

<b>SANYO</b>	No.2234C	2SC3990
	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>	800	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>	500	V
Emitter-to-Base Voltage	V <sub>EBO</sub>	7	V
Collector Current	I <sub>C</sub>	35	A
Collector Current (Pulse)	I <sub>CP</sub>	50	A
Base Current	I <sub>B</sub>	12	A
Collector Dissipation	P <sub>C</sub>	250	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

PW ≤ 300μs, duty cycle ≤ 10%

T<sub>c</sub> = 25°C

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

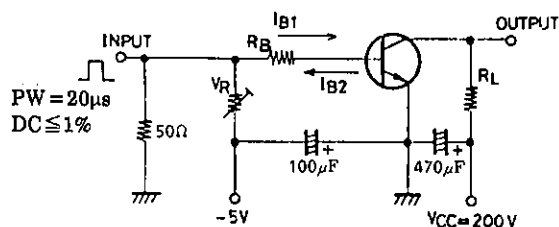
			min	typ	max	unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = 500V, I <sub>E</sub> = 0			10	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0			10	μA
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> = 5V, I <sub>C</sub> = 3.2A	15*		50*	
	h <sub>FE</sub> (2)	V <sub>CE</sub> = 5V, I <sub>C</sub> = 16A	8			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 3.2A		18		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, f = 1MHz		400		pF
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 16A, I <sub>B</sub> = 3.2A			1.0	V
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 16A, I <sub>B</sub> = 3.2A			1.5	V
C-B Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 1mA, I <sub>E</sub> = 0	800			V
C-E Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 10mA, R <sub>BE</sub> = ∞	500			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 2SC3990 is classified by 3.2A h<sub>FE</sub> as follows :

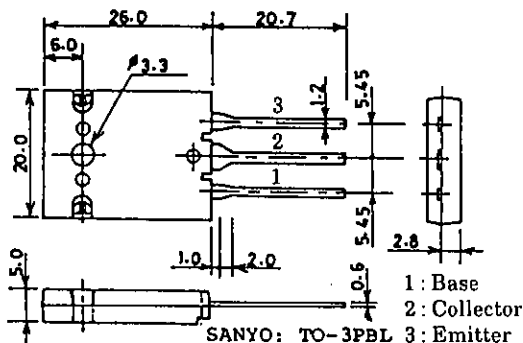
15	L	30	20	M	40	30	N	50
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**Switching Time Test Circuit**



**Package Dimensions 2048B**

(unit : mm)



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C-E Sustain Voltage

$V_{CEX(sus)}$

$I_C = 15A, I_{B1} = -I_{B2} = 2A$   
 $L = 200\mu H, \text{clamped}$

min 500 typ max unit V

Rise Time

$t_{on}$

$V_{CC} = 200V,$

0.5  $\mu s$

Storage Time

$t_{stg}$

$5I_{B1} = -2.5I_{B2} = I_C = 18A,$

3.0  $\mu s$

Fall Time

$t_f$

$R_L = 11.1\Omega$

0.3  $\mu s$

