



## 2SB912/2SD1229

### Driver Applications

#### Applications

- Motor drivers, printer hammer drivers, relay drivers, voltage regulator control.

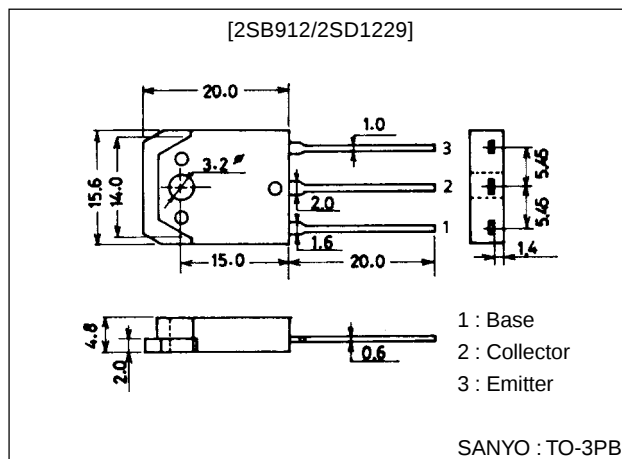
#### Features

- High DC current gain.
- High current capacity and wide ASO.
- Low saturation voltage.

#### Package Dimensions

unit:mm

2022A



() : 2SB912

#### Specifications

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

| Parameter                    | Symbol    | Conditions | Ratings     | Unit |
|------------------------------|-----------|------------|-------------|------|
| Collector-to-Base Voltage    | $V_{CBO}$ |            | (-)70       | V    |
| Collector-to-Emitter Voltage | $V_{CEO}$ |            | (-)60       | V    |
| Emitter-to-Base Voltage      | $V_{EBO}$ |            | (-)6        | V    |
| Collector Current            | $I_C$     |            | (-)10       | A    |
| Collector Current (Pulse)    | $I_{CP}$  |            | (-)15       | A    |
| Collector Dissipation        | $P_C$     |            | 2.5         | W    |
|                              |           | Tc=25°C    | 60          | 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                | $I_{CBO}$     | $V_{CB}=(-)40V, I_E=0$    |         |        | (-)0.1 | mA   |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB}=(-)5V, I_C=0$     |         |        | (-)3.0 | mA   |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=(-)2V, I_C=(-)5A$ | 2000    | 5000   |        |      |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE}=(-)5V, I_C=(-)5A$ |         | 20     |        | MHz  |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)5A, I_B=(-)10mA$  |         | 0.9    | (-)1.5 | V    |
|                                         |               |                           |         | (-1.0) |        | V    |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=(-)5A, I_B=(-)10mA$  |         |        | (-)2.0 | V    |

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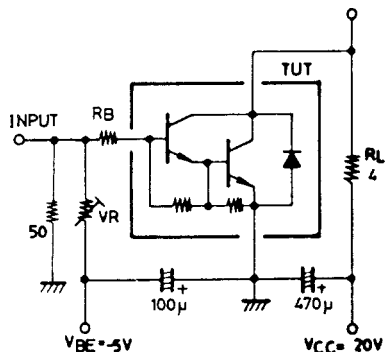
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

92098HA (KT)/10996TS (KOTO) 8-4522/4067KI/O193KI, TS No.1028-1/4

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| Parameter                              | Symbol        | Conditions                       | Ratings |       |     | Unit    |
|----------------------------------------|---------------|----------------------------------|---------|-------|-----|---------|
|                                        |               |                                  | min     | typ   | max |         |
| Collector-to-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = (-)5mA, I_E = 0$          | (-)70   |       |     | V       |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)50mA, R_{BE} = \infty$ | (-)60   |       |     | V       |
| Turn-ON Time                           | $t_{on}$      | See specified Test Circuit       |         | (0.5) |     | $\mu s$ |
|                                        |               |                                  |         | 0.6   |     | $\mu s$ |
| Storage Time                           | $t_{stg}$     | See specified Test Circuit       |         | (1.5) |     | $\mu s$ |
|                                        |               |                                  |         | 3.0   |     | $\mu s$ |
| Fall Time                              | $t_f$         | See specified Test Circuit       |         | (1.7) |     | $\mu s$ |
|                                        |               |                                  |         | 1.8   |     | $\mu s$ |

## Switching Time Test Circuit



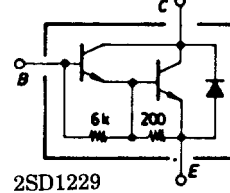
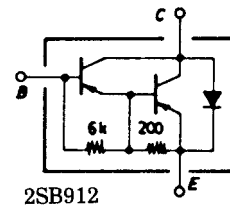
(For PNP, the polarity is reversed.)

PW = 50 $\mu s$ , Duty Cycle  $\leq 1\%$

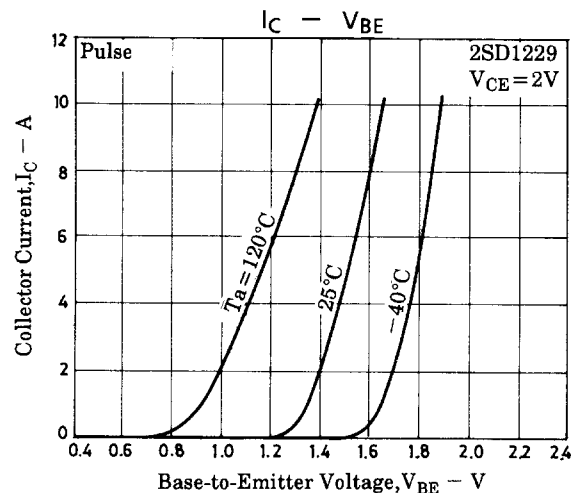
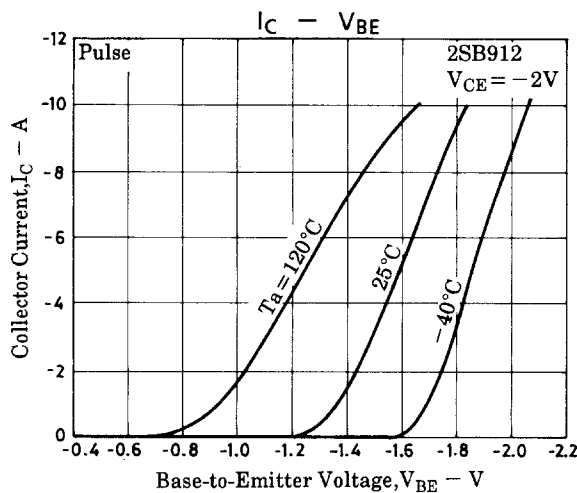
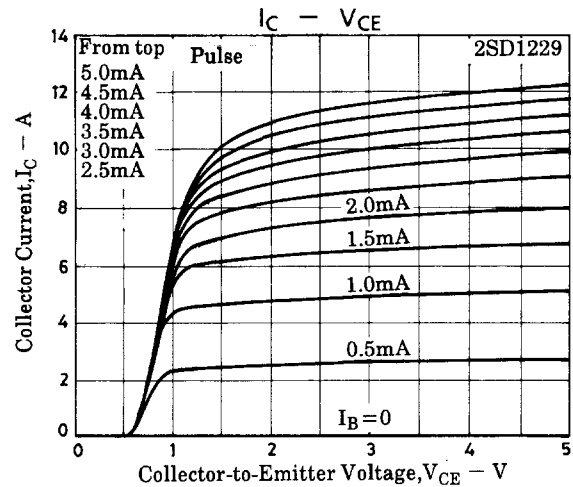
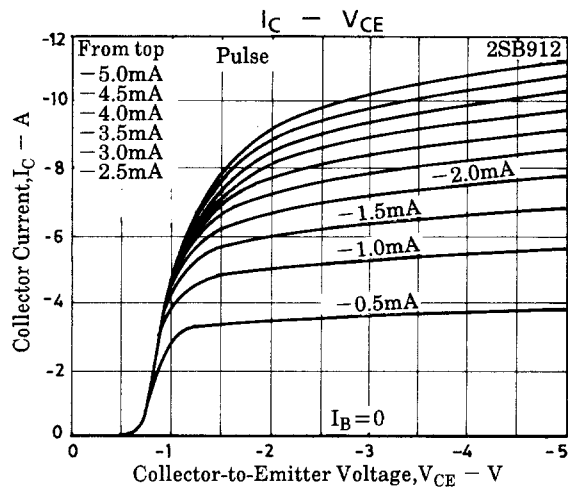
500I<sub>B1</sub> = -500I<sub>B2</sub> = I<sub>C</sub> = 5A

Unit (resistance :  $\Omega$ , capacitance : F)

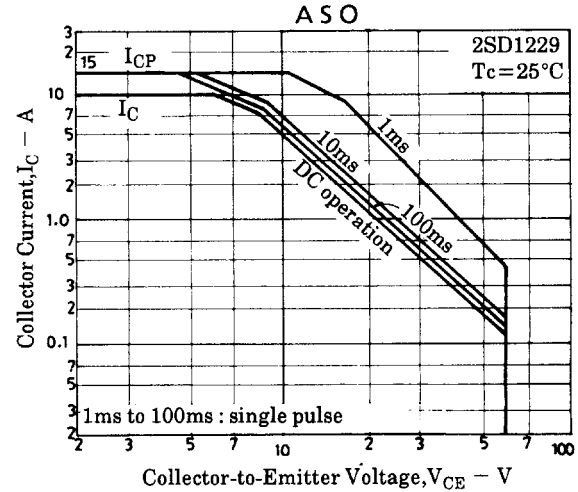
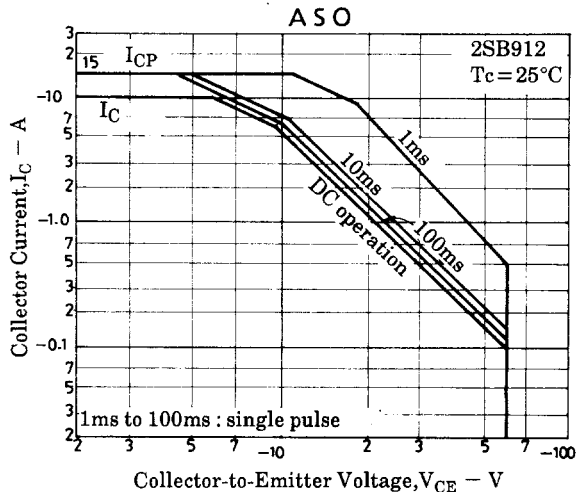
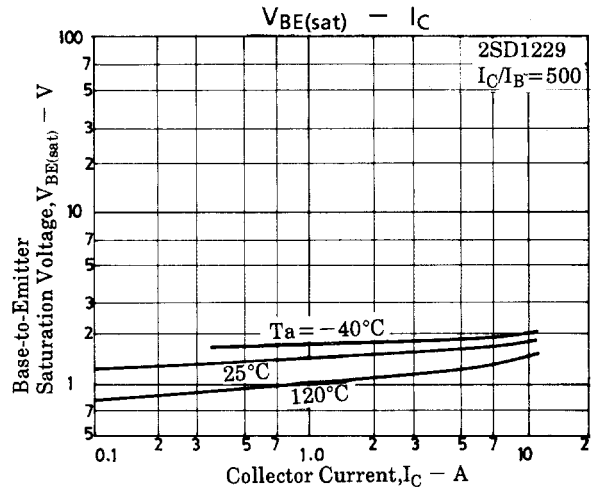
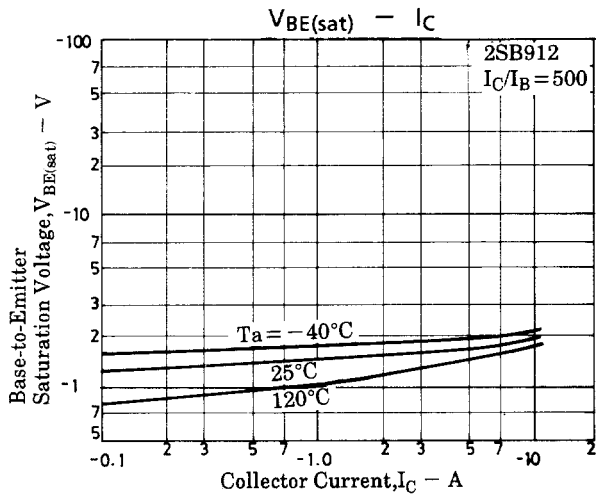
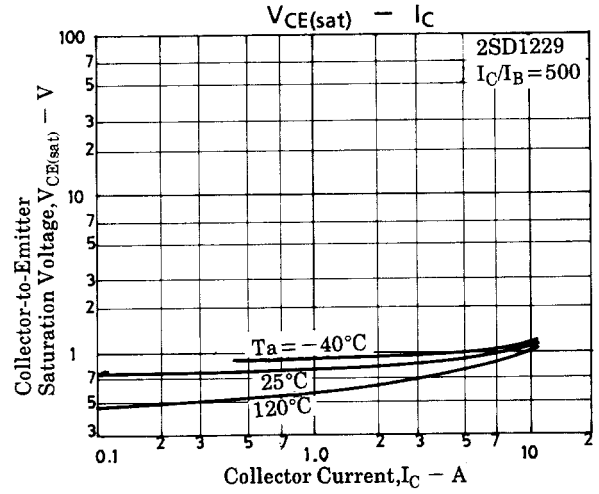
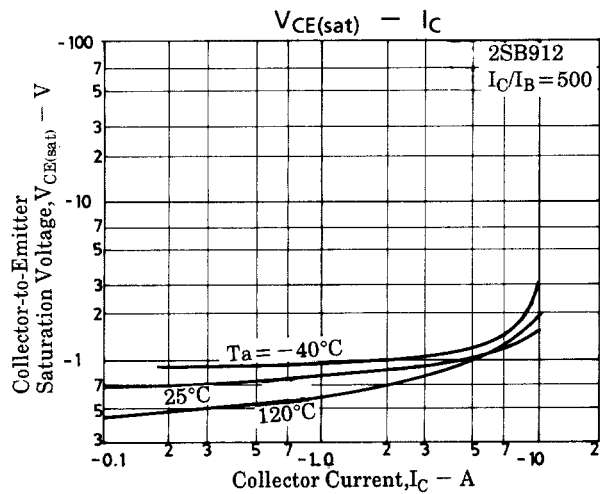
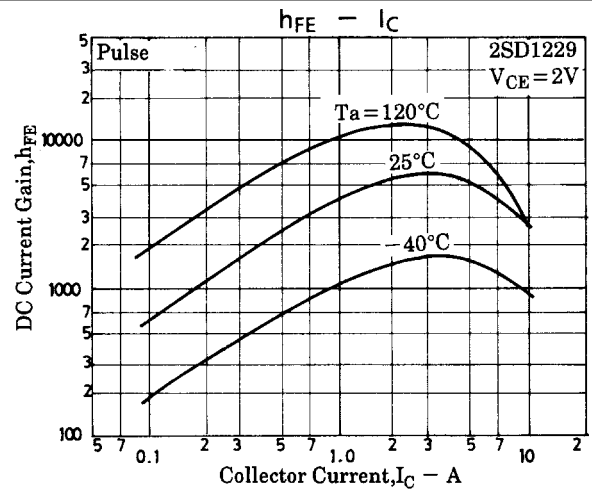
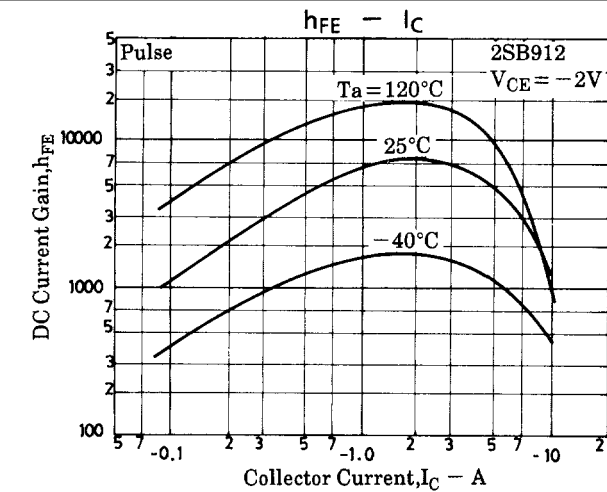
## Electrical Connection

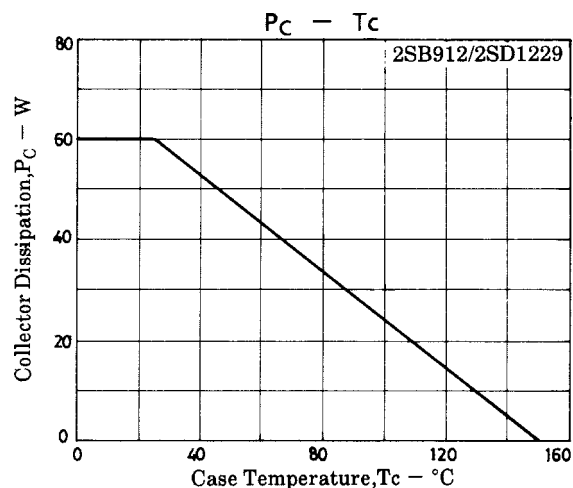


Unit (resistance :  $\Omega$ , capacitance : F)



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