

# 2SB1071, 2SB1071A

## Silicon PNP Epitaxial Planar Type

Low Voltage Switching

Complementary Pair with 2SD1539, 2SD1539A

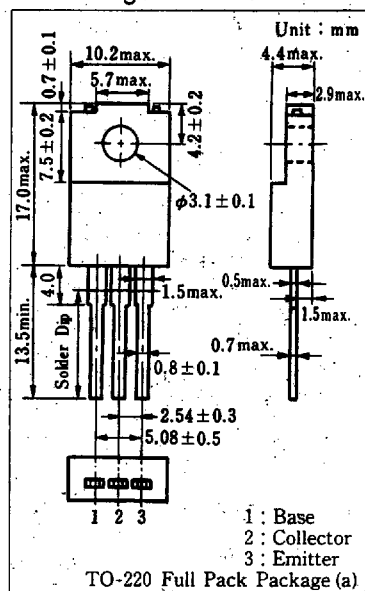
### ■ Features

- Low collector-emitter saturation voltage ( $V_{CE(sat)}$ )
- High speed switching
- "Full Pack" package for simplified mounting on a heat sink with one screw

### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

| Item                        | Symbol                 | Value      | Unit             |
|-----------------------------|------------------------|------------|------------------|
| Collector-base voltage      | 2SB1071                | -40        | V                |
|                             | 2SB1071A               | -50        |                  |
| Collector-emitter voltage   | 2SB1071                | -20        | V                |
|                             | 2SB1071A               | -40        |                  |
| Emitter-base voltage        | $V_{EBO}$              | -5         | V                |
| Peak collector current      | $I_{CP}$               | -8         | A                |
| Collector current           | $I_C$                  | -4         | A                |
| Collector power dissipation | $T_c=25^\circ\text{C}$ | 25         | W                |
|                             | $T_a=25^\circ\text{C}$ | 2          |                  |
| Junction temperature        | $T_j$                  | 150        | $^\circ\text{C}$ |
| Storage temperature         | $T_{stg}$              | -55 ~ +150 | $^\circ\text{C}$ |

### ■ Package Dimensions

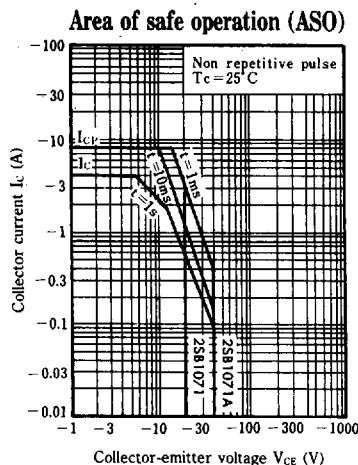
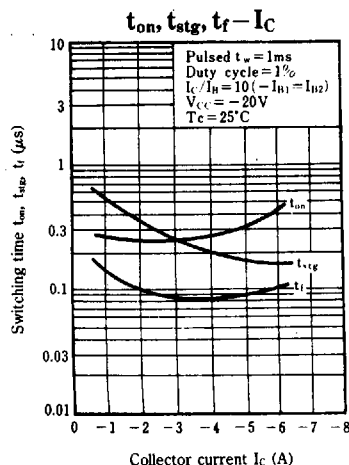
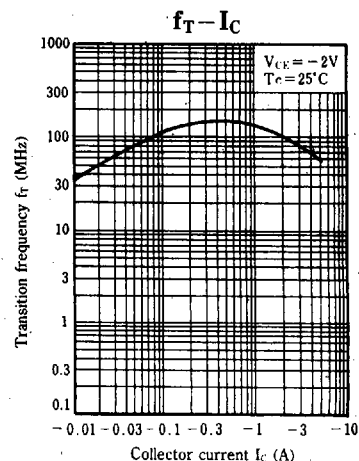
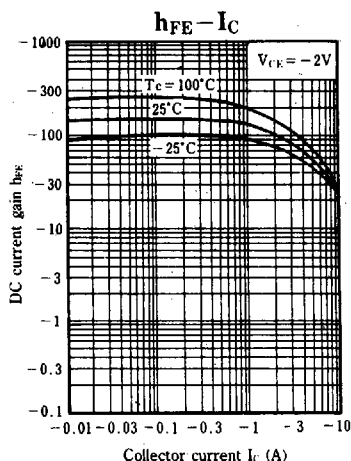
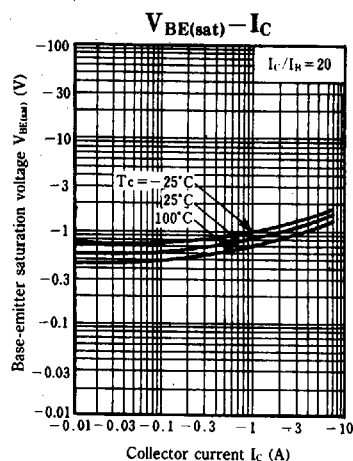
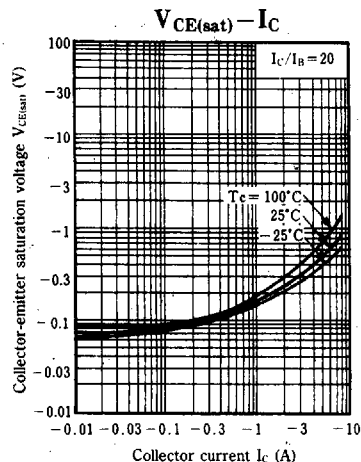
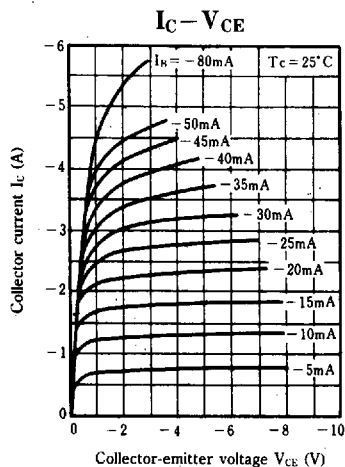
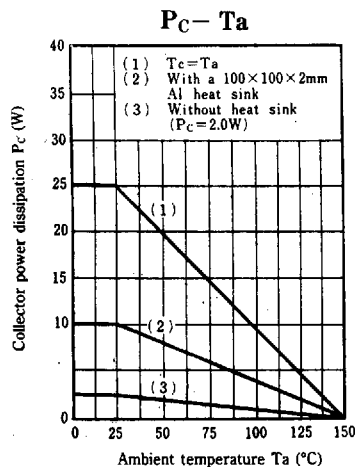


### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

| Item                                 | Symbol                   | Condition                                                          | min. | typ. | max. | Unit          |
|--------------------------------------|--------------------------|--------------------------------------------------------------------|------|------|------|---------------|
| Collector cutoff current             | $I_{CBO}$                | $V_{CB} = -40\text{ V}, I_E = 0$                                   |      |      | -50  | $\mu\text{A}$ |
| Emitter cutoff current               | $I_{EBO}$                | $V_{EB} = -5\text{ V}, I_C = 0$                                    |      |      | -50  | $\mu\text{A}$ |
| Collector-emitter voltage            | 2SB1071<br>2SB1071A      | $V_{CEO}$<br>$I_C = -10\text{ mA}, I_B = 0$                        | -20  |      |      | V             |
|                                      |                          |                                                                    | -40  |      |      |               |
| DC current gain                      | $h_{FE1}$<br>$h_{FE2}^*$ | $V_{CE} = -2\text{ V}, I_C = -0.1\text{ A}$                        | 45   |      |      |               |
|                                      |                          | $V_{CE} = -2\text{ V}, I_C = -1\text{ A}$                          | 60   |      | 260  |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$            | $I_C = -2\text{ A}, I_B = -0.1\text{ A}$                           |      |      | -0.5 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$            | $I_C = -2\text{ A}, I_B = -0.1\text{ A}$                           |      |      | -1.5 | V             |
| Transition frequency                 | $f_T$                    | $V_{CE} = -5\text{ V}, I_C = -0.5\text{ A}, f = 10\text{ MHz}$     |      | 150  |      | MHz           |
| Turn-on time                         | $t_{on}$                 | $I_C = -2\text{ A}, I_{B1} = -0.2\text{ A}, I_{B2} = 0.2\text{ A}$ |      | 0.3  |      | $\mu\text{s}$ |
| Storage time                         | $t_{stg}$                |                                                                    |      | 0.4  |      | $\mu\text{s}$ |
| Collector current fall time          | $t_f$                    |                                                                    |      | 0.1  |      | $\mu\text{s}$ |

### \* $h_{FE2}$ Classifications

| Class     | R        | Q        | P         |
|-----------|----------|----------|-----------|
| $h_{FE2}$ | 60 ~ 120 | 90 ~ 180 | 130 ~ 260 |



Note) Refer to P.259 (on 2SB1192/A) for  $R_{th(j-a)}$ -t characteristics.