

# 2SB1156

## Silicon PNP Epitaxial Planar Type

### Power Switching

Complementary Pair with 2SD1707

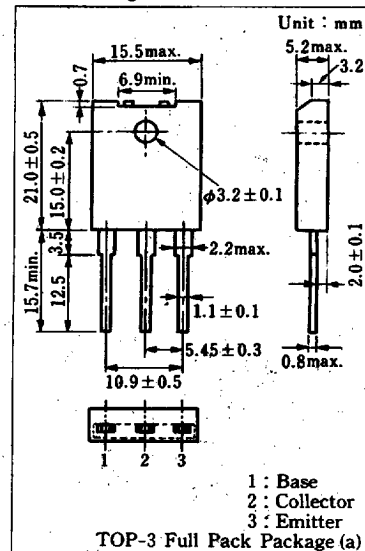
#### ■ Features

- Low collector-emitter saturation voltage ( $V_{CE(sat)}$ )
- Good linearity of DC current gain ( $h_{FE}$ )
- High collector current ( $I_C$ )
- "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      | $V_{CBO}$              | -130       | V                |
| Collector-emitter voltage   | $V_{CEO}$              | -80        | V                |
| Emitter-base voltage        | $V_{EBO}$              | -7         | V                |
| Peak collector current      | $I_{CP}$               | -30        | A                |
| Collector current           | $I_C$                  | -20        | A                |
| Collector power dissipation | $T_c=25^\circ\text{C}$ | 100        | W                |
|                             | $T_a=25^\circ\text{C}$ | 3          |                  |
| Junction temperature        | $T_j$                  | 150        | $^\circ\text{C}$ |
| Storage temperature         | $T_{stg}$              | -55 ~ +150 | $^\circ\text{C}$ |

#### ■ Package Dimensions



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

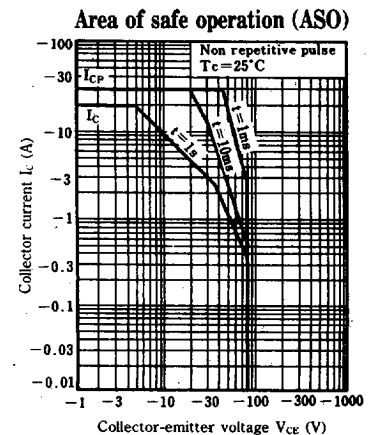
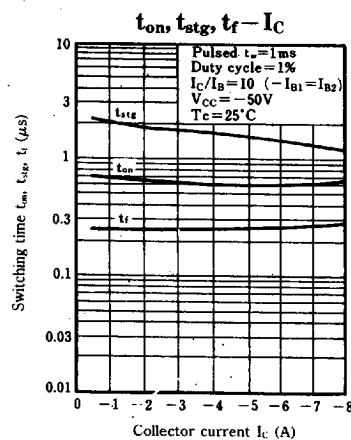
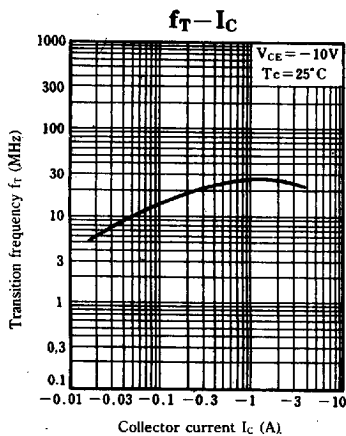
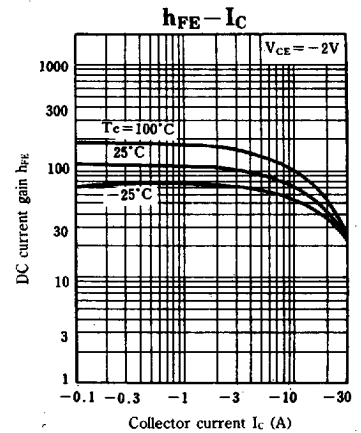
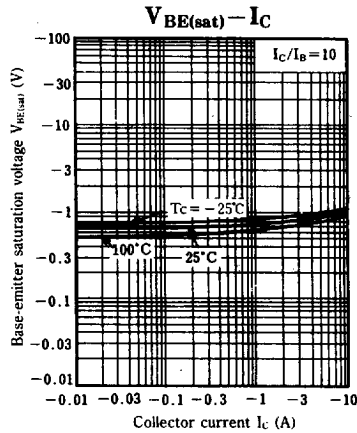
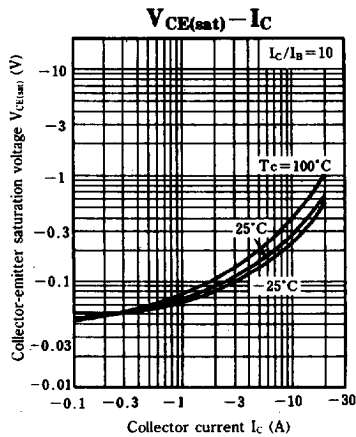
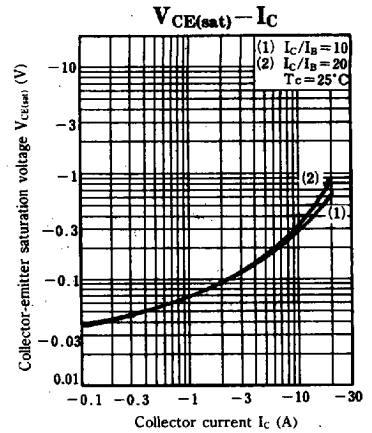
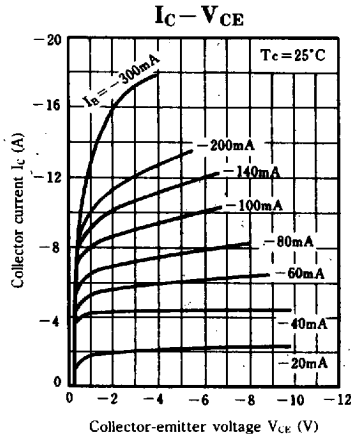
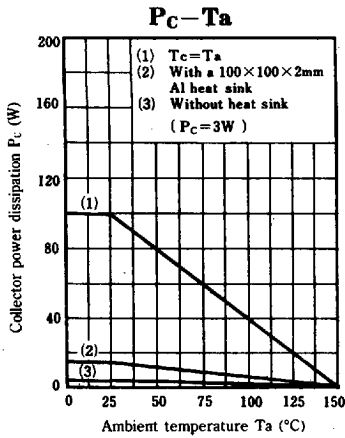
| Item                                 | Symbol         | Condition                                                                                  | min. | typ. | max. | Unit          |
|--------------------------------------|----------------|--------------------------------------------------------------------------------------------|------|------|------|---------------|
| Collector cutoff current             | $I_{CBO}$      | $V_{CB} = -100\text{ V}, I_E = 0$                                                          |      |      | -10  | $\mu\text{A}$ |
| Emitter cutoff current               | $I_{EBO}$      | $V_{EB} = -5\text{ V}, I_C = 0$                                                            |      |      | -50  | $\mu\text{A}$ |
| Collector-emitter voltage            | $V_{CEO}$      | $I_C = -10\text{ mA}, I_B = 0$                                                             | -80  |      |      | V             |
| DC current gain                      | $h_{FE1}$      | $V_{CE} = -2\text{ V}, I_C = -0.1\text{ A}$                                                | 45   |      |      |               |
|                                      | $h_{FE2}^*$    | $V_{CE} = -2\text{ V}, I_C = -3\text{ A}$                                                  | 60   |      | 260  |               |
|                                      | $h_{FE3}$      | $V_{CE} = -2\text{ V}, I_C = -10\text{ A}$                                                 | 30   |      |      |               |
| Collector-emitter saturation voltage | $V_{CE(sat)1}$ | $I_C = -8\text{ A}, I_B = -0.4\text{ A}$                                                   |      |      | -0.5 | V             |
|                                      | $V_{CE(sat)2}$ | $I_C = -20\text{ A}, I_B = -2\text{ A}$                                                    |      |      | -1.5 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)1}$ | $I_C = -8\text{ A}, I_B = -0.4\text{ A}$                                                   |      |      | -1.5 | V             |
|                                      | $V_{BE(sat)2}$ | $I_C = -20\text{ A}, I_B = -2\text{ A}$                                                    |      |      | -2.5 | V             |
| Transition frequency                 | $f_T$          | $V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 10\text{ MHz}$                            |      | 25   |      | MHz           |
| Turn-on time                         | $t_{on}$       | $I_C = -8\text{ A}, I_B = -0.8\text{ A}, I_{B2} = 0.8\text{ A}$<br>$V_{CC} = -50\text{ V}$ |      | 0.5  |      | $\mu\text{s}$ |
| Storage time                         | $t_{stg}$      |                                                                                            |      | 1.2  |      | $\mu\text{s}$ |
| Collector current fall time          | $t_f$          |                                                                                            |      | 0.2  |      | $\mu\text{s}$ |

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

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

■ 6932852 0016230 877 ■

Panasonic



6932852 0016231 703

