

**2SB1131****Strobe, High-Current Switching Applications****Applications**

- Strobes, power supplies, relay drivers, lamp drivers.

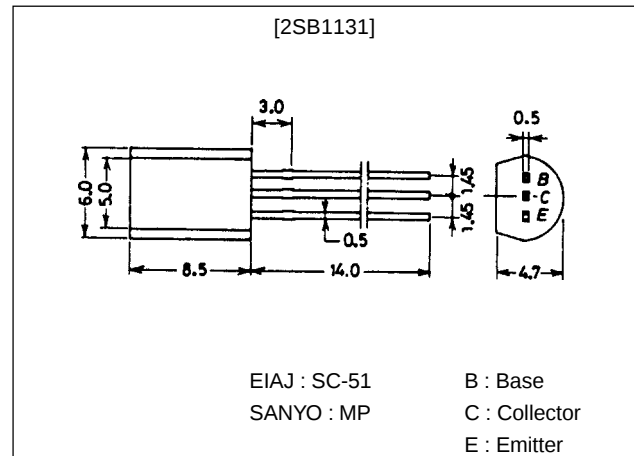
**Features**

- Adoption of FBET, MBIT processes.
- Low saturation voltage.
- Large current capacity.
- Fast switching time.

**Package Dimensions**

unit:mm

2006A

**Specifications****Absolute Maximum Ratings at Ta = 25°C**

| Parameter                    | Symbol    | Conditions | Ratings     | Unit |
|------------------------------|-----------|------------|-------------|------|
| Collector-to-Base Voltage    | $V_{CBO}$ |            | -25         | V    |
| Collector-to-Emitter Voltage | $V_{CEO}$ |            | -20         | V    |
| Emitter-to-Base Voltage      | $V_{EBO}$ |            | -5          | V    |
| Collector Current            | $I_C$     |            | -5          | A    |
| Collector Current (Pulse)    | $I_{CP}$  |            | -8          | A    |
| Collector Dissipation        | $P_C$     |            | 1           | W    |
| Junction Temperature         | $T_J$     |            | 150         | °C   |
| Storage Temperature          | $T_{stg}$ |            | -55 to +150 | °C   |

**Electrical Characteristics at Ta = 25°C**

| Parameter                               | Symbol        | Conditions                   | Ratings |      |      | Unit |
|-----------------------------------------|---------------|------------------------------|---------|------|------|------|
|                                         |               |                              | min     | typ  | max  |      |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB} = -20V, I_E = 0$     |         |      | -500 | nA   |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB} = -4V, I_C = 0$      |         |      | -500 | nA   |
| DC Current Gain                         | $h_{FE1}$     | $V_{CE} = -2V, I_C = -500mA$ | 100*    |      | 400* |      |
|                                         | $h_{FE2}$     | $V_{CE} = -2V, I_C = -4A$    | 60      |      |      |      |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE} = -5V, I_C = -200mA$ |         | 320  |      | MHz  |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -3A, I_B = -60mA$     |         | -250 | -500 | mV   |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = -3A, I_B = -60mA$     |         | -1.0 | -1.3 | V    |

\* : The 2SB1131 is classified by 500mA  $h_{FE}$  as follows :

|     |   |     |     |   |     |     |   |     |
|-----|---|-----|-----|---|-----|-----|---|-----|
| 100 | R | 200 | 140 | S | 280 | 200 | T | 400 |
|-----|---|-----|-----|---|-----|-----|---|-----|

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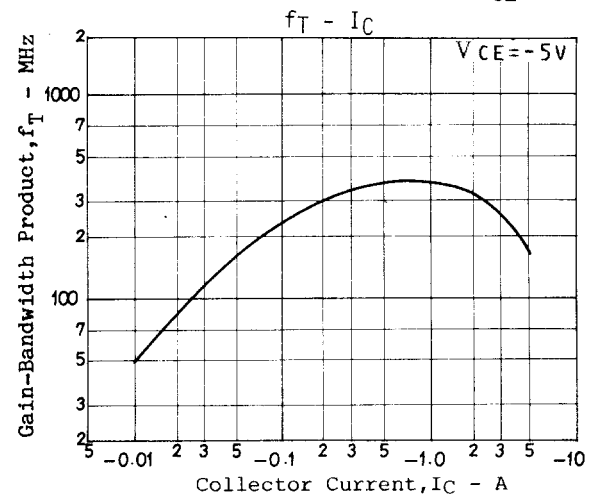
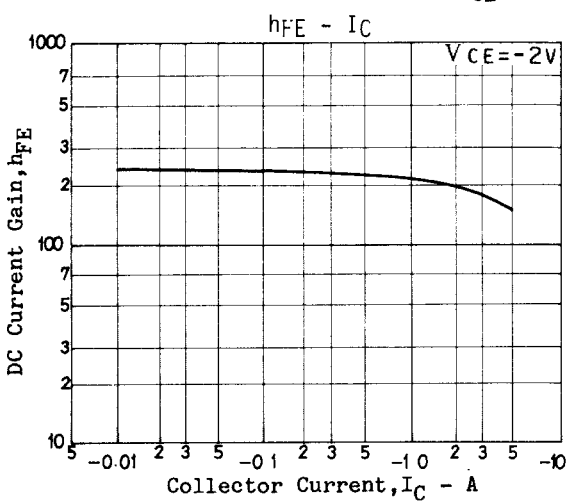
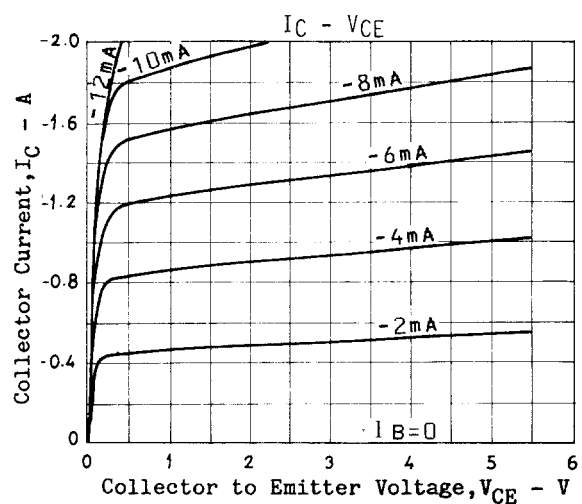
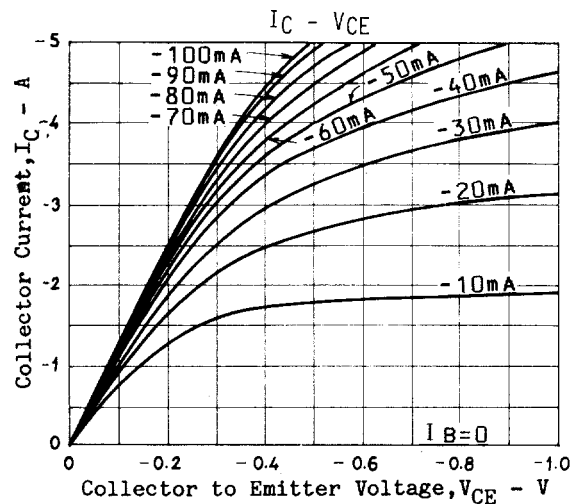
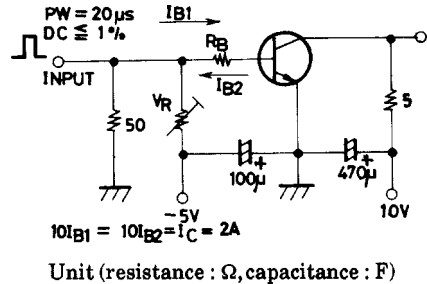
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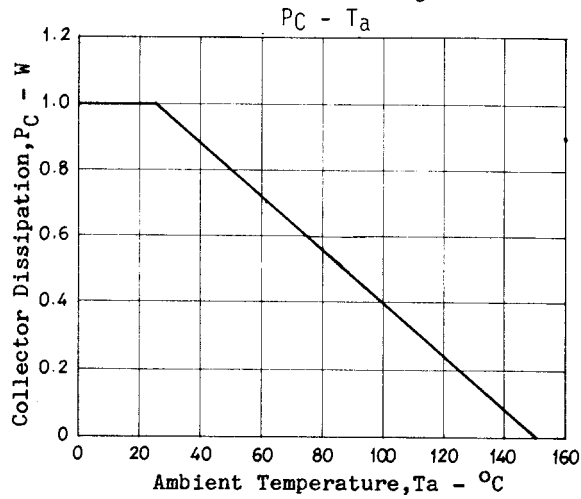
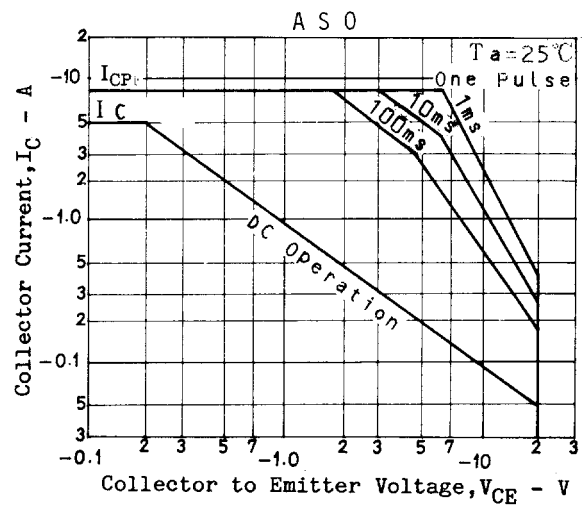
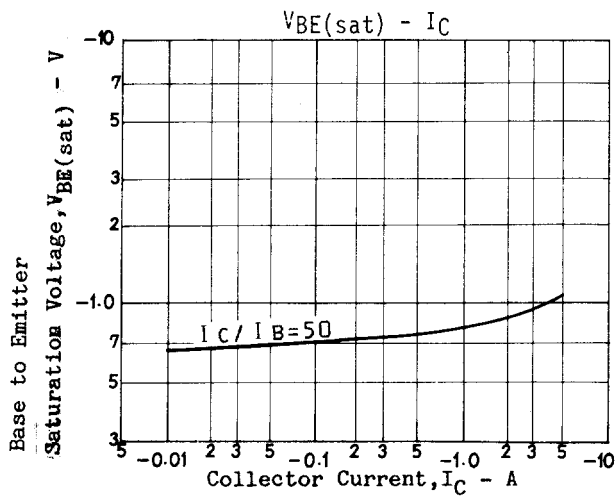
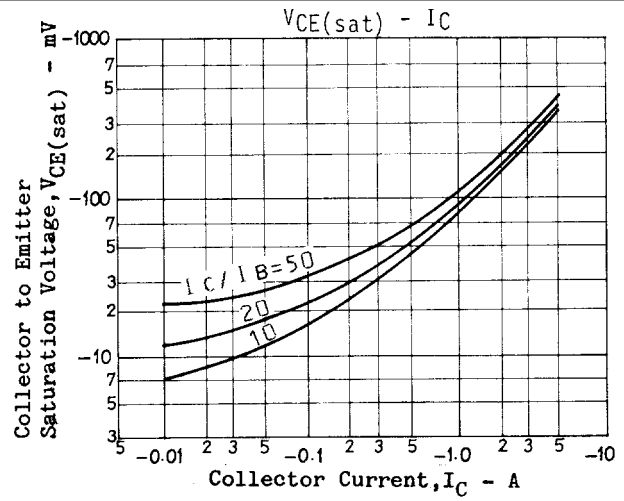
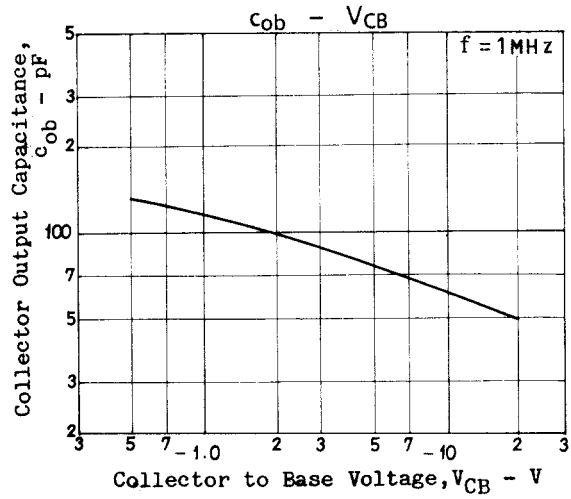
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2SB1131

| Parameter                              | Symbol        | Conditions                      | Ratings |     |     | Unit |
|----------------------------------------|---------------|---------------------------------|---------|-----|-----|------|
|                                        |               |                                 | min     | typ | max |      |
| Output Capacitance                     | $C_{ob}$      | $V_{CB} = -10V, f = 1MHz$       |         | 60  |     | pF   |
| Collector-to-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = (-)10\mu A, I_E = 0$     | -25     |     |     | V    |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)1mA, R_{BE} = \infty$ | -20     |     |     | V    |
| Emitter-to-Base Breakdown Voltage      | $V_{(BR)EBO}$ | $I_E = (-)10\mu A, I_C = 0$     | -5      |     |     | V    |
| Turn-ON Time                           | $t_{on}$      | See specified Test Circuit.     |         | 40  |     | ns   |
| Storage Time                           | $t_{stg}$     | See specified Test Circuit.     |         | 200 |     | ns   |
| Fall Time                              | $t_f$         | See specified Test Circuit.     |         | 10  |     | ns   |

Switching Time Test Circuit





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