = -25\text{ mA}$ , $R_{BE} = \infty$              |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$    | -7   | —   | —     | V             | $I_E = -50\text{ mA}$ , $I_C = 0$                      |
| Collector cutoff current                | $I_{CBO}$        | —    | —   | -100  | $\mu\text{A}$ | $V_{CB} = -120\text{ V}$ , $I_E = 0$                   |
|                                         | $I_{CEO}$        | —    | —   | -10   | $\mu\text{A}$ | $V_{CE} = -100\text{ V}$ , $R_{BE} = \infty$           |
| DC current transfer ratio               | $h_{FE}$         | 1000 | —   | 20000 |               | $V_{CE} = -3\text{ V}$ , $I_C = -4\text{ A}^{*1}$      |
| Collector to emitter saturation voltage | $V_{CE(sat)(1)}$ | —    | —   | -1.5  | V             | $I_C = -4\text{ A}$ , $I_B = -8\text{ mA}^{*1}$        |
|                                         | $V_{CE(sat)(2)}$ | —    | —   | -3.0  | V             | $I_C = -8\text{ A}$ , $I_B = -80\text{ mA}^{*1}$       |
| Base to emitter saturation voltage      | $V_{BE(sat)(1)}$ | —    | —   | -2.0  | V             | $I_C = -4\text{ A}$ , $I_B = -8\text{ mA}^{*1}$        |
|                                         | $V_{BE(sat)(2)}$ | —    | —   | -3.5  | V             | $I_C = -8\text{ A}$ , $I_B = -80\text{ mA}^{*1}$       |
| Turn on time                            | $t_{on}$         | —    | 0.5 | —     | $\mu\text{s}$ | $I_C = -4\text{ A}$ , $I_{B1} = I_{B2} = -8\text{ mA}$ |
| Storage time                            | $t_{stg}$        | —    | 1.6 | —     | $\mu\text{s}$ |                                                        |
| Fall time                               | $t_f$            | —    | 1.5 | —     | $\mu\text{s}$ |                                                        |

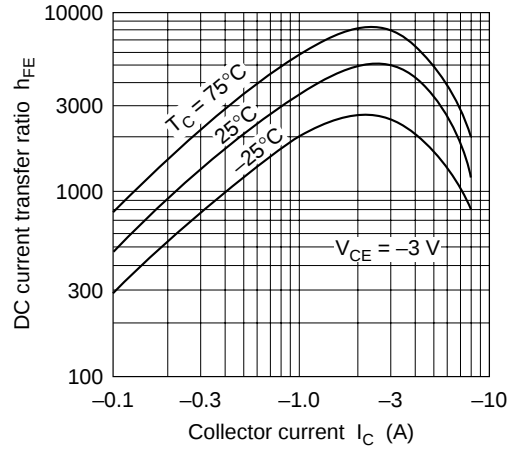
Note: 1. Pulse test



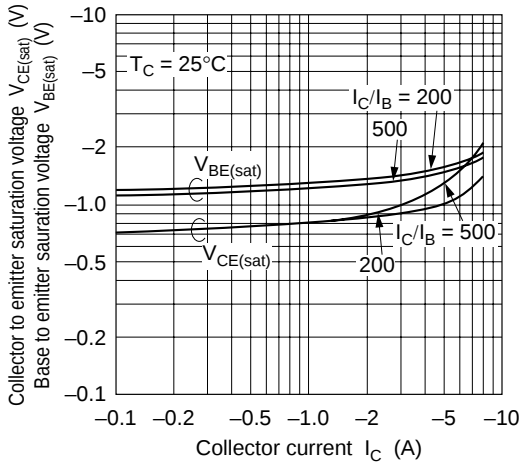
Typical Output Characteristics



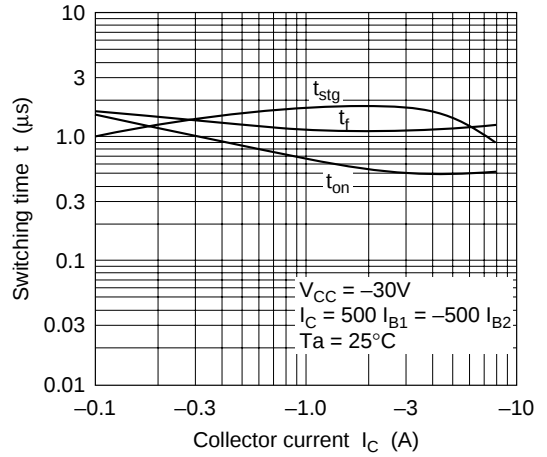
DC Current Transfer Ratio vs. Collector Current

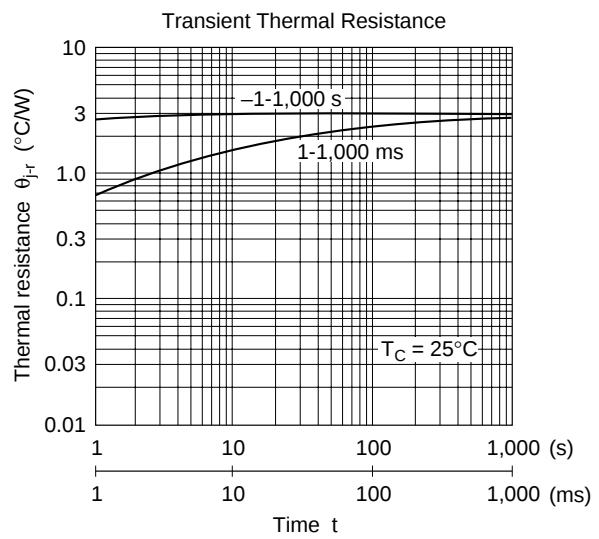


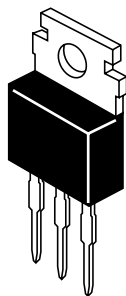
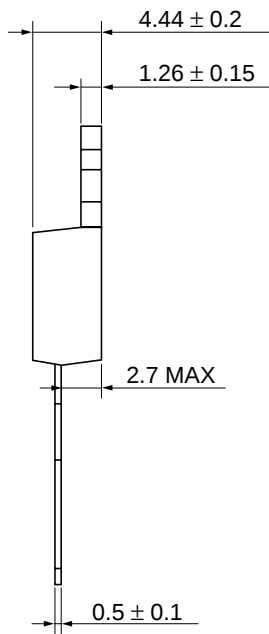
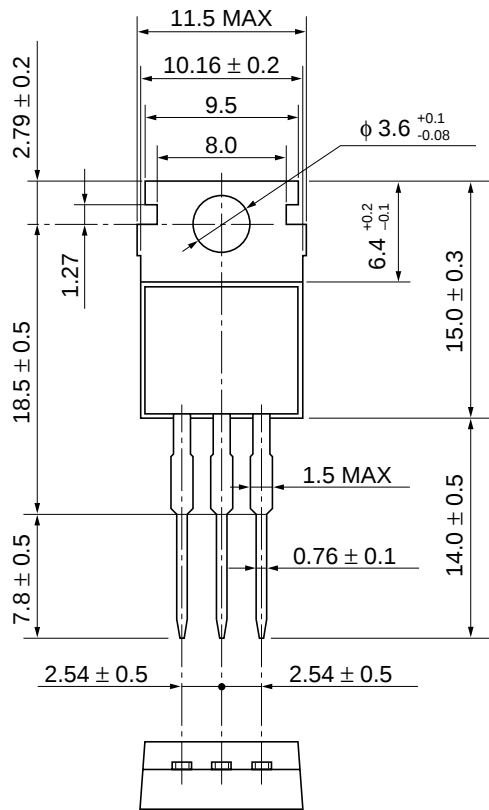
Saturation Voltage vs. Collector Current



Switching Time vs. Collector Current







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

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