	No.2851	<h1 style="margin: 0;">2SC4428</h1> <p style="margin: 0;">NPN Triple Diffused Planar Silicon Transistor</p> <h2 style="margin: 0;">Switching Regulator Applications</h2>
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**Features**

- High breakdown voltage, high reliability
- Fast switching speed ( $t_r$ : 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	$V_{CBO}$	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	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$			10	$\mu\text{A}$
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
		$I_{B2} = -0.6\text{A}, L = 1\text{mH}, \text{clamped}$				

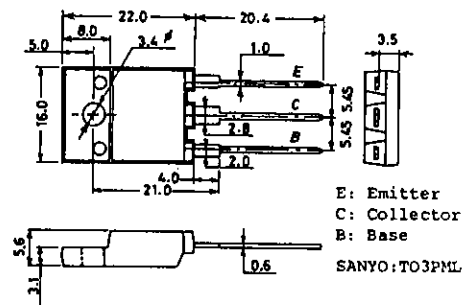
Continued on next page.

\*: 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.

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  $\mu s$

Storage Time

$t_{stg}$

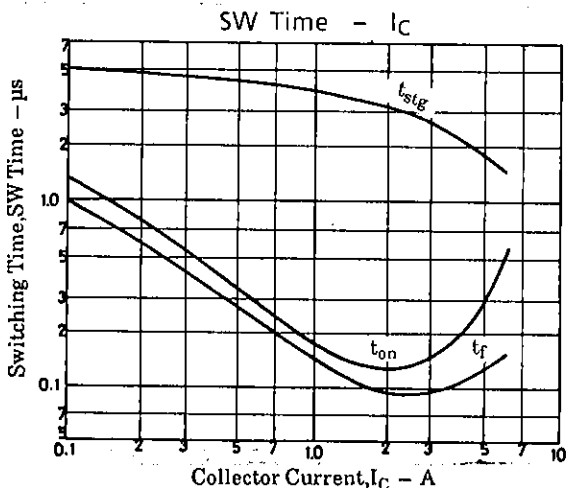
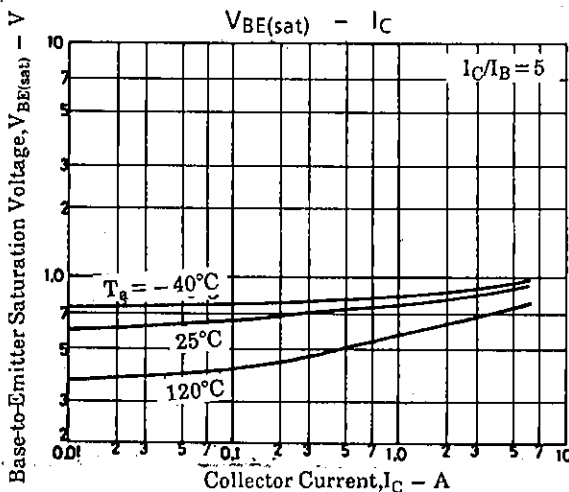
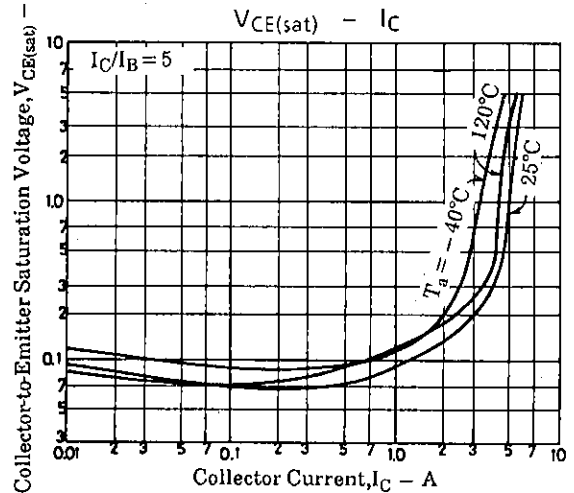
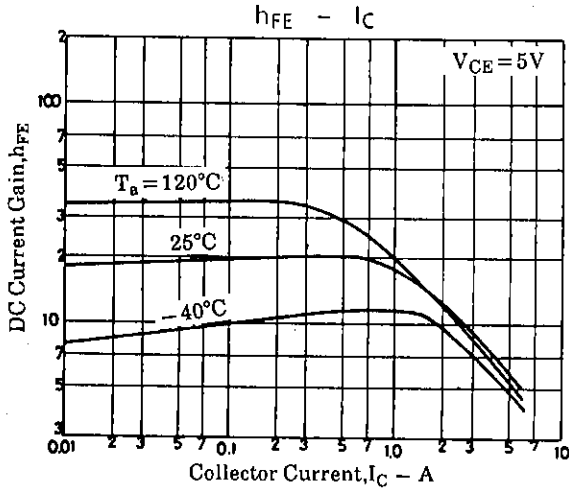
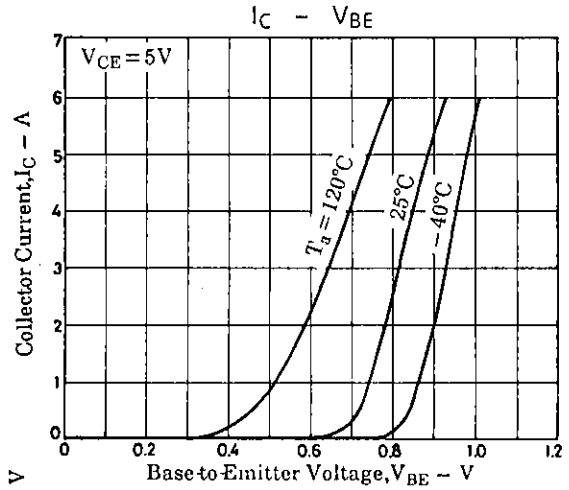
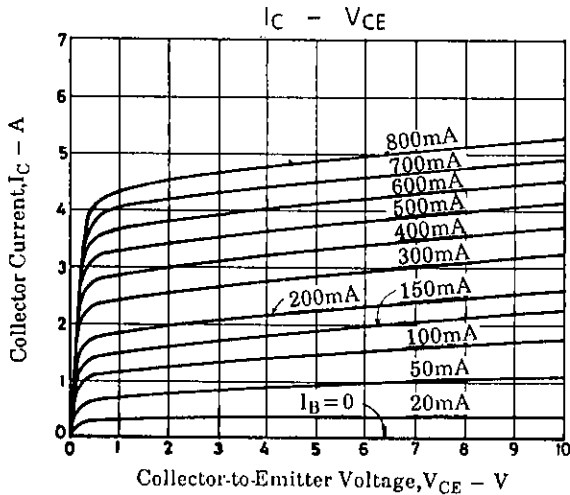
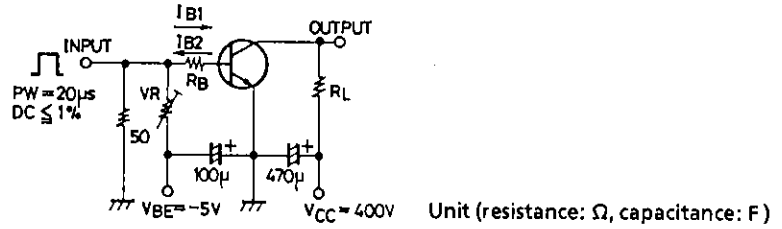
3.0  $\mu s$

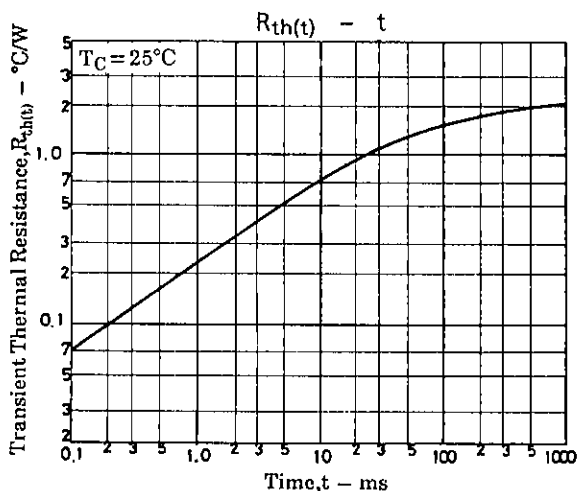
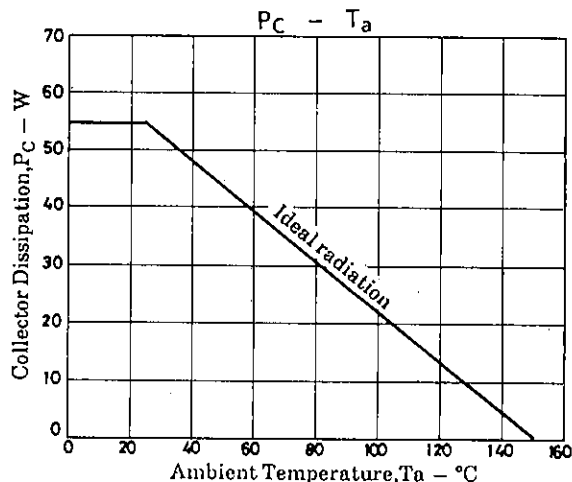
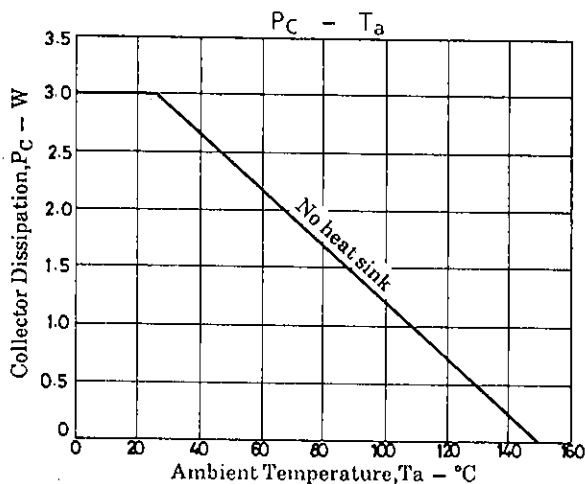
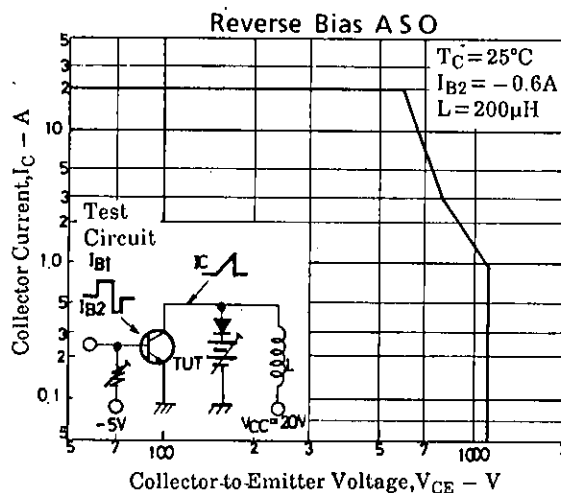
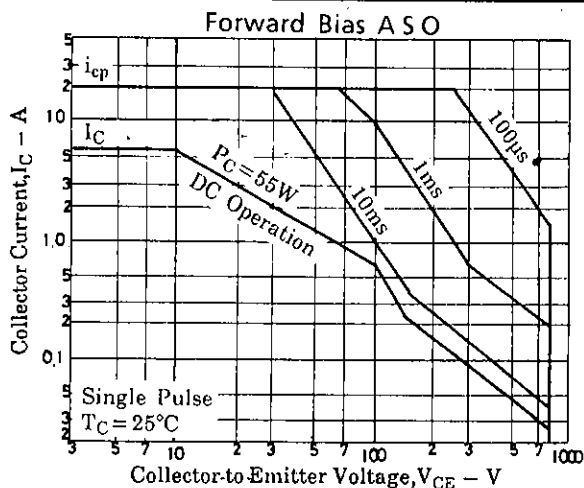
Fall Time

$t_f$

0.3  $\mu s$

Switching Time Test Circuit





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