PNP Epitaxial Planar Silicon Transistor



2SB1140

# 20V/5A Switching Applications

### **Applications**

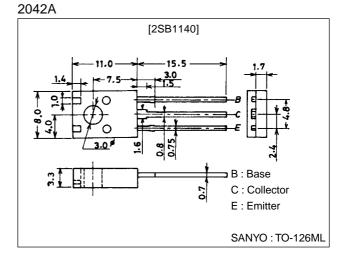
· Strobes, power supplies, relay drivers, lamp drivers.

### **Features**

- · Adoption of FBET, MBIT processes.
- · Low saturation voltage.
- · Large current cpacity.
- · Short switching time.

## **Package Dimensions**

unit:mm



# **Specifications**

#### Absolute Maximum Ratings at Ta = 25°C

| Parameter                    | Symbol         | Conditions | Ratings     | Unit |
|------------------------------|----------------|------------|-------------|------|
| Collector-to-Base Voltage    | VCBO           |            | -25         | V    |
| Collector-to-Emitter Voltage | VCEO           |            | -20         | V    |
| Emitter-to-Base Voltage      | VEBO           |            | -5          | V    |
| Collector Current            | IC             |            | -5          | Α    |
| Collector Current (Pulse)    | ICP            |            | -8          | Α    |
| Base Current                 | Ι <sub>Β</sub> |            | -0.5        | Α    |
| Collector Dissipation        | PC             |            | 1.5         | W    |
|                              |                | Tc=25°C    | 10          | W    |
| Junction Temperature         | Tj             |            | 150         | °C   |
| Storage Temperature          | Tstg           |            | -55 to +150 | °C   |

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

|   | Ratings |     |      | Unit |
|---|---------|-----|------|------|
|   | min     | typ | max  | Unit |
|   |         |     | -500 | nA   |
|   |         |     | -500 | nA   |
|   | 100*    |     | 400* |      |
|   | 60      |     |      |      |
|   |         | 320 |      | MHz  |
|   |         | 60  |      | pF   |
| - |         |     | 60   | 60   |

\* : The 2SB1140 is classified by 500mA  $h_{FE}$  as follows : 100 R 200 140 S 280

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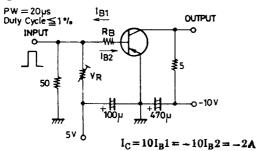
200 T 400

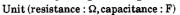
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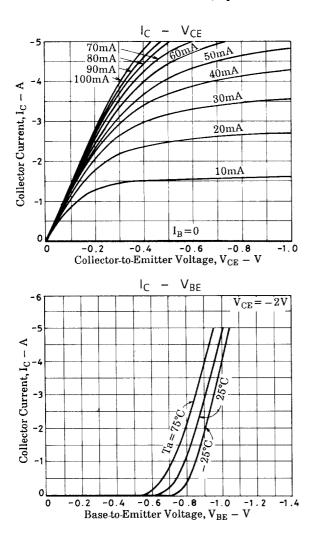
SANYO Electric Co., Ltd. Semiconductor Bussiness Headquaters TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

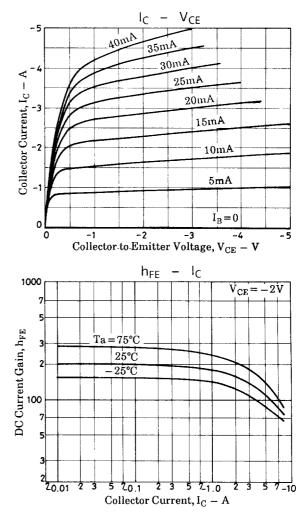
| Parameter                               | Symbol                | Conditions                                 | Ratings |      |      | Unit |
|---|-----------------------|--|---------|------|------|------|
|   |                       |  | min     | typ  | max  |      |
| Collector-to-Emitter Saturation Voltage | V <sub>CE(sat)</sub>  | I <sub>C</sub> =-3A, I <sub>B</sub> =-60mA |         | -250 | -500 | mV   |
| Base-to-Emitter Saturation Voltage      | V <sub>BE(sat)</sub>  | I <sub>C</sub> =-3A, I <sub>B</sub> =-60mA |         | -1.0 | -1.3 | V    |
| Collector-to-Base Breakdown Voltage     | V(BR)CBO              | I <sub>C</sub> =(-)10µA, I <sub>E</sub> =0 | -25     |      |      | V    |
| Collector-to-Emitter Breakdown Voltage  | V <sub>(BR)</sub> CEO | I <sub>C</sub> =(−)1mA, R <sub>BE</sub> =∞ | -20     |      |      | V    |
| Emitter-to-Base Breakdown Voltage       | V <sub>(BR)EBO</sub>  | I <sub>E</sub> =(-)10μA, I <sub>C</sub> =0 | -5      |      |      | V    |
| Turn-ON Time                            | ton                   | See specified Test Circuti.                |         | 40   |      | ns   |
| Storage Time                            | <sup>t</sup> stg      | See specified Test Circuit.                |         | 200  |      | ns   |
| Fall Time                               | t <sub>f</sub>        | See specified Test Circuit.                |         | 10   |      | ns   |

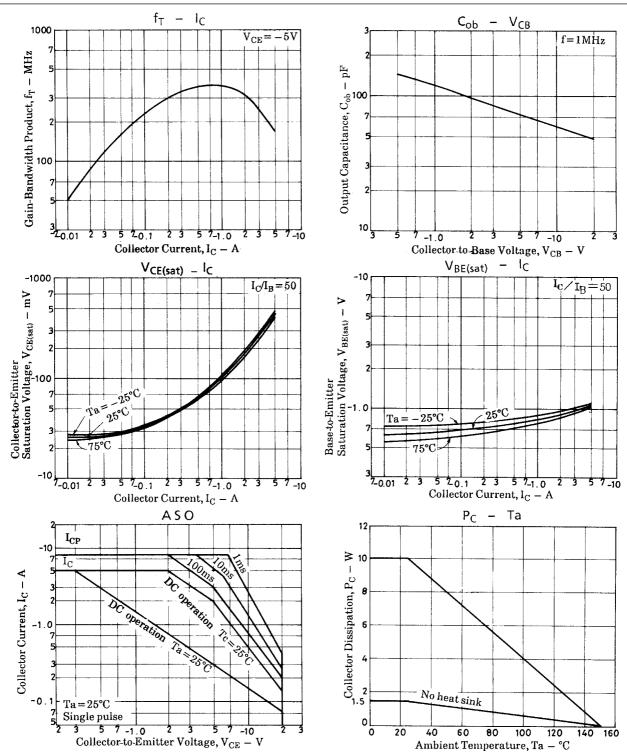
### **Switching Time Test Circuit**











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