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| | No.2851 | <h1 style="margin: 0;">2SC4428</h1> <p style="margin: 0;">NPN Triple Diffused Planar Silicon Transistor</p> <p style="margin: 0;">Switching Regulator Applications</p> |
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Features

- High breakdown voltage, high reliability
- Fast switching speed (t_r : 0.1 μ 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_{CBO} | 1100 | V |
| Collector-to-Emitter Voltage | V_{CEO} | 800 | V |
| Emitter-to-Base Voltage | V_{EBO} | 7 | V |
| Collector Current | I_C | 6 | A |
| Peak Collector Current | i_{cp} | 20 | A |
| Base Current | I_B | 3 | A |
| Collector Dissipation | P_C | 3 | W |
| | | $T_C = 25^\circ\text{C}$ | 55 |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

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

| | | | min | typ | max | |
|--------------------------|----------------|---|------|-----|-----|---------------|
| Collector Cutoff Current | I_{CBO} | $V_{CB} = 800\text{V}, I_E = 0$ | | | 10 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 5\text{V}, I_C = 0$ | | | 10 | μA |
| DC Current Gain | $h_{FE}(1)^*$ | $V_{CE} = 5\text{V}, I_C = 0.4\text{A}$ | 10 | | 40 | |
| | $h_{FE}(2)$ | $V_{CE} = 5\text{V}, I_C = 2\text{A}$ | 8 | | | |
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C = 3\text{A}, I_B = 0.6\text{A}$ | | | 2.0 | V |
| B-E Saturation Voltage | $V_{BE(sat)}$ | $I_C = 3\text{A}, I_B = 0.6\text{A}$ | | | 1.5 | V |
| Gain-Bandwidth Product | f_T | $V_{CE} = 10\text{V}, I_C = 0.4\text{A}$ | | 15 | | MHz |
| Output Capacitance | c_{ob} | $V_{CB} = 10\text{V}, f = 1\text{MHz}$ | | 120 | | pF |
| 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 | $V_{CEX(sus)}$ | $I_C = 3\text{A}, I_{B1} = 0.6\text{A}$ | 800 | | | V |
| | | $I_{B2} = -0.6\text{A}, L = 1\text{mH}, \text{clamped}$ | | | | |

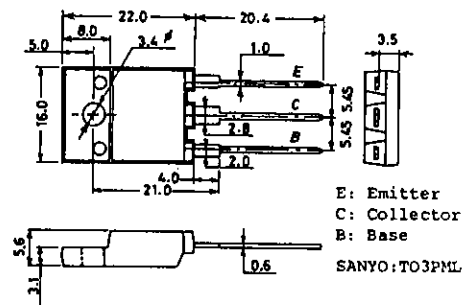
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*: The $h_{FE}(1)$ of the 2SC4428 is classified as follows. When specifying the $h_{FE}(1)$ rank, specify two ranks or more in principle.

| | | |
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| 10 K 20 | 15 L 30 | 20 M 40 |
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Package Dimensions 2039

(unit: mm)



Continued from preceding page.

Turn-on Time

t_{on}

$I_C = 4A, I_{B1} = 0.8A$
 $I_{B2} = -1.6A, R_L = 100\Omega$
 $V_{CC} = 400V$

min typ max unit

0.5 μs

Storage Time

t_{stg}

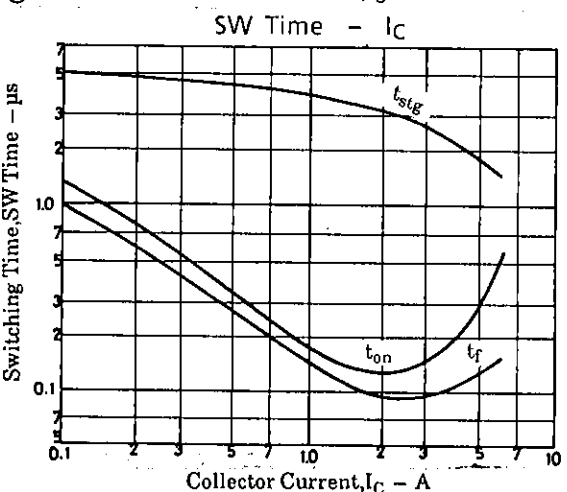
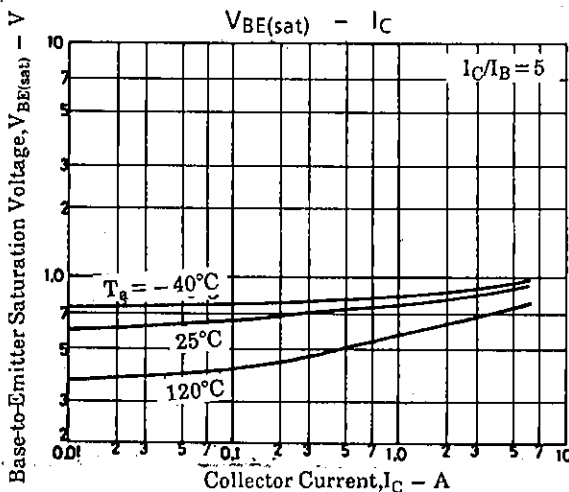
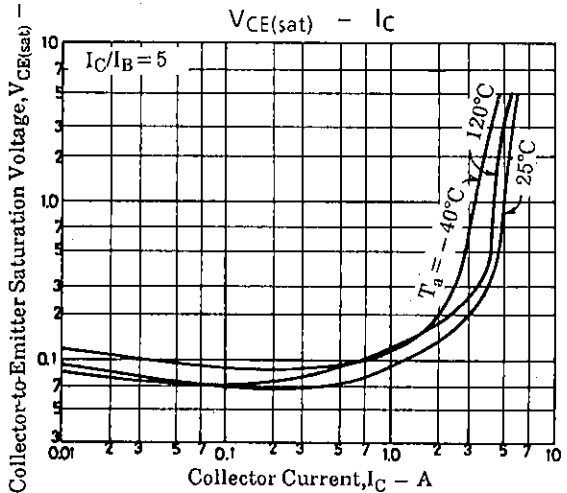
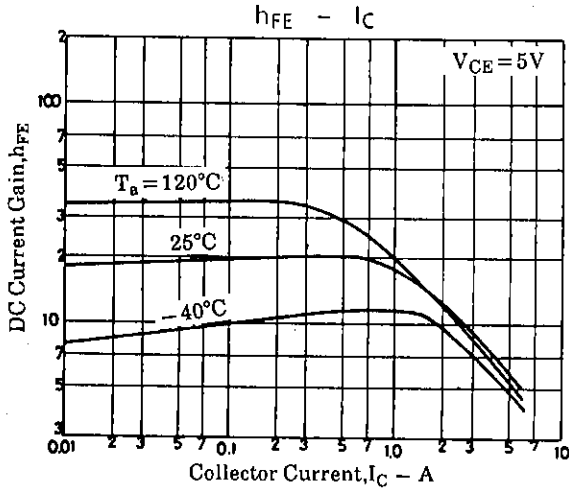
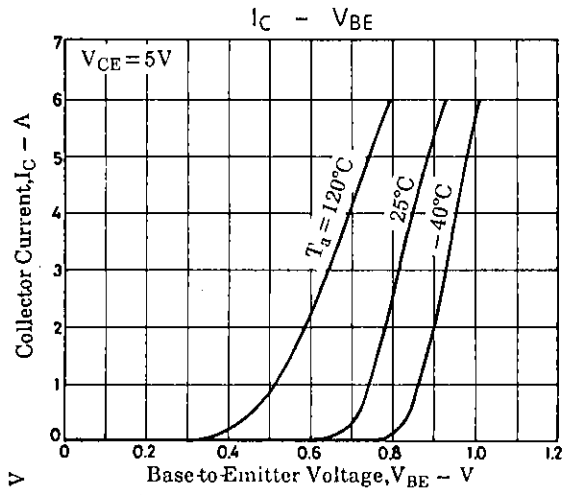
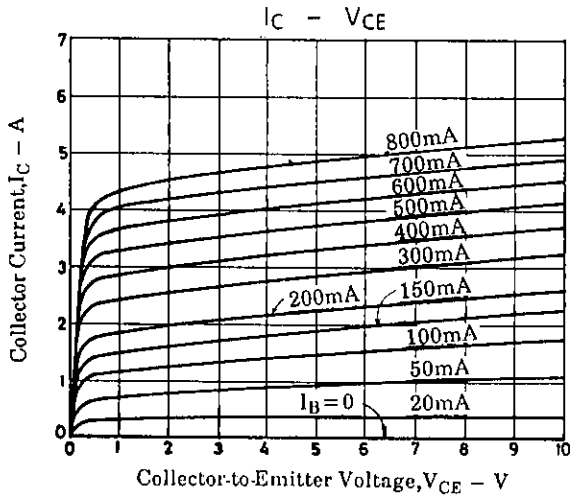
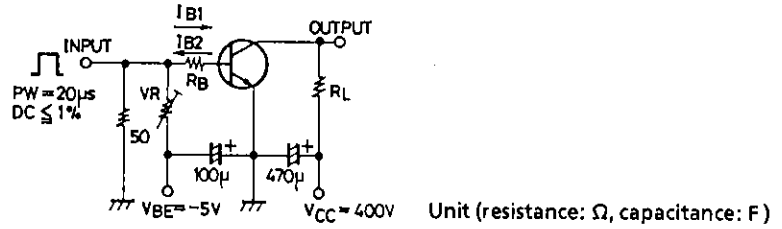
3.0 μs

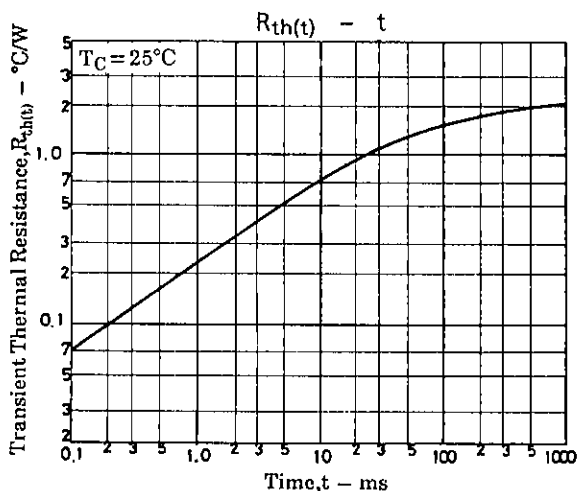
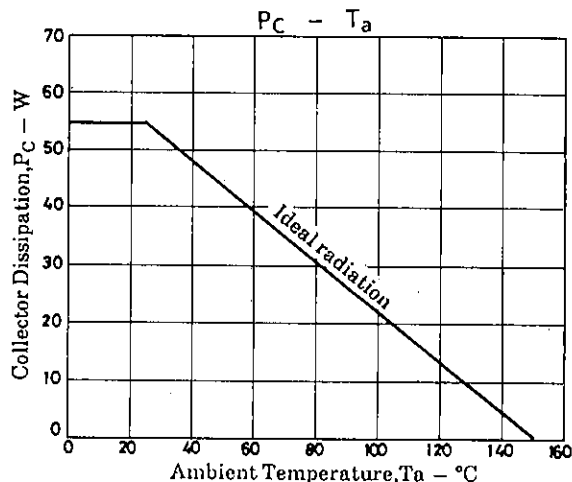
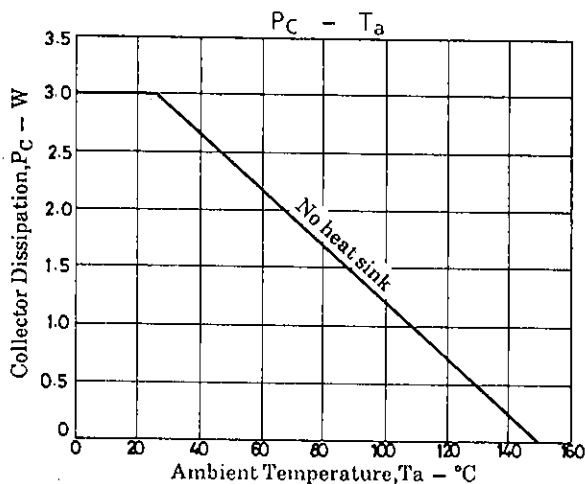
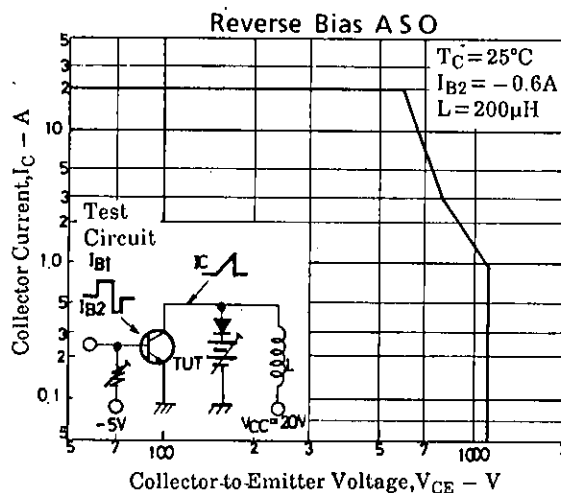
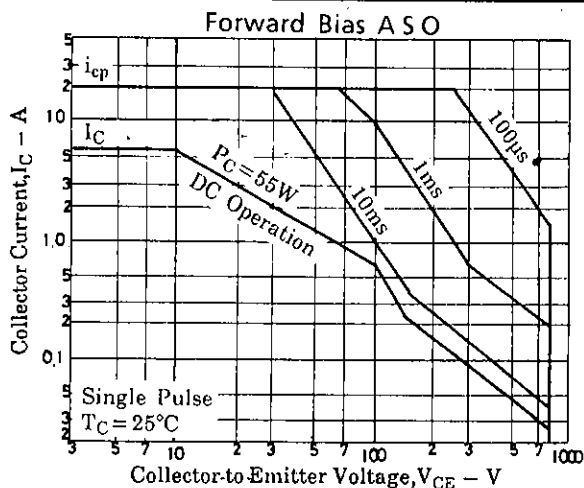
Fall Time

t_f

0.3 μs

Switching Time Test Circuit





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