Ordering number: EN 2236D

SANYO

No.2236D

2SC3993

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_{CBO}		1100	V
Collector-to-Emitter Voltage	V_{CEO}		800	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		16	A
Collector Current (Pulse)	I_{CP}	PW≦300μs, Duty cycle≦10%	40	A
Base Current	I_B		8	A
Collector Dissipation	P_C	Tc=25°C	250	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

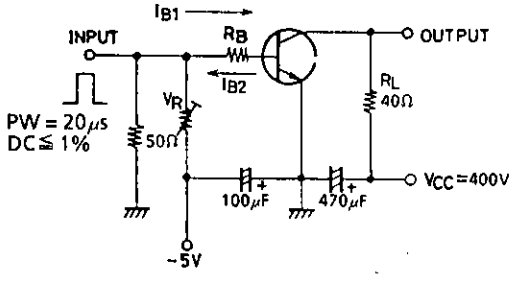
Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=800V, 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=1.2A	10※		40※	
	$h_{FE}(2)$	V_{CE}=5V, I_C=6A	8			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=1.2A		15		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		320		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=6A, I_B=1.2A			2.0	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=6A, I_B=1.2A			1.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=1mA, I_E=0	1100			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=10mA, R_{BE}=∞	800			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=1mA, I_C=0	7			V
C-E Sustain Voltage	$V_{CEX(sus)}$	I_C=8A, I_{B1}=−I_{B2}=1.6A, L=500μH, Clamped	800			V
Rise Time	t_{on}	V_{CC}=400V, $5I_{B1}$=−$2.5I_{B2}$=I_C=10A, R_L=40Ω			0.5	μs
Storage Time	t_{stg}				3.0	μs
Fall Time	t_f				0.3	μs

※ : The 2SC3993 are classified by 1.2A h_{FE} as follows :

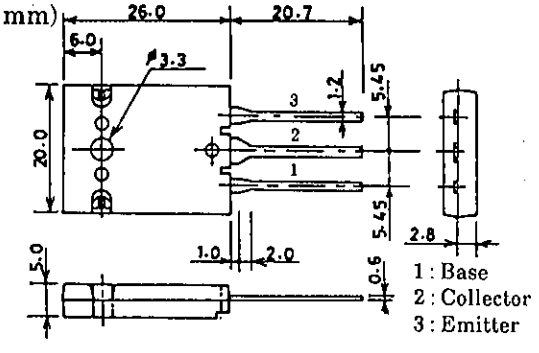
10 K 20	15 L 30	20 M 40

Switching Time Test Circuit



Package Dimensions 2048B

(unit : mm)



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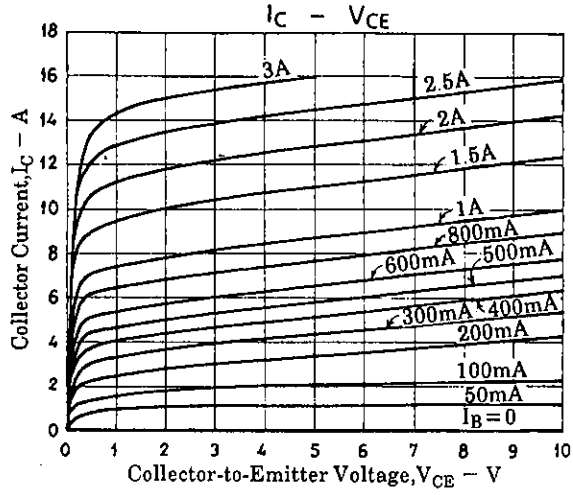
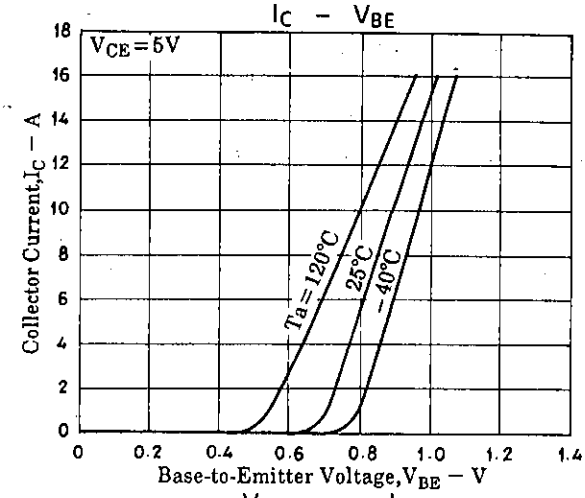
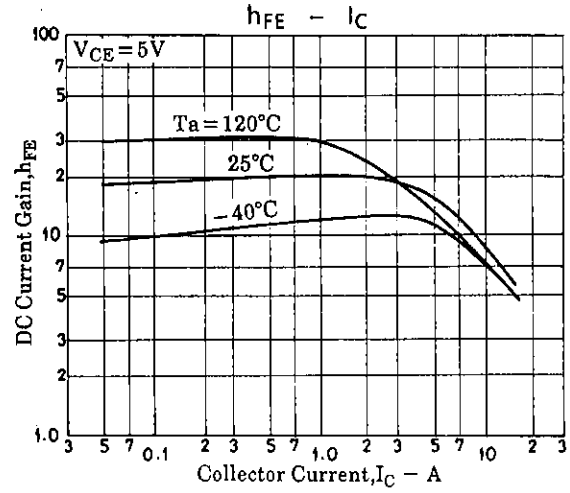
I_C – V_{CE}



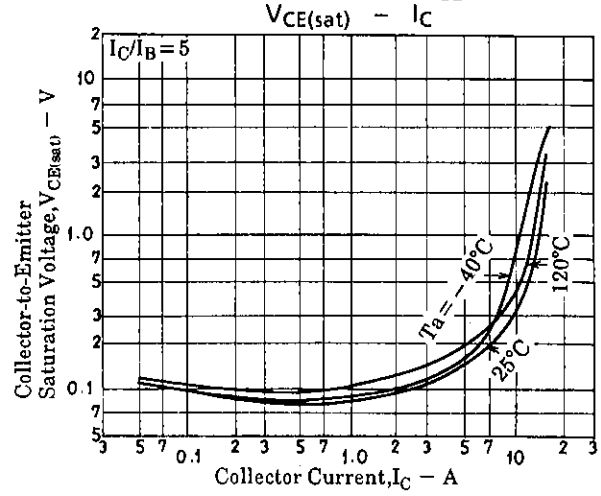
I_C – V_{BE}



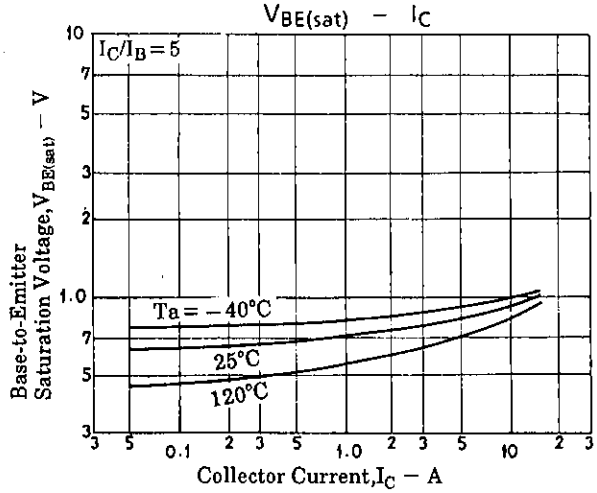
h_{FE} – I_C



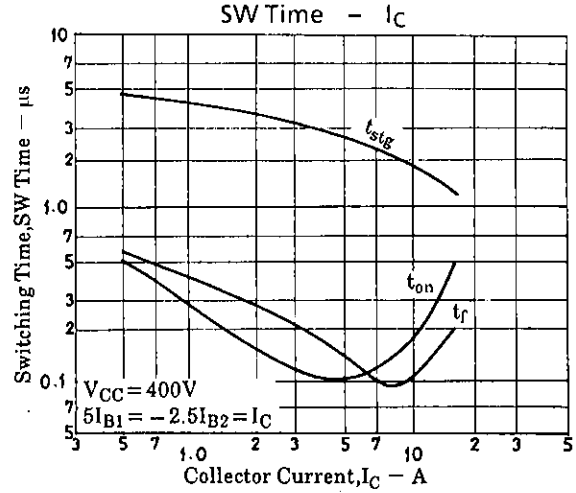
$V_{CE(sat)}$ – I_C



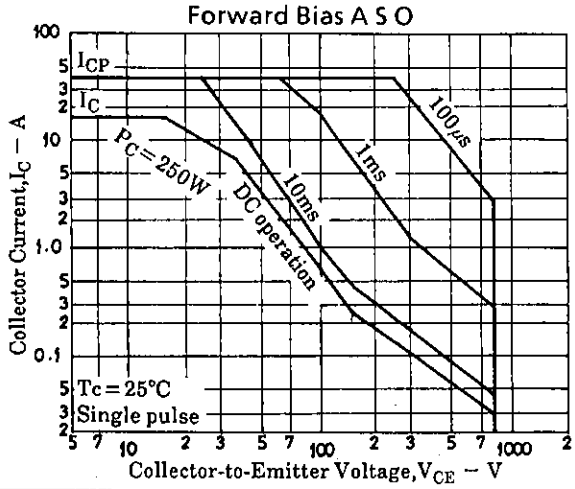
$V_{BE(sat)}$ – I_C



SW Time – I_C



Forward Bias A S O



Reverse Bias A S O