	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 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
		$I_{B2} = -0.6\text{A}, L = 1\text{mH}, \text{clamped}$				

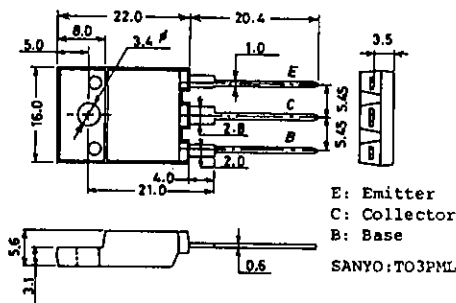
Continued on next page.

*: 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 μs

Storage Time

t_{stg}

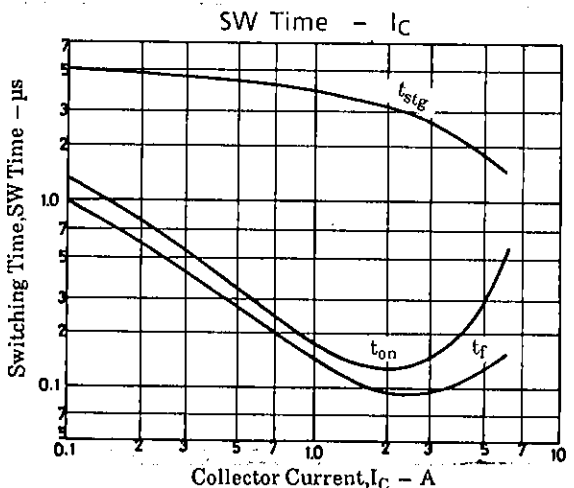
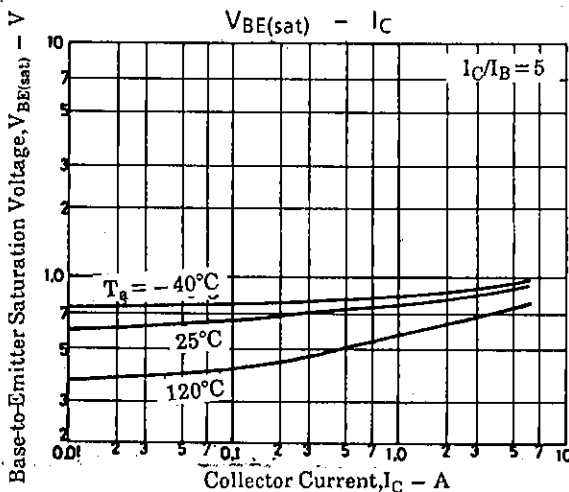
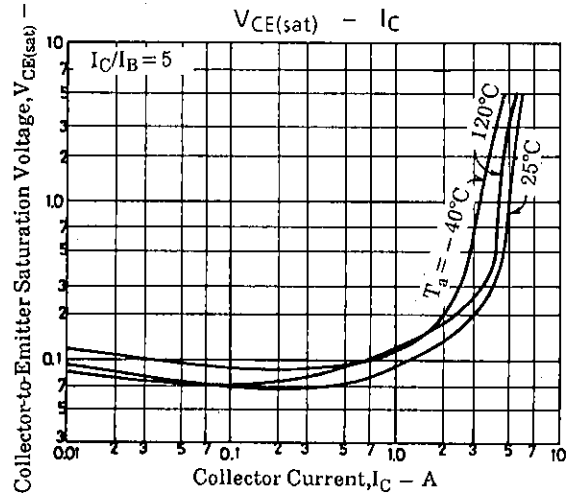
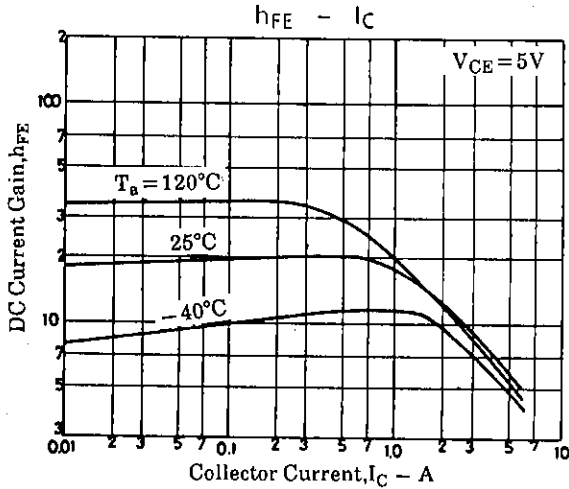
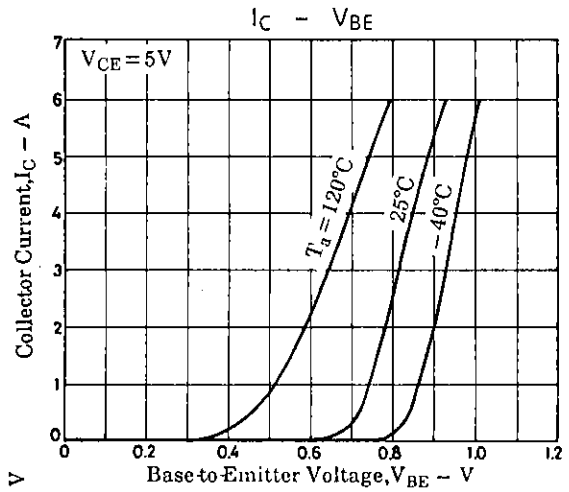
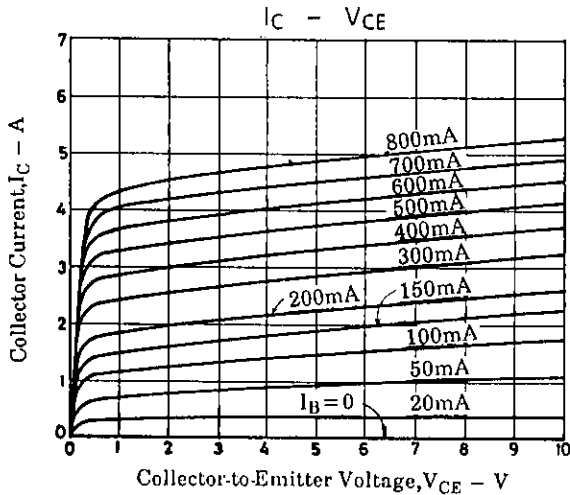
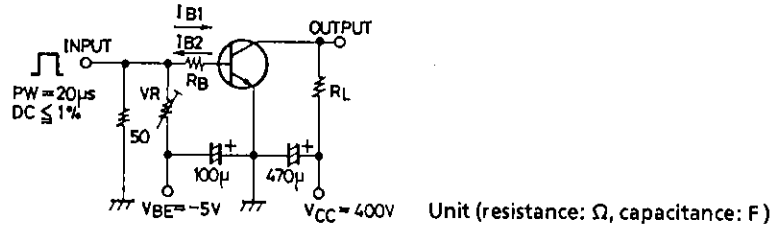
3.0 μs

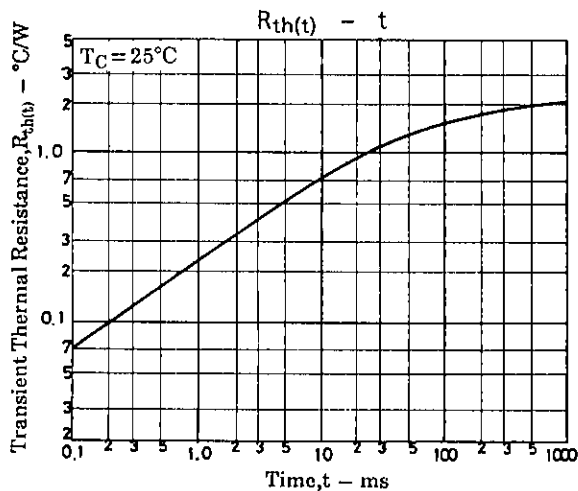
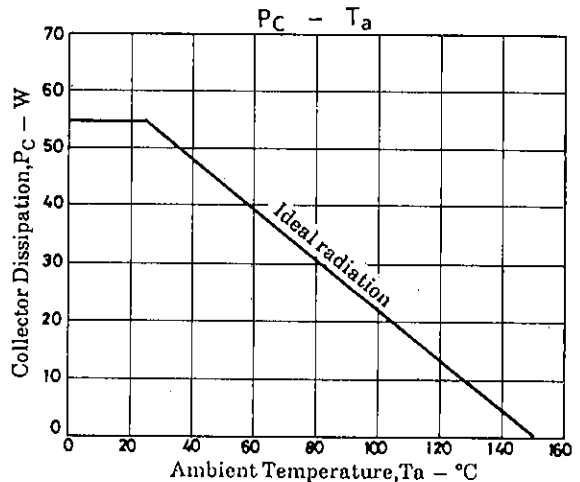
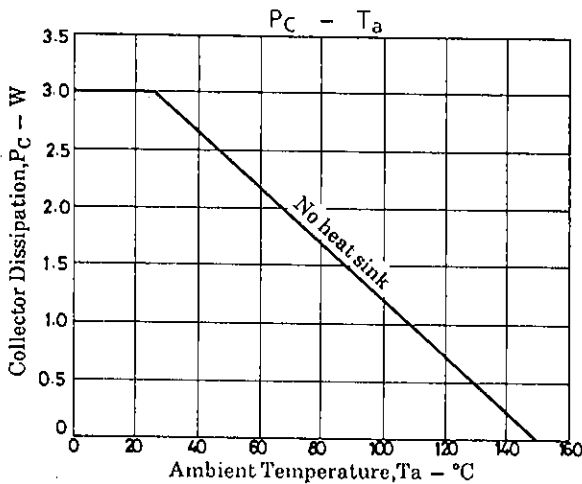
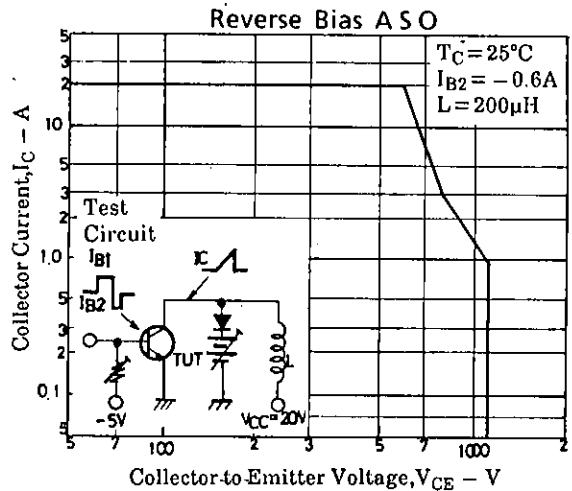
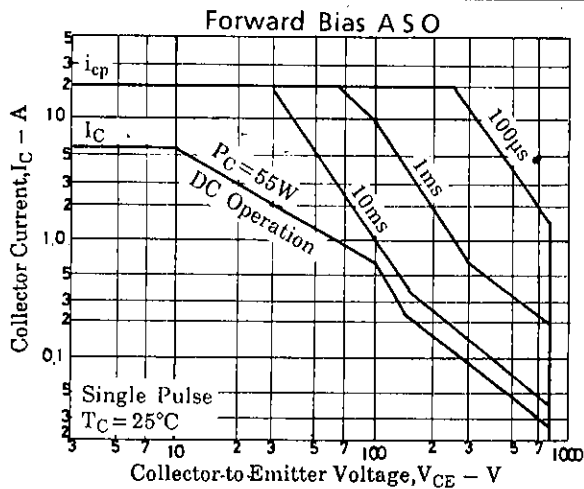
Fall Time

t_f

0.3 μs

Switching Time Test Circuit





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