

SANYO

No.2232B

2SC3988

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 $T_a = 25^\circ\text{C}$

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		25	A
Collector Current (Pulse)	I _{CP}	Pulse PW ≤ 300μs, duty cycle ≤ 10%	40	A
Base Current	I _B		8	A
Collector Dissipation	P _C	Tc = 25°C	150	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at $T_a = 25^\circ\text{C}$

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 500\text{V}, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$			10	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 5\text{V}, I_C = 2.4\text{A}$	15※		50※	
	$h_{FE(2)}$	$V_{CE} = 5\text{V}, I_C = 12\text{A}$	8			
Gain-Bandwidth Product	f_T	$V_{CE} = 10\text{V}, I_C = 2.4\text{A}$		18		MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		260		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = 12\text{A}, I_B = 2.4\text{A}$			1.0	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = 12\text{A}, I_B = 2.4\text{A}$			1.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	800			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 5\text{mA}, R_{BE} = \infty$	500			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}, I_C = 0$	7			V
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C = 10\text{A}, I_{B1} = -I_{B2} = 2\text{A},$ $L = 200\mu\text{H}, \text{clamped}$	500			V

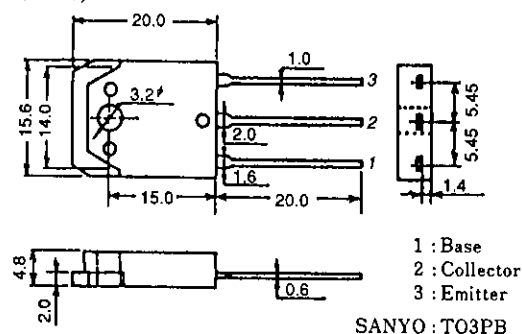
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※: The 2SC3988 is classified by 2.4A h_{FE} as follows:

15	L	30	20	M	40	30	N	50
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Package Dimensions 2022A

(unit: mm)

**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

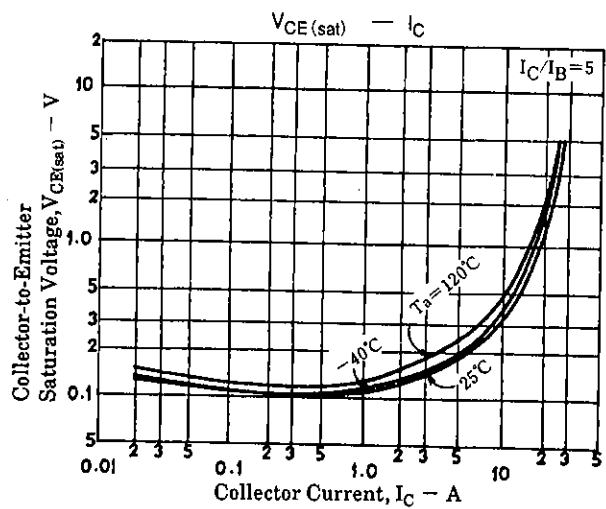
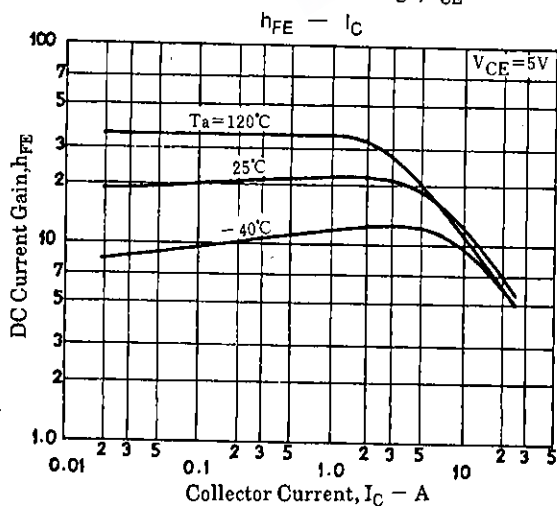
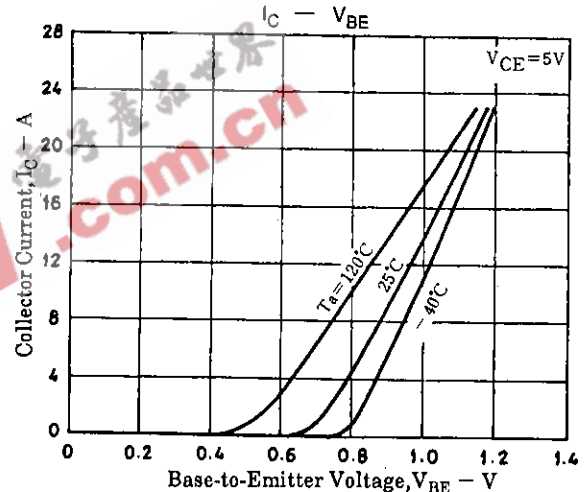
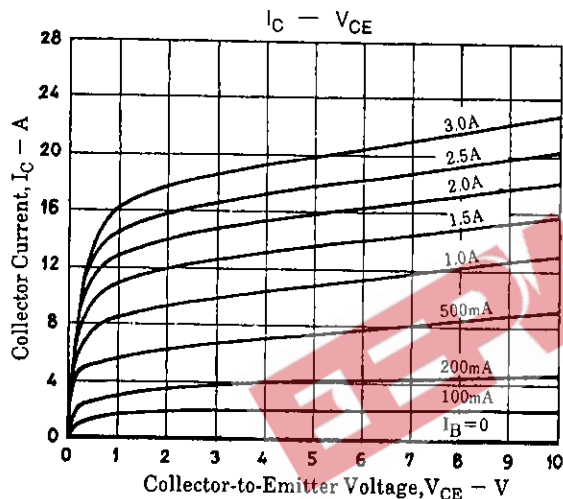
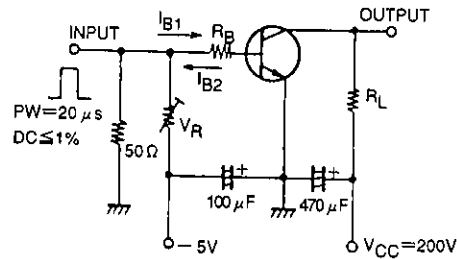
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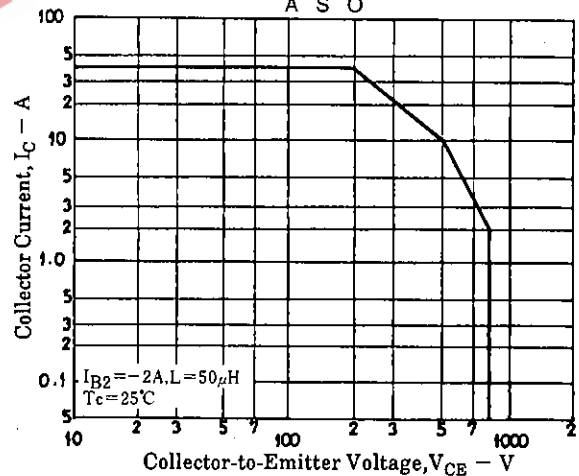
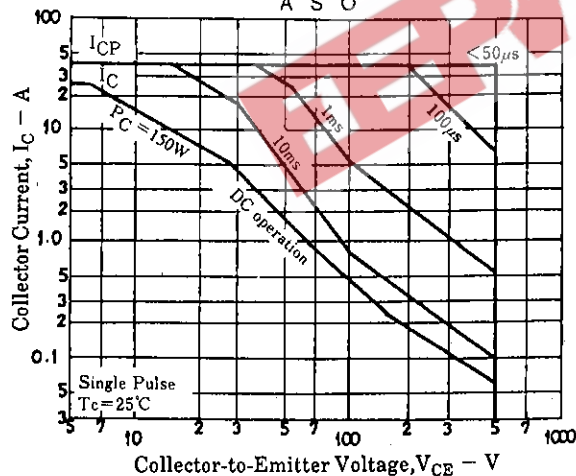
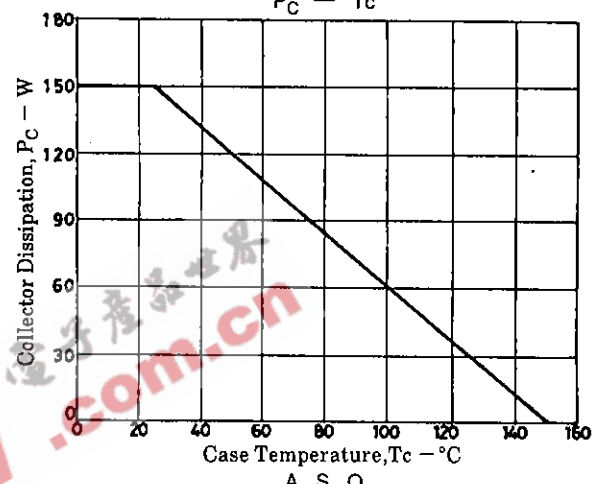
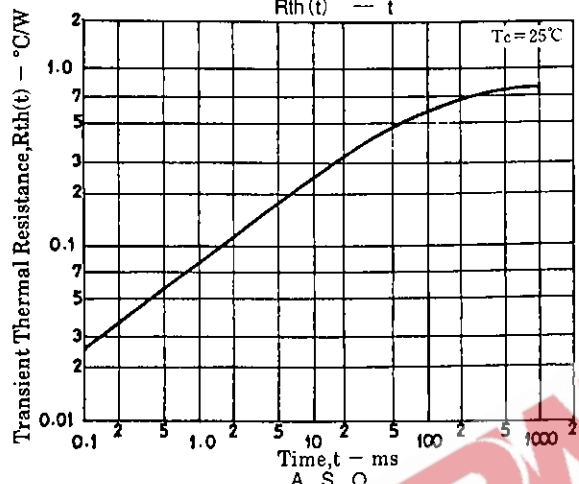
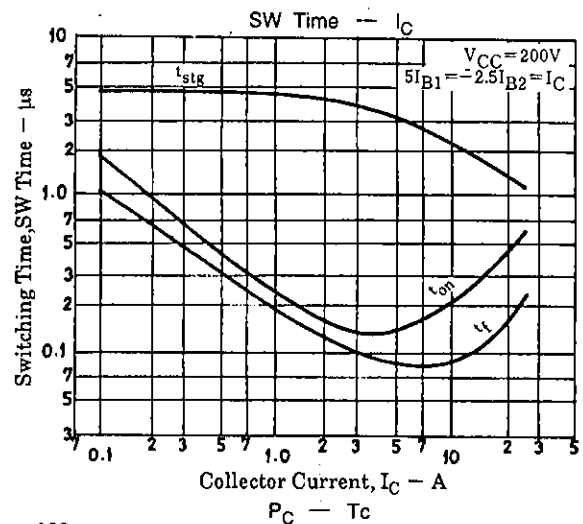
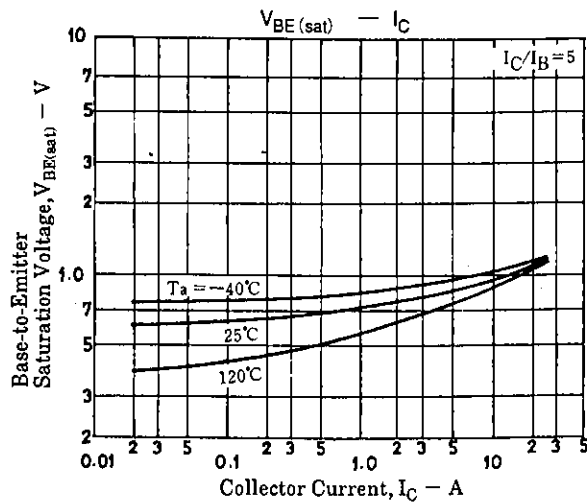
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			min	typ	max	unit
Rise Time	t_{on}	$V_{CC}=200V,$ $5I_{B1} = -2.5I_{B2} = I_C = 14A,$ $R_L = 14.3\Omega$			0.5	μs
Storage Time	t_{stg}				3.0	μs
Fall Time	t_f				0.3	μs

Switching Time Test Circuit





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