

SANYO	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 _{CB0}	800	V
Collector-to-Emitter Voltage	V _{CEO}	500	V
Emitter-to-Base Voltage	V _{EBO}	7	V
Collector Current	I _C	35	A
Collector Current (Pulse)	I _{CP}	50	A
Base Current	I _B	12	A
Collector Dissipation	P _C	250	W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

PW ≤ 300μs, duty cycle ≤ 10%

T_c = 25°C

Electrical Characteristics at Ta = 25°C

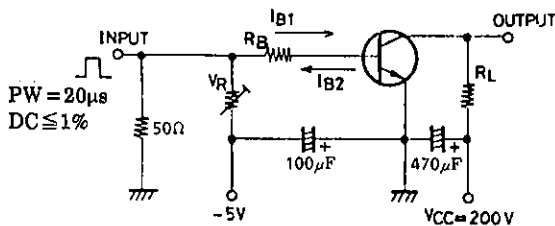
			min	typ	max	unit
Collector Cutoff Current	I _{CBO}	V _{CB} = 500V, I _E = 0			10	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} = 5V, I _C = 0			10	μA
DC Current Gain	h _{FE} (1)	V _{CE} = 5V, I _C = 3.2A	15*		50*	
	h _{FE} (2)	V _{CE} = 5V, I _C = 16A	8			
Gain-Bandwidth Product	f _T	V _{CE} = 10V, I _C = 3.2A		18		MHz
Output Capacitance	C _{ob}	V _{CB} = 10V, f = 1MHz		400		pF
C-E Saturation Voltage	V _{CE(sat)}	I _C = 16A, I _B = 3.2A			1.0	V
B-E Saturation Voltage	V _{BE(sat)}	I _C = 16A, I _B = 3.2A			1.5	V
C-B Breakdown Voltage	V _{(BR)CBO}	I _C = 1mA, I _E = 0	800			V
C-E Breakdown Voltage	V _{(BR)CEO}	I _C = 10mA, R _{BE} = ∞	500			V
E-B Breakdown Voltage	V _{(BR)EBO}	I _E = 1mA, I _C = 0	7			V

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* : The 2SC3990 is classified by 3.2A h_{FE} as follows :

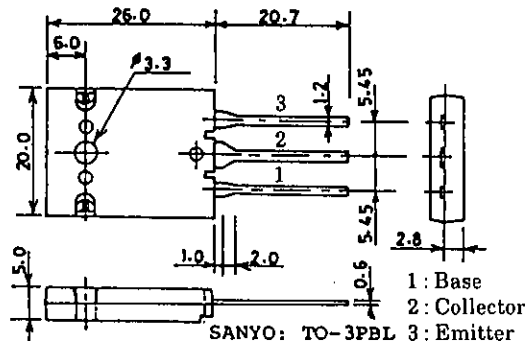
15	L	30	20	M	40	30	N	50
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Switching Time Test Circuit



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 μs

Storage Time

t_{stg}

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

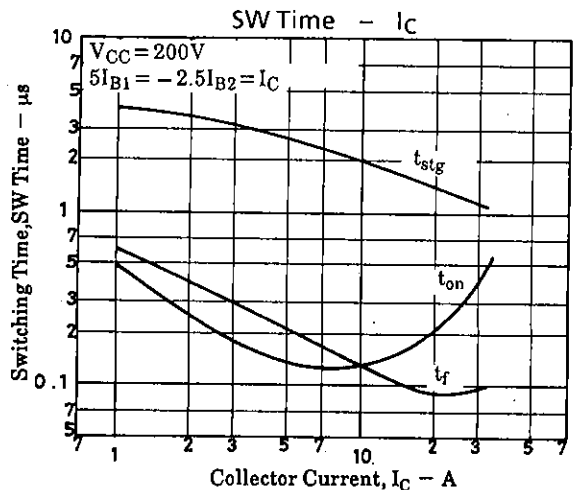
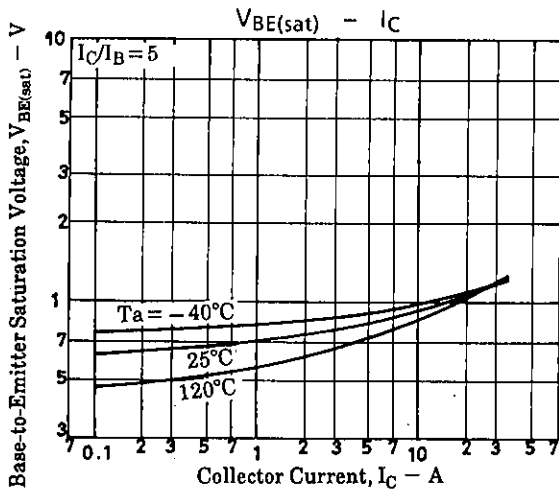
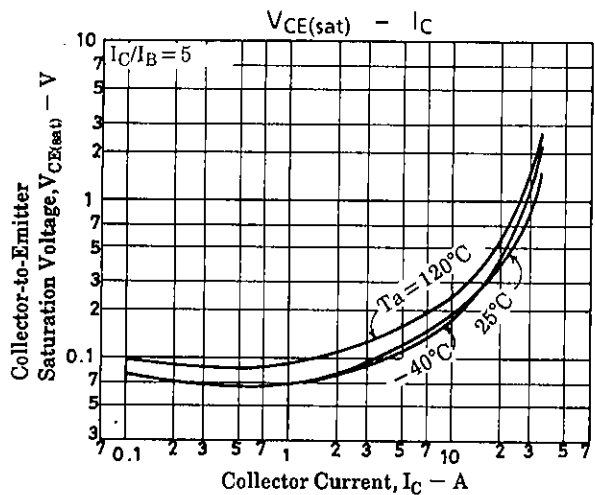
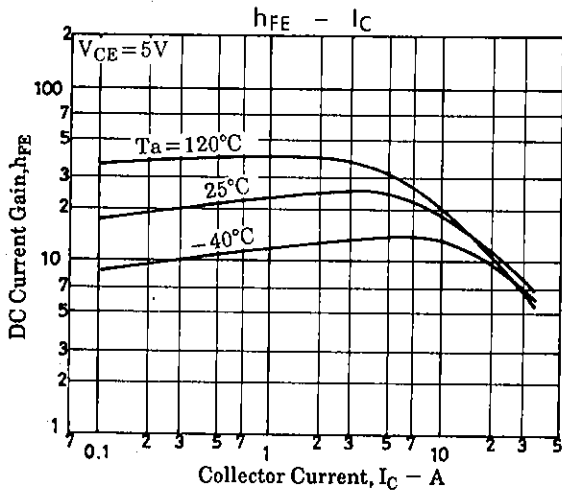
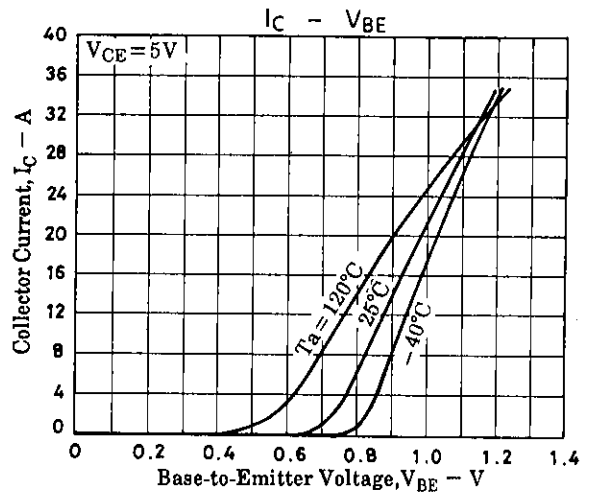
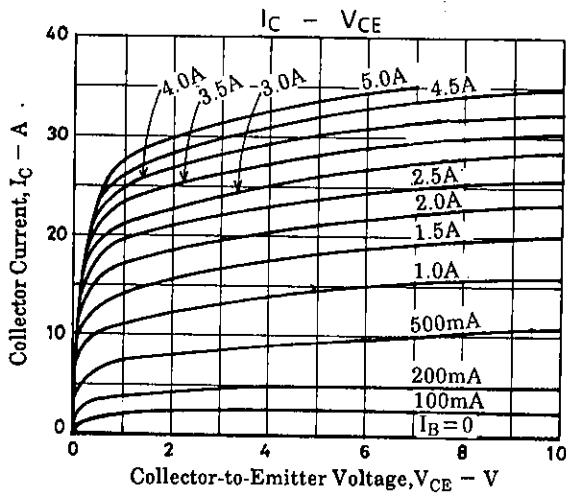
3.0 μs

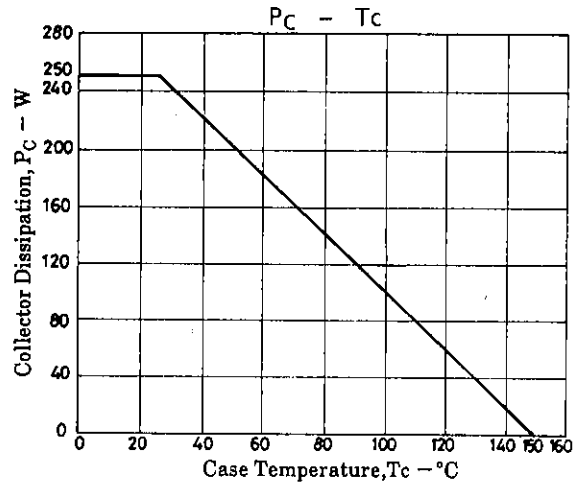
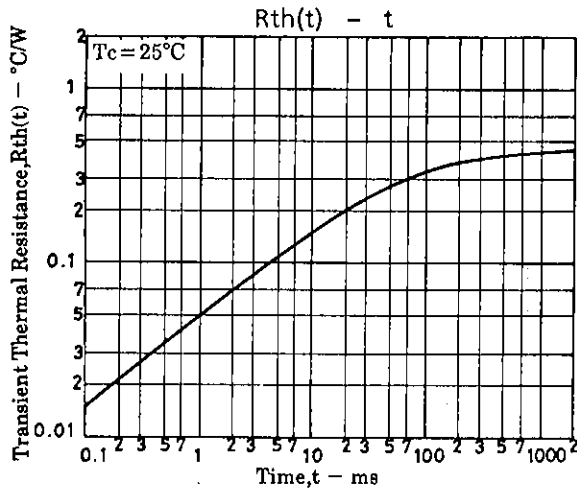
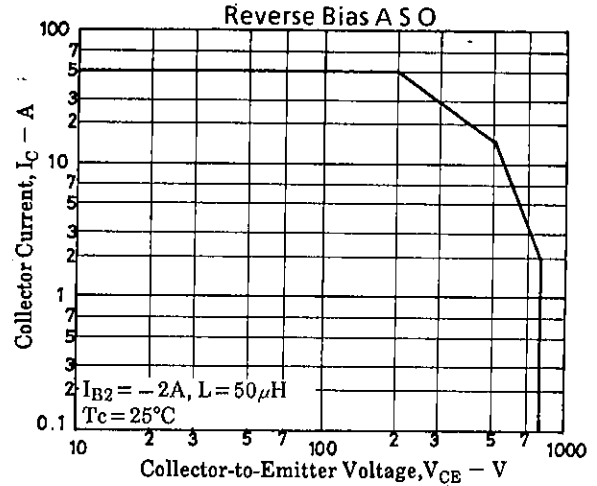
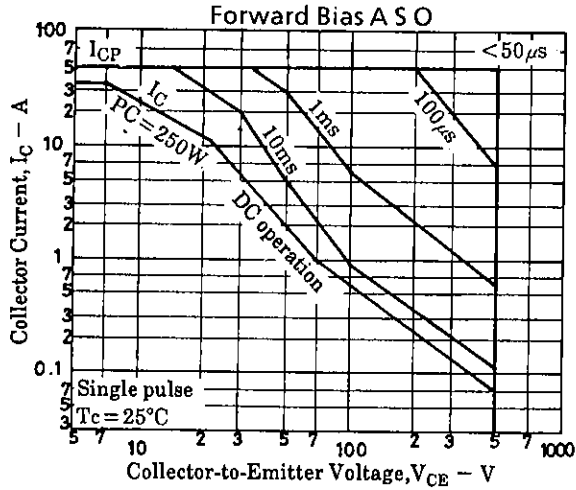
Fall Time

t_f

$R_L = 11.1\Omega$

0.3 μs





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