

# 2SA2031 / 2SC5669

PNP Epitaxial Planar Silicon Transistor  
 NPN Triple Diffused Planar Silicon Transistor  
**230V / 15A, AF100W**

## Output Applications

### Features

- Large current capacitance.
- Wide ASO and high durability against breakdown.
- Adoption of MBIT process.

### Specifications Note\*( ) : 2SA2031

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

| Parameter                    | Symbol           | Conditions           | Ratings     | Unit |
|------------------------------|------------------|----------------------|-------------|------|
| Collector-to-Base Voltage    | V <sub>CB0</sub> |                      | (-)250      | V    |
| Collector-to-Emitter Voltage | V <sub>CEO</sub> |                      | (-)230      | V    |
| Emitter-to-Base Voltage      | V <sub>EBO</sub> |                      | (-)6        | V    |
| Collector Current            | I <sub>C</sub>   |                      | (-)15       | A    |
| Collector Current (Pulse)    | I <sub>CP</sub>  |                      | (-)30       | A    |
| Collector Dissipation        | P <sub>C</sub>   |                      | 2.5         | W    |
|                              |                  | T <sub>C</sub> =25°C | 140         | W    |
| Junction Temperature         | T <sub>J</sub>   |                      | 150         | °C   |
| Storage Temperature          | T <sub>stg</sub> |                      | -55 to +150 | °C   |

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

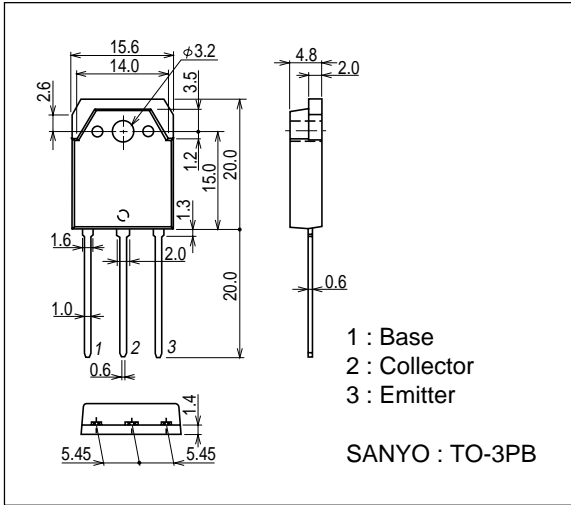
| Parameter                               | Symbol               | Conditions                                        | Ratings |            |        | Unit |
|-----------------------------------------|----------------------|---------------------------------------------------|---------|------------|--------|------|
|                                         |                      |                                                   | min     | typ        | max    |      |
| Collector Cutoff Current                | I <sub>CB0</sub>     | V <sub>CB</sub> =(-)250V, I <sub>E</sub> =0       |         |            | (-)0.1 | mA   |
| Emitter Cutoff Current                  | I <sub>EBO</sub>     | V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0         |         |            | (-)0.1 | mA   |
| DC Current Gain                         | h <sub>FE</sub> (1)  | V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)1A     | 60      |            | 160    |      |
|                                         | h <sub>FE</sub> (2)  | V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)7.5A   | 35      |            |        |      |
| Gain-Bandwidth Product                  | f <sub>T</sub>       | V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)1A     |         |            | (10)15 | MHz  |
| Output Capacitance                      | C <sub>ob</sub>      | V <sub>CB</sub> =(-)10V, f=1MHz                   |         | (400)200   |        | pF   |
| Base-to-Emitter Voltage                 | V <sub>BE</sub>      | V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)7.5A   |         |            | 1.5    | V    |
| Collector-to-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =(-)7.5A, I <sub>B</sub> =(-)0.75A |         | (-0.3)0.2  | (-)2.0 | V    |
| Collector-to-Base Breakdown Voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> =(-)5mA, I <sub>E</sub> =0         | (-)250  |            |        | V    |
| Collector-to-Emitter Breakdown Voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> =(-)50mA, R <sub>BE</sub> =∞       | (-)230  |            |        | V    |
| Emitter-to-Base Breakdown Voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =(-)5mA, I <sub>C</sub> =0         | (-)6    |            |        | V    |
| Turn-On Time                            | t <sub>on</sub>      | See specified test circuit.                       |         | (0.45)0.56 |        | μs   |
| Storage Time                            | t <sub>stg</sub>     | See specified test circuit.                       |         | (1.75)3.3  |        | μs   |
| Fall Time                               | t <sub>f</sub>       | See specified test circuit.                       |         | (0.25)0.4  |        | μs   |

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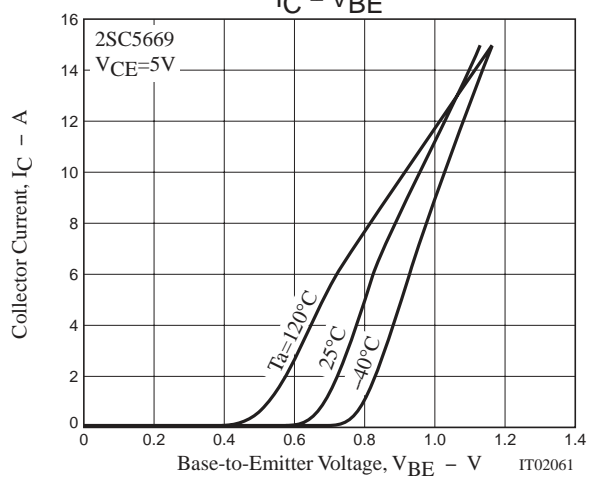
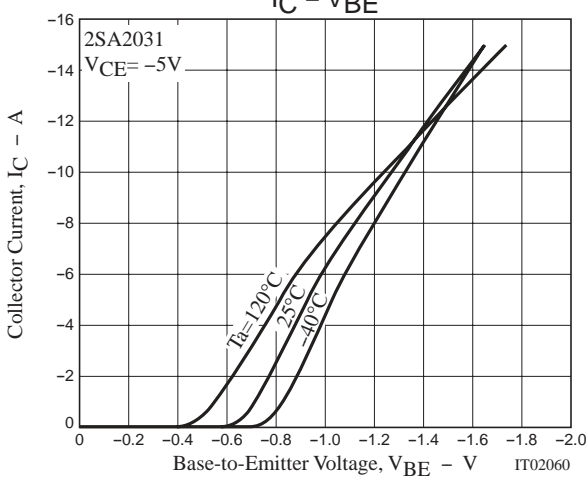
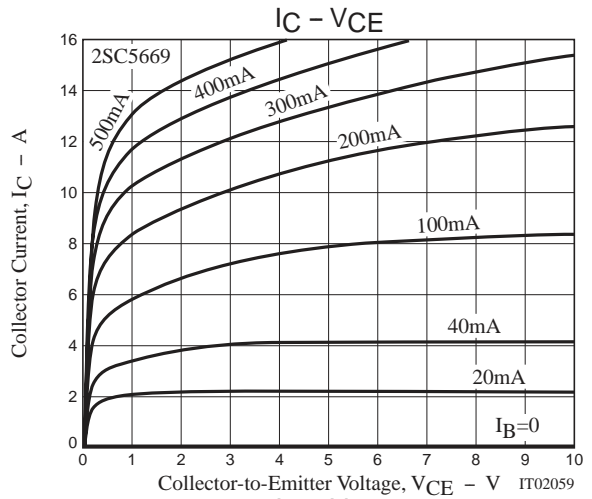
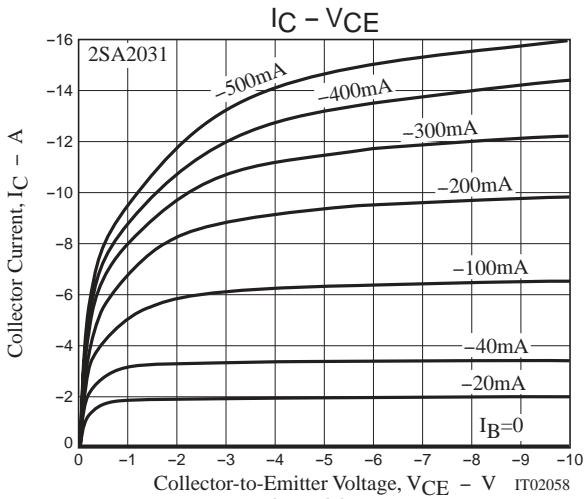
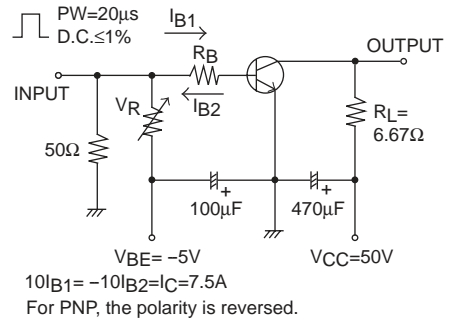
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Package Dimensions

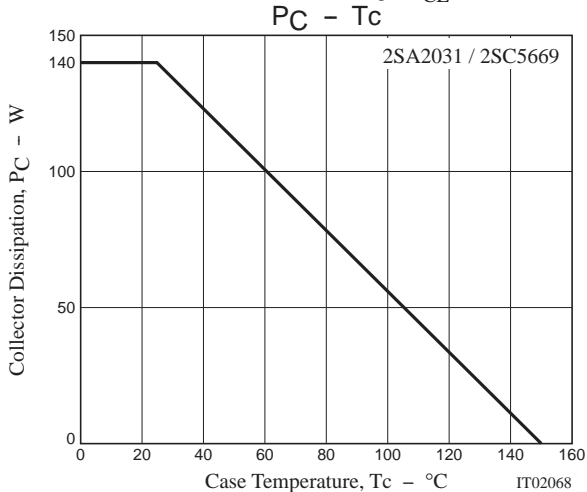
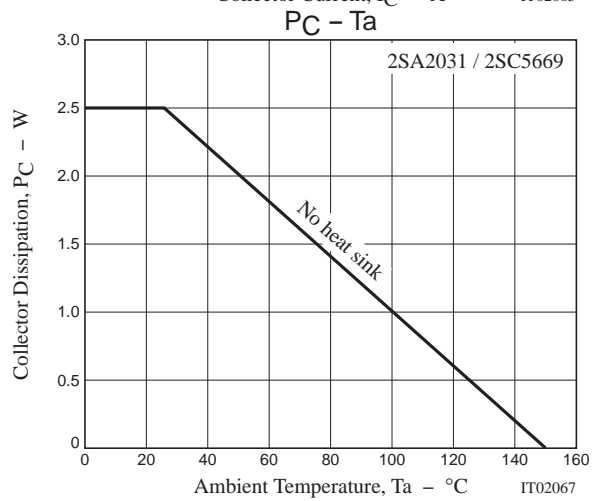
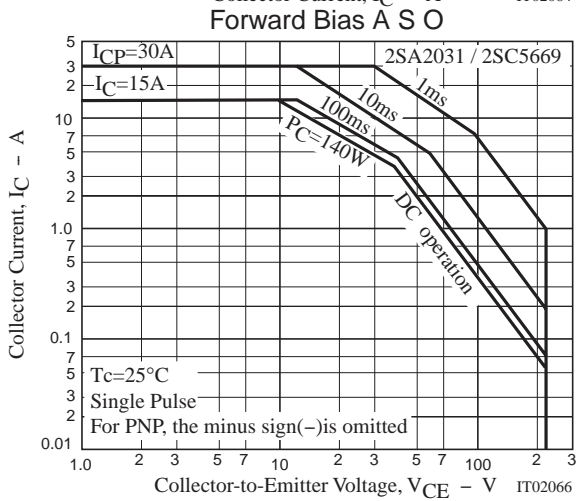
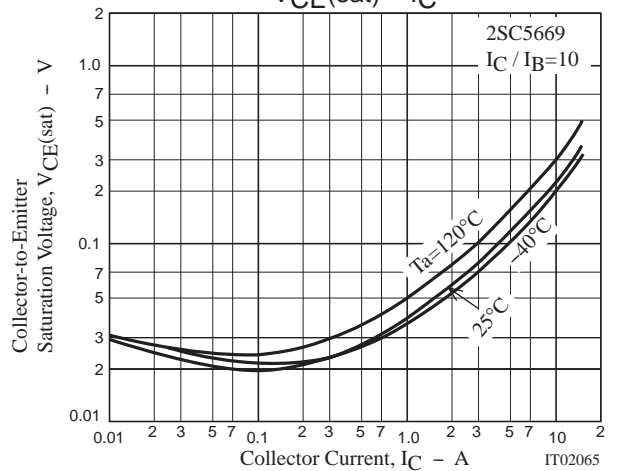
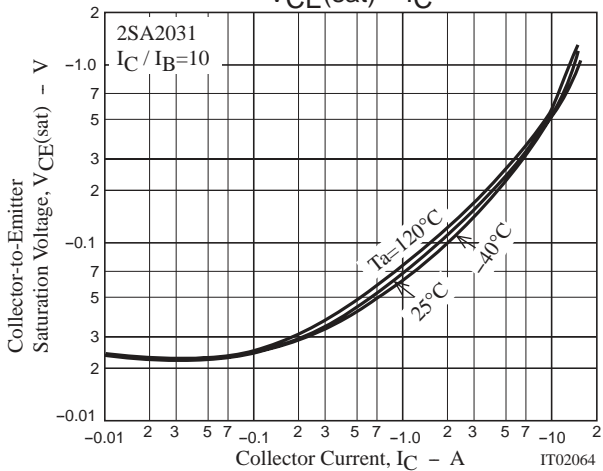
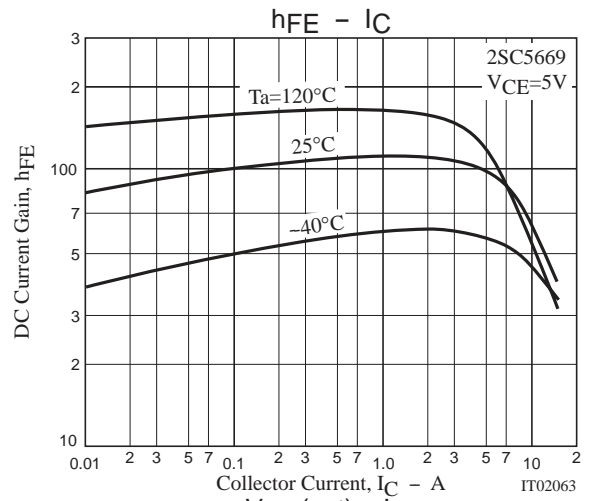
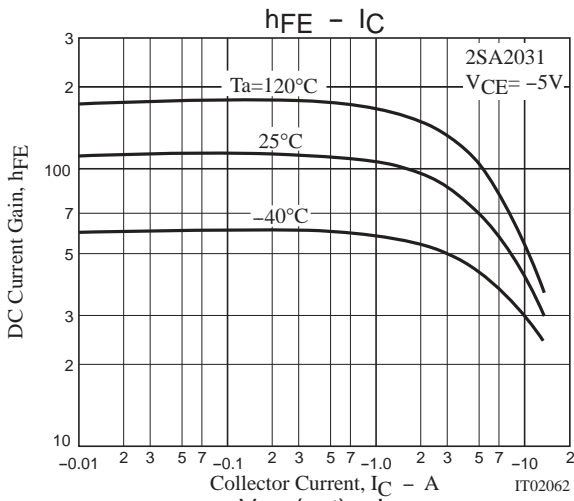
unit : mm  
2022A



Switching Time Test Circuit



2SA2031 / 2SC5669



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