

|              |   |                |
|--------------|---|----------------|
| <b>SANYO</b> | No.3148   | <b>2SC4602</b> |
|              | NPN Triple Diffused Planar Silicon Transistor<br>Switching Regulator Applications |                |

**Features**

- Surface mount type device making the following possible
  - Reduction in the number of manufacturing processes for 2SC4602-applied equipment
  - High density surface mount applications
  - Small size of 2SC4602-applied equipment
- High breakdown voltage, high reliability
- Fast switching speed
- Wide ASO
- Adoption of MBIT process

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

|                              |                  |                       | unit |
|------------------------------|------------------|-----------------------|------|
| Collector to Base Voltage    | V <sub>CB0</sub> | 1100                  | V    |
| Collector to Emitter Voltage | V <sub>CE0</sub> | 800                   | V    |
| Emitter to Base Voltage      | V <sub>EB0</sub> | 7                     | V    |
| Collector Current            | I <sub>C</sub>   | 3                     | A    |
| Collector Current(Pulse)     | I <sub>CP</sub>  | 10                    | A    |
| Base Current                 | I <sub>B</sub>   | 1.5                   | A    |
| Collector Dissipation        | P <sub>C</sub>   | 1.65                  | W    |
|                              |                  | T <sub>c</sub> = 25°C |      |
| Junction Temperature         | T <sub>j</sub>   | 50                    | W    |
| Storage Temperature          | T <sub>stg</sub> | 150                   | °C   |
|                              |                  | -55 to +150           | °C   |

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

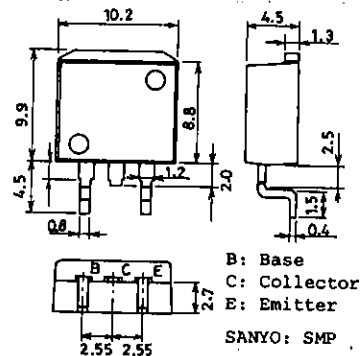
|                          |                      |  | min | typ | max | unit |
|--------------------------|----------------------|--|-----|-----|-----|------|
| Collector Cutoff Current | I <sub>CBO</sub>     | V <sub>CB</sub> = 800V, I <sub>E</sub> = 0   |     |     | 10  | μA   |
| Emitter Cutoff Current   | I <sub>EBO</sub>     | V <sub>EB</sub> = 5V, I <sub>C</sub> = 0     |     |     | 10  | μA   |
| DC Current Gain          | h <sub>FE</sub> (1)  | V <sub>CE</sub> = 5V, I <sub>C</sub> = 0.2A  | 10* |     | 40* |      |
|                          | h <sub>FE</sub> (2)  | V <sub>CE</sub> = 5V, I <sub>C</sub> = 1A    | 8   |     |     |      |
| Gain-Bandwidth Product   | f <sub>T</sub>       | V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.2A |     | 15  |     | MHz  |
| Output Capacitance       | c <sub>ob</sub>      | V <sub>CB</sub> = 10V, f = 1MHz              |     | 60  |     | pF   |
| C-E Saturation Voltage   | V <sub>CE(sat)</sub> | I <sub>C</sub> = 1.5A, I <sub>B</sub> = 0.3A |     |     | 2.0 | V    |
| B-E Saturation Voltage   | V <sub>BE(sat)</sub> | I <sub>C</sub> = 1.5A, I <sub>B</sub> = 0.3A |     |     | 1.5 | V    |

Continued on next page.

\* : For the h<sub>FE</sub>(1) of the 2SC4602, specify two ranks or more in principle.

|         |         |         |
|---------|---------|---------|
| 10 K 20 | 15 L 30 | 20 M 40 |
|---------|---------|---------|

**Package Dimensions 2069**  
(unit: mm)

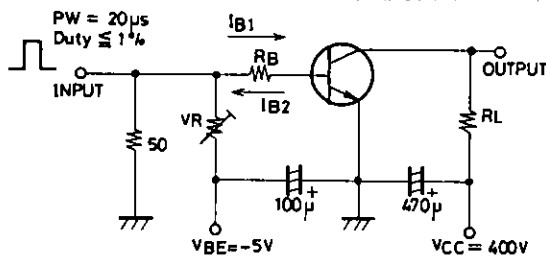


## 2SC4602

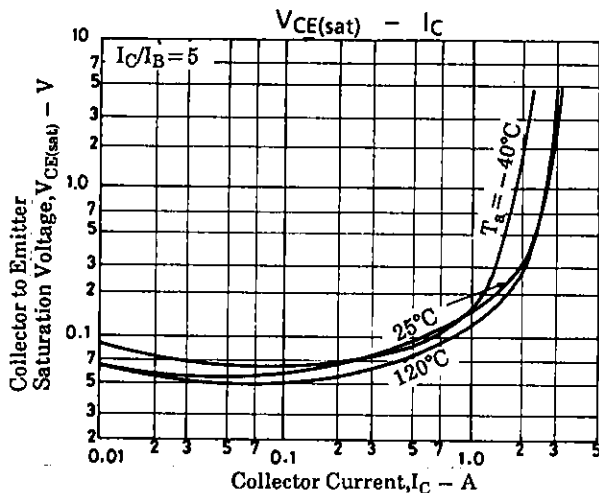
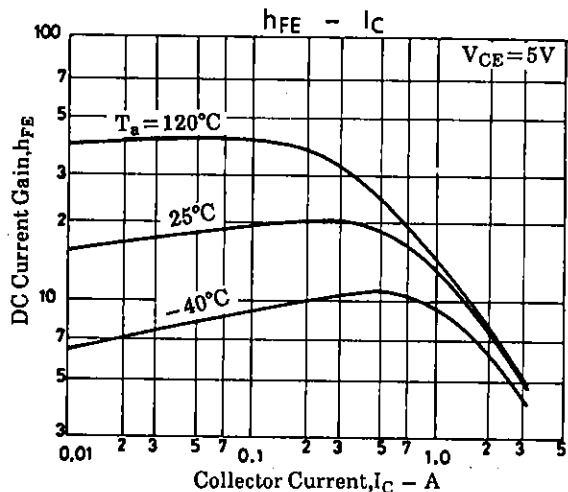
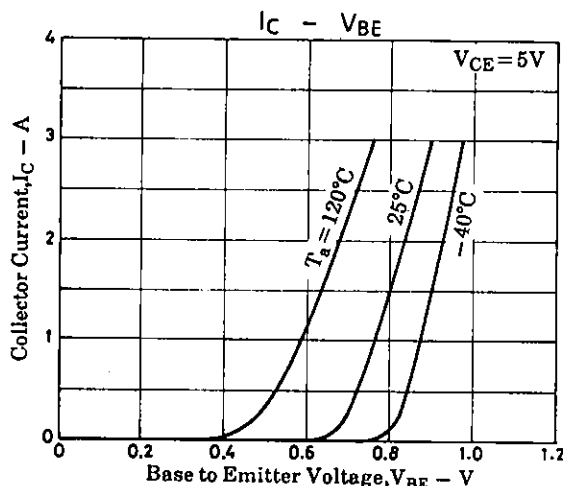
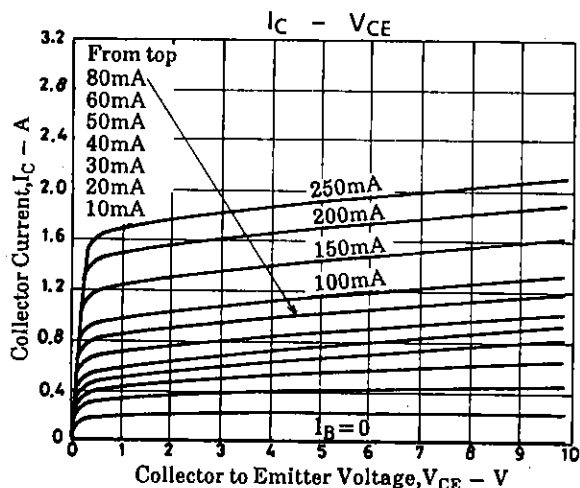
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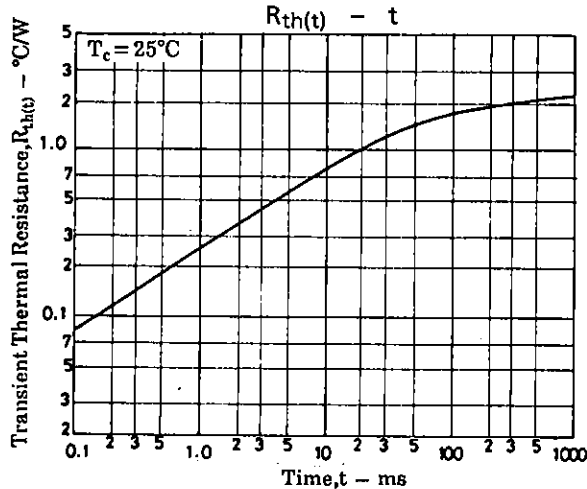
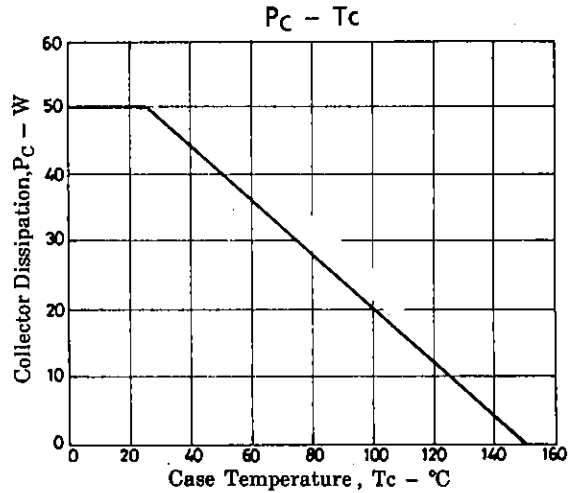
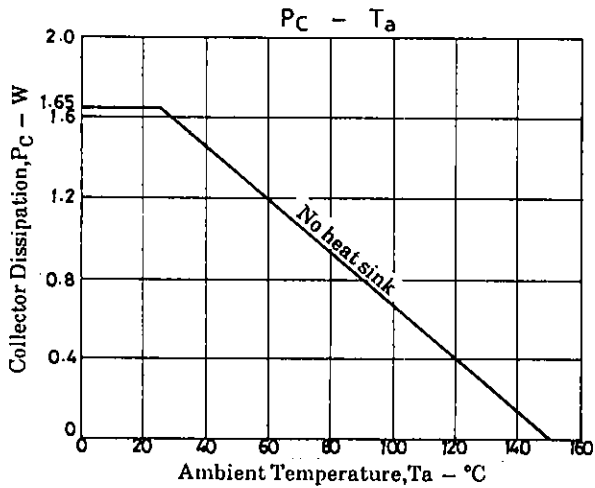
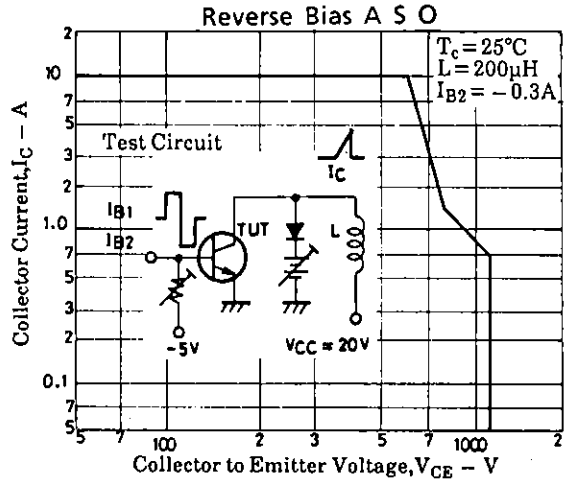
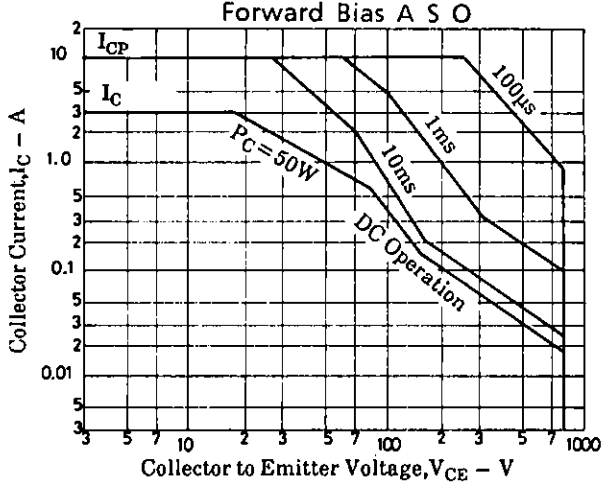
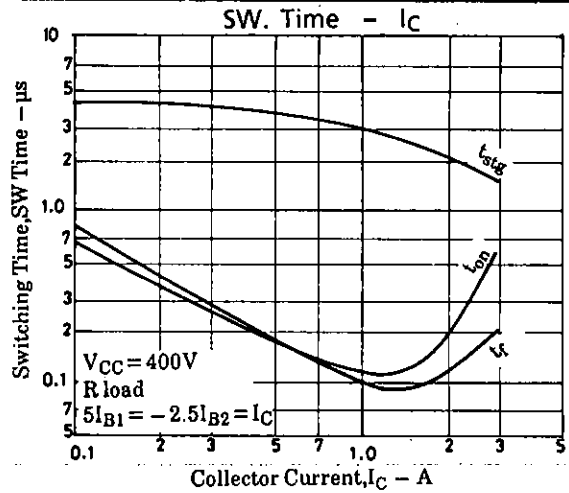
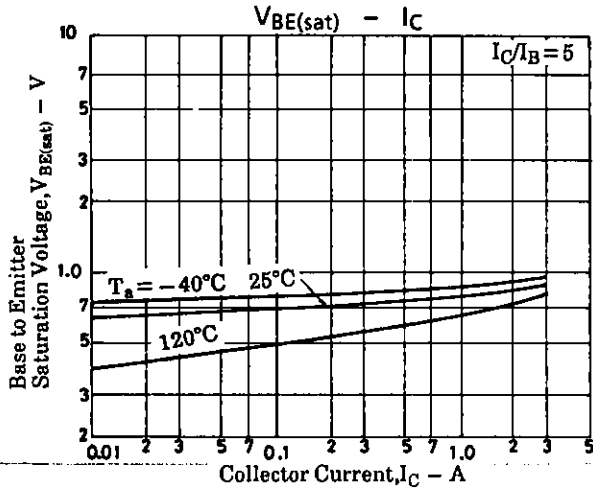
|                       |                |   | min  | typ | max | unit          |
|-----------------------|----------------|---|------|-----|-----|---------------|
| C-B Breakdown Voltage | $V_{(BR)CBO}$  | $I_C = 1\text{mA}, I_E = 0$   | 1100 |     |     | V             |
| C-E Breakdown Voltage | $V_{(BR)CEO}$  | $I_C = 5\text{mA}, R_{BE} = \infty$   | 800  |     |     | V             |
| E-B Breakdown Voltage | $V_{(BR)EBO}$  | $I_E = 1\text{mA}, I_C = 0$   | 7    |     |     | V             |
| C-E Sustain Voltage   | $V_{CEX(sus)}$ | $I_C = 1.5\text{A}, I_{B1} = -I_{B2} = 0.3\text{A},$<br>$L = 2\text{mH}, \text{clamped}$                        | 800  |     |     | V             |
| Turn-ON Time          | $t_{on}$       | $I_C = 2\text{A}, I_{B1} = 0.4\text{A},$<br>$I_{B2} = -0.8\text{A}, R_L = 200\Omega,$<br>$V_{CC} = 400\text{V}$ |      |     | 0.5 | $\mu\text{s}$ |
| Storage Time          | $t_{stg}$      |   |      |     | 3.0 | $\mu\text{s}$ |
| Fall Time             | $t_f$          |   |      |     | 0.3 | $\mu\text{s}$ |

### Switching Time Test Circuit



Unit (Resistance :  $\Omega$ , Capacitance : F)





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