

**SANYO**

No.2853

**2SC4430**

NPN Triple Diffused Planar Silicon Transistor  
Switching Regulator Applications

**Features**

- High breakdown voltage, high reliability
- Fast switching speed ( $t_f$ : 0.1 $\mu$ s typ)
- Wide ASO
- Adoption of MBIT process
- Micaless package facilitating easy mounting

**Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$**

|                              |           |             | unit             |
|------------------------------|-----------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CB0}$ | 1100        | V                |
| Collector-to-Emitter Voltage | $V_{CEO}$ | 800         | V                |
| Emitter-to-Base Voltage      | $V_{EBO}$ | 7           | V                |
| Collector Current            | $I_C$     | 12          | A                |
| Peak Collector Current       | $i_{cp}$  | 30          | A                |
| Base Current                 | $I_B$     | 6           | A                |
| Collector Dissipation        | $P_C$     | 3           | W                |
| Junction Temperature         | $T_j$     | 65          | W                |
| Storage Temperature          | $T_{stg}$ | 150         | $^\circ\text{C}$ |
|                              |           | -55 to +150 | $^\circ\text{C}$ |

$T_C = 25^\circ\text{C}$

$PW \leq 300\mu\text{s}, \text{duty cycle} \leq 10\%$

**Electrical Characteristics at  $T_a = 25^\circ\text{C}$**

|                          |                | min  | typ | max | unit          |
|--------------------------|----------------|------|-----|-----|---------------|
| Collector Cutoff Current | $I_{CBO}$      |      |     | 10  | $\mu\text{A}$ |
| Emitter Cutoff Current   | $I_{EBO}$      |      |     | 10  | $\mu\text{A}$ |
| DC Current Gain          | $h_{FE}(1)^*$  | 10   |     | 40  |               |
|                          | $h_{FE}(2)$    | 8    |     |     |               |
| C-E Saturation Voltage   | $V_{CE(sat)}$  |      |     | 2.0 | V             |
| B-E Saturation Voltage   | $V_{BE(sat)}$  |      |     | 1.5 | V             |
| Gain-Bandwidth Product   | $f_T$          |      | 15  |     | MHz           |
| Output Capacitance       | $c_{ob}$       |      | 215 |     | pF            |
| C-B Breakdown Voltage    | $V_{(BR)CBO}$  | 1100 |     |     | V             |
| C-E Breakdown Voltage    | $V_{(BR)CEO}$  | 800  |     |     | V             |
| E-B Breakdown Voltage    | $V_{(BR)EBO}$  | 7    |     |     | V             |
| C-E Sustain Voltage      | $V_{CEX(sus)}$ | 800  |     |     | V             |

$I_C = 1\text{mA}, I_E = 0$   
 $I_C = 5\text{mA}, R_{BE} = \infty$   
 $I_E = 1\text{mA}, I_C = 0$   
 $I_C = 6\text{A}, I_{B1} = 1.2\text{A}$   
 $I_{B2} = -1.2\text{A}, L = 500\mu\text{H}, \text{clamped}$

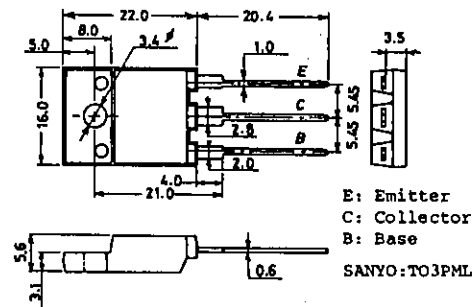
Continued on next page.

\*: The  $h_{FE}(1)$  of the 2SC4430 is classified as follows. When specifying the  $h_{FE}(1)$  rank, specify two ranks or more in principle.

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

**Package Dimensions 2039**

(unit: mm)



Continued from preceding page.

Turn-on Time

$t_{on}$

$I_C = 8A, I_{B1} = 1.6A$   
 $I_{B2} = -3.2A, R_L = 50\Omega$   
 $V_{CC} = 400V$

min typ max unit  
 0.5  $\mu s$

Storage Time

$t_{stg}$

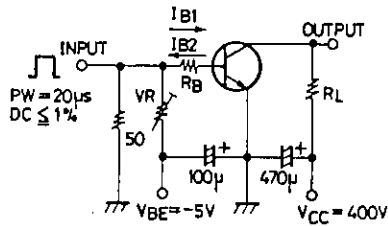
3.0  $\mu s$

Fall Time

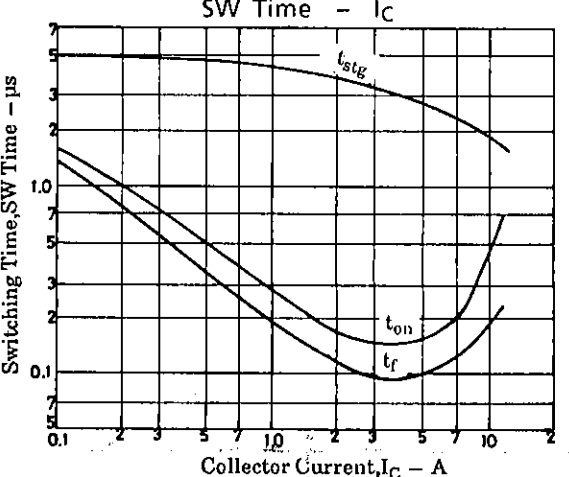
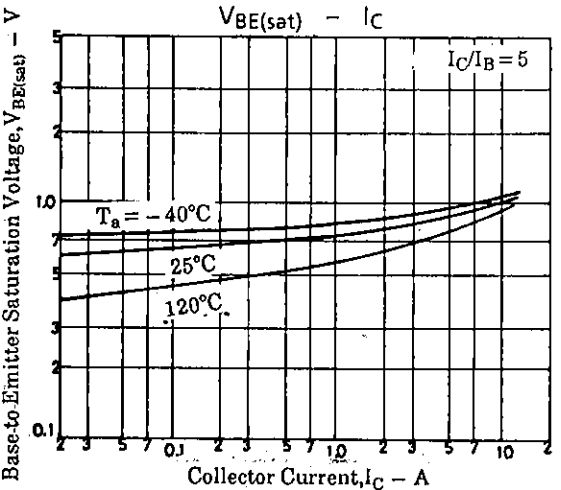
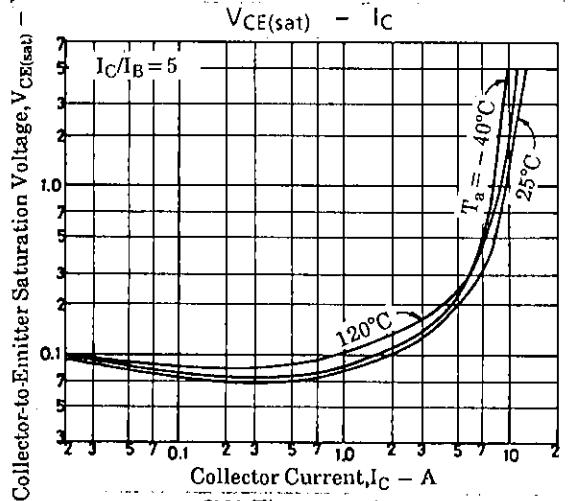
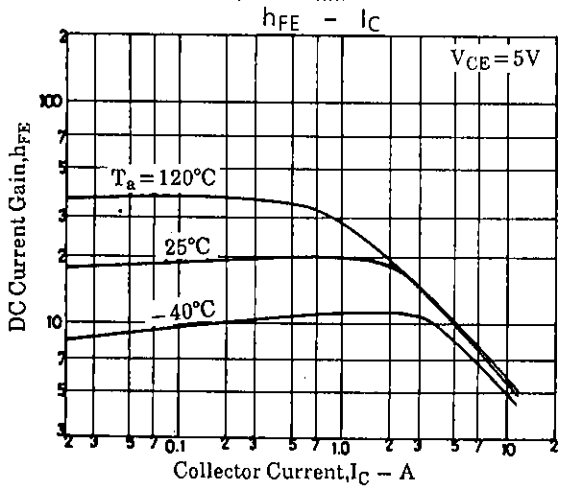
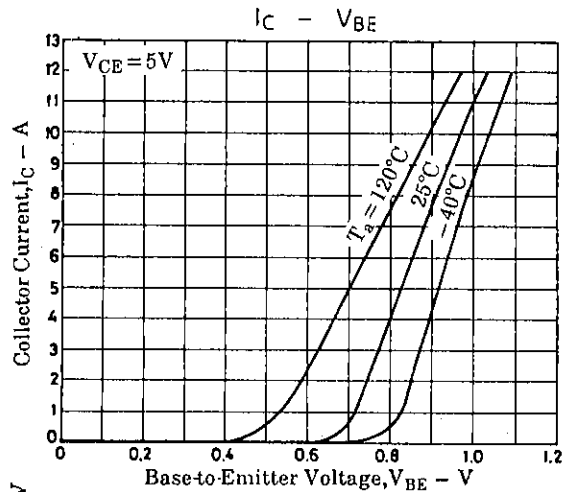
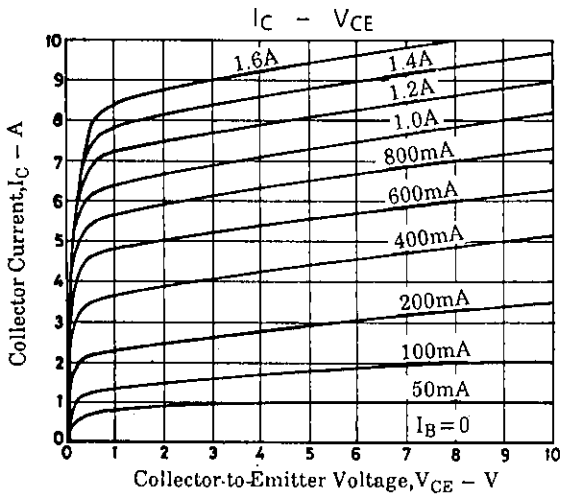
$t_f$

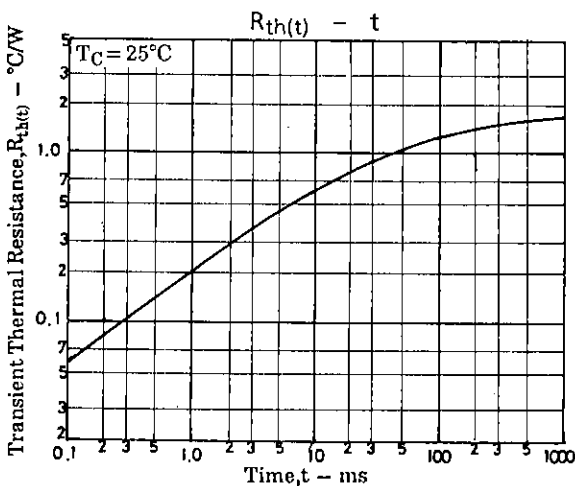
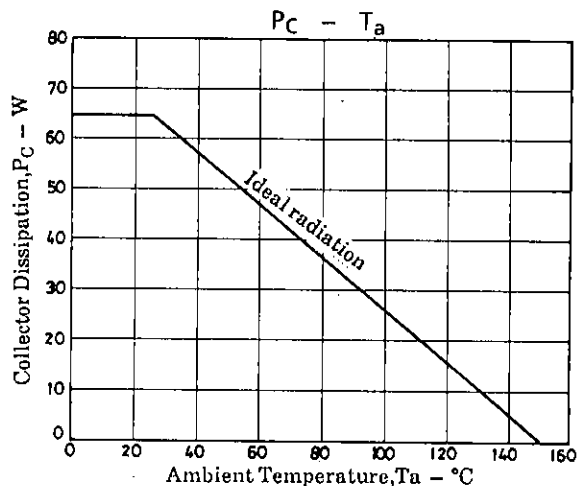
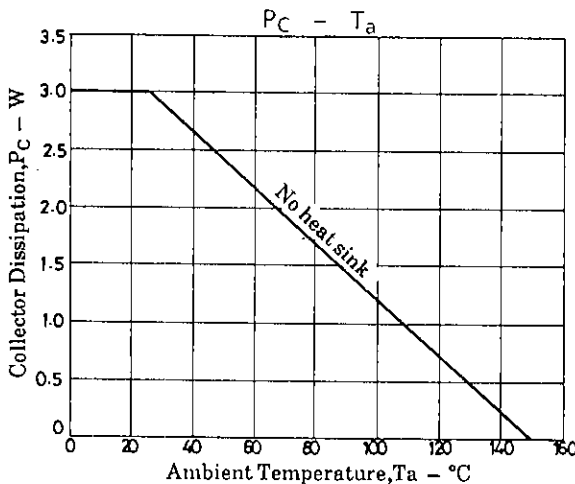
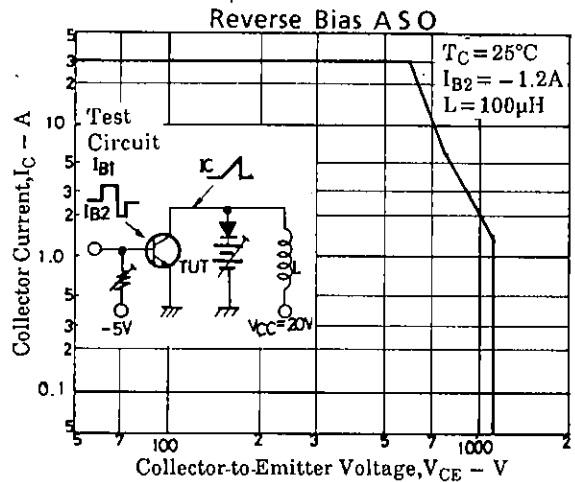
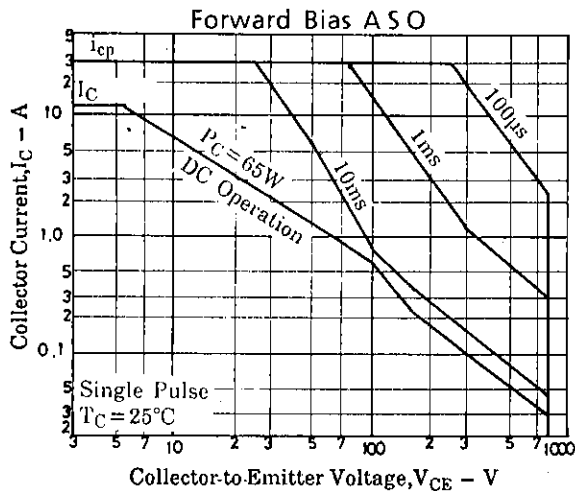
0.3  $\mu s$

Switching Time Test Circuit



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





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