

**SANYO**

No.2235D

**2SC3992**

NPN Triple Diffused Planar Silicon Transistor

Switching Regulator Applications

**Features**

- 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>CEO</sub>	800	V
Emitter-to-Base Voltage	V <sub>EBO</sub>	7	V
Collector Current	I <sub>C</sub>	12	A
Collector Current (Pulse)	I <sub>CP</sub>	PW ≤ 300μs, duty cycle ≤ 10%	30 A
Base Current	I <sub>B</sub>	6	A
Collector Dissipation	P <sub>C</sub>	T <sub>c</sub> = 25°C	200 W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

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

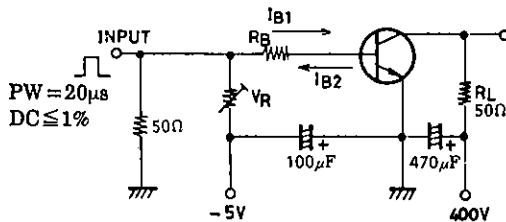
			min	typ	max	unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = 800V, I <sub>E</sub> = 0			10	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0			10	μA
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> = 5V, I <sub>C</sub> = 0.8A	10※		40※	
	h <sub>FE</sub> (2)	V <sub>CE</sub> = 5V, I <sub>C</sub> = 4A	8			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.8A		15		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, f = 1MHz		215		pF
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 6A, I <sub>B</sub> = 1.2A			2.0	V
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 6A, I <sub>B</sub> = 1.2A			1.5	V
C-B Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 1mA, I <sub>E</sub> = 0	1100			V
C-E Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 5mA, R <sub>BE</sub> = ∞	800			V
E-B Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 1mA, I <sub>C</sub> = 0	7			V

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※ : The 2SC3992 is classified by 0.8A h<sub>FE</sub> as follows :

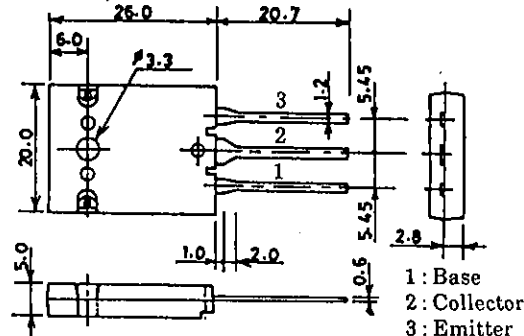
10	K	20	15	L	30	20	M	40
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**Switching Time Test Circuit**



**Package Dimensions 2048B**

(unit : mm)



1: Base  
2: Collector  
3: Emitter

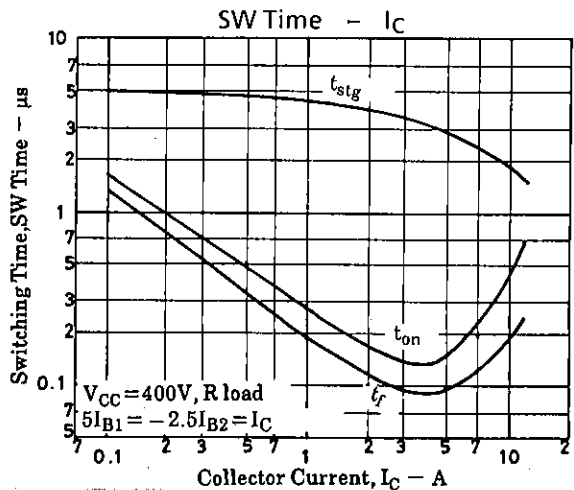
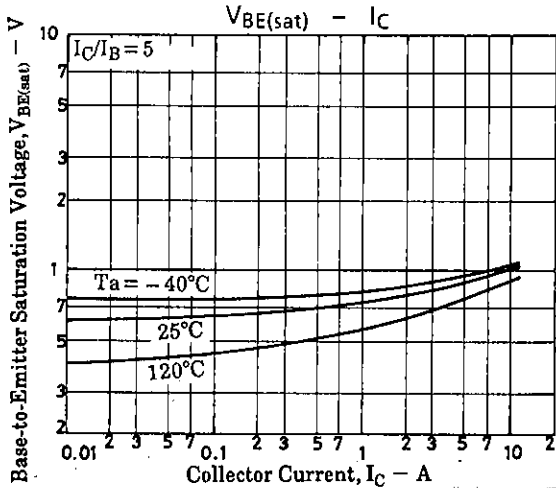
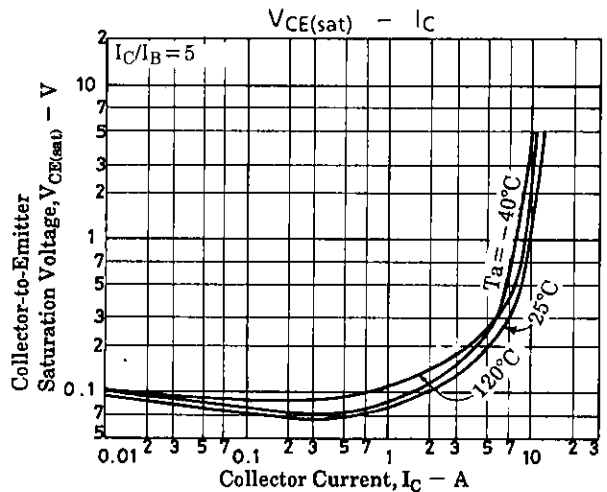
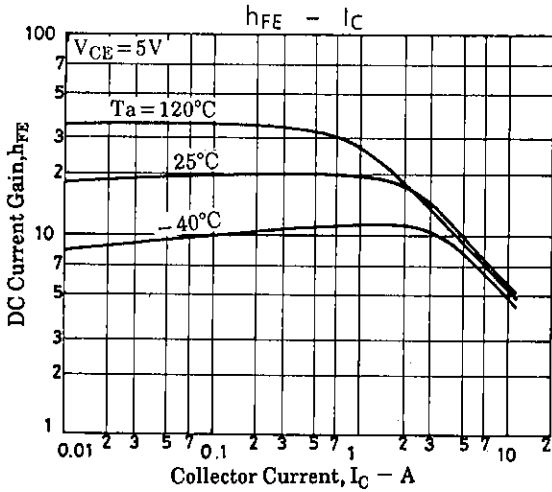
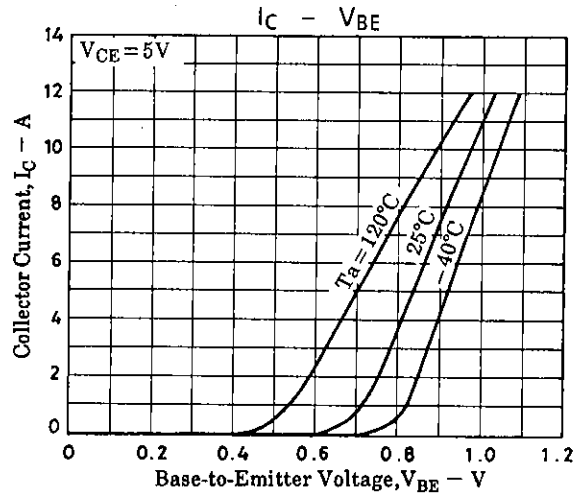
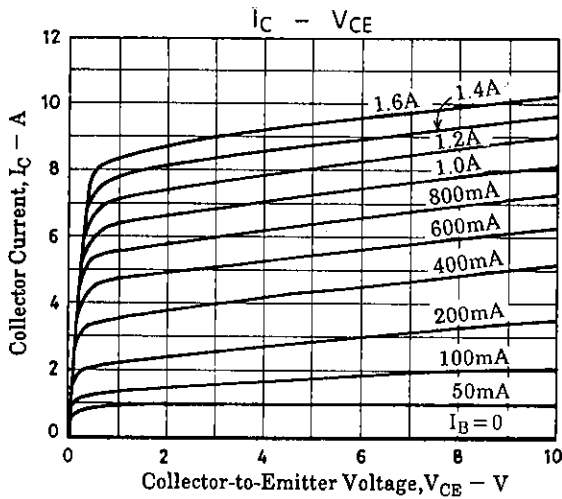
SANYO: TO-3PBL

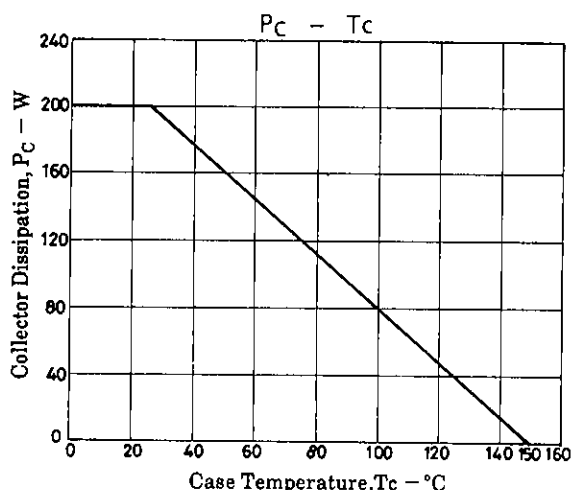
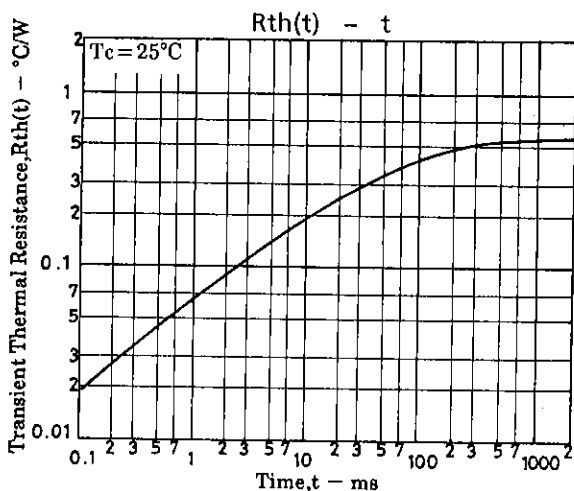
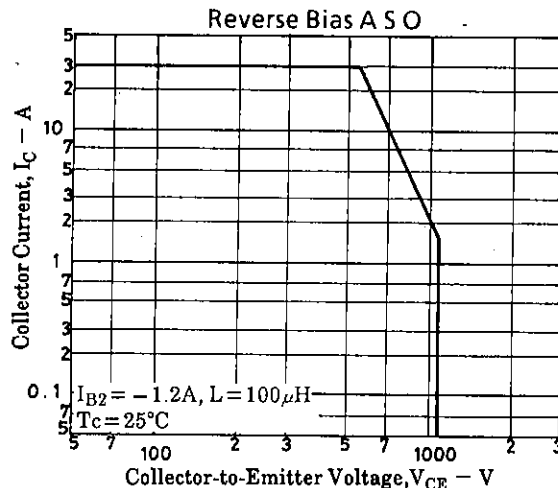
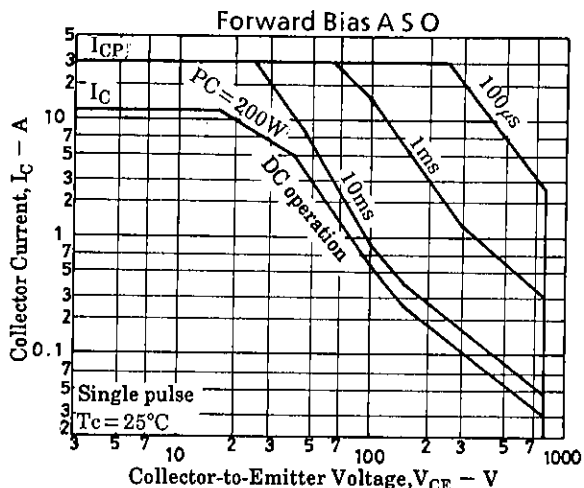
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		$I_C = 6A, I_{B1} = -I_{B2} = 1.2A$ $L = 500\mu H, \text{clamped}$	min	typ	max	unit
C-E Sustain Voltage	$V_{CE(sus)}$		800			V
Rise Time	$t_{on}$	$V_{CC} = 400V,$		0.5		$\mu s$
Storage Time	$t_{stg}$	$5I_{B1} = -2.5I_{B2} = I_C = 8A,$		3.0		$\mu s$
Fall Time	$t_f$	$R_L = 50\Omega$		0.3		$\mu s$





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