

NPN Triple Diffused Planar Silicon Transistor



2SC3992

800V/12A Switching Regulator Applications

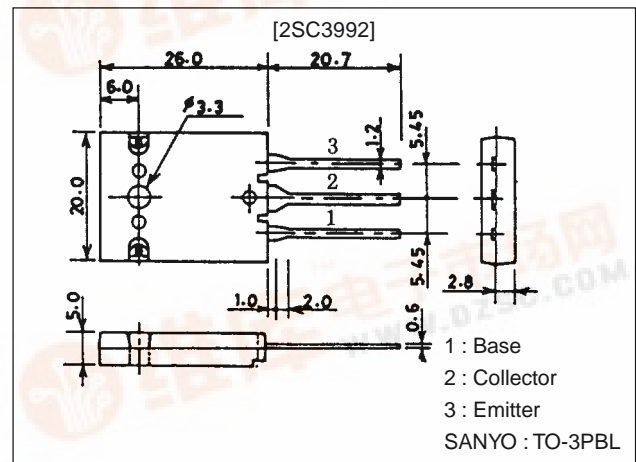
Features

- High breakdown voltage, high reliability.
- Fast switching speed.
- Wide ASO.
- Adoption of MBIT process.

Package Dimensions

unit:mm

2048B



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		1100	V
Collector-to-Emitter Voltage	V _{CEO}		800	V
Emitter-to-Base Voltage	V _{EBO}		7	V
Collector Current	I _C		12	A
Collector Current (Pulse)	I _{CP}	PW≤300μs, duty cycle≤10%	30	A
Base Current	I _B		6	A
Collector Dissipation	P _C	T _c =25°C	200	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	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 _{FE1}	V _{CE} =5V, I _C =0.8A	10*		40*	
	h _{FE2}	V _{CE} =5V, I _C =4A	8			
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _C =0.8A		15		MHz
Output Capacitance	C _{ob}	V _{CB} =10V, f=1MHz		215		pF

* : The 2SC3992 is classified by 0.8A h_{FE} as follows :

10	K	20	15	L	30	20	M	40
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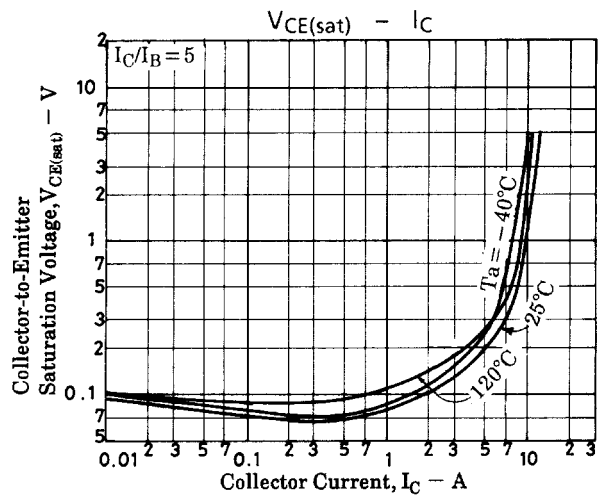
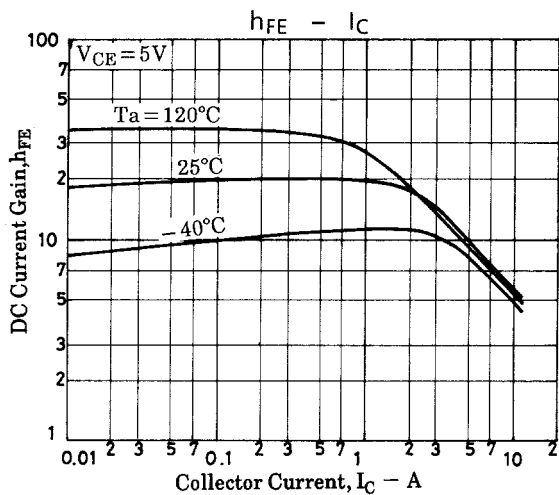
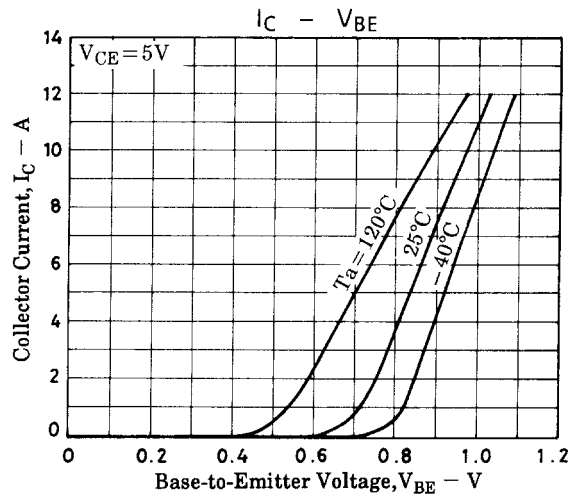
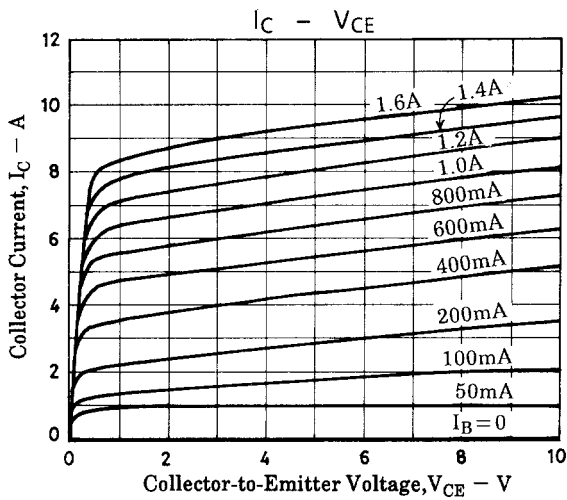
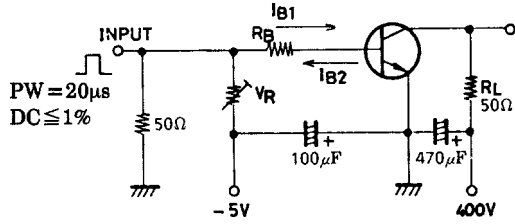
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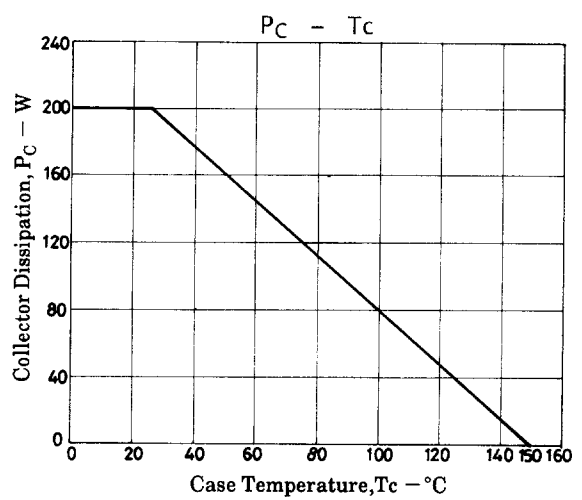
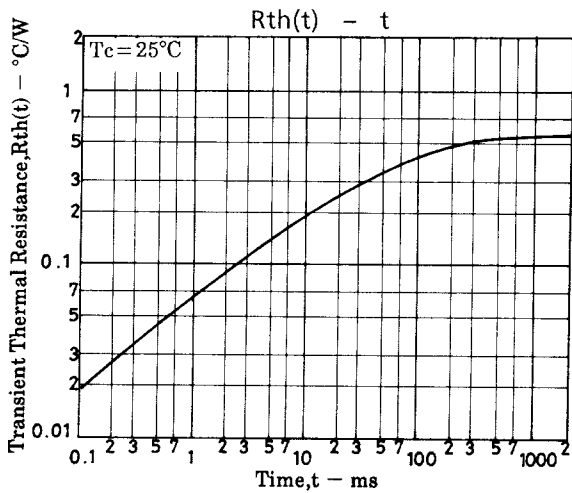
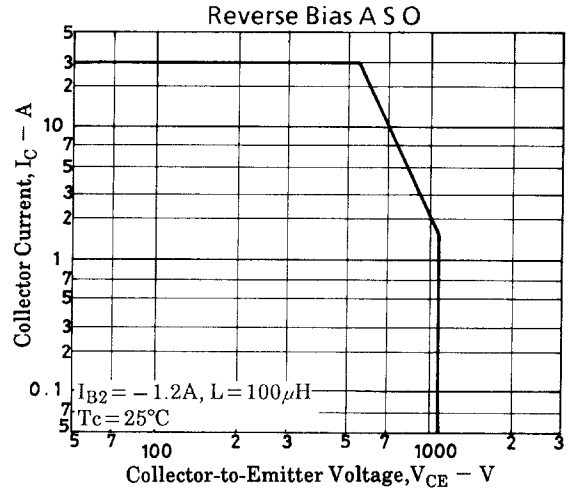
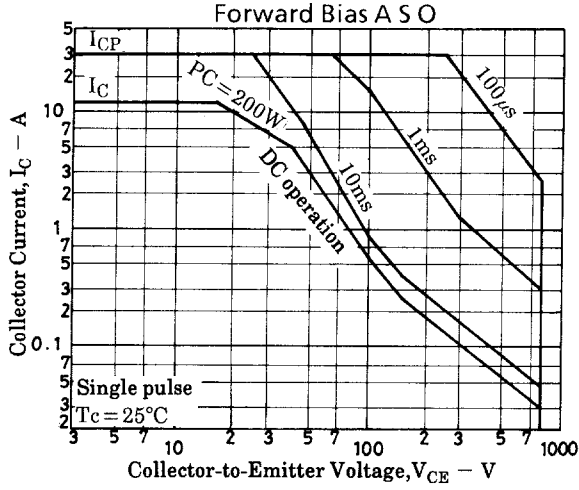
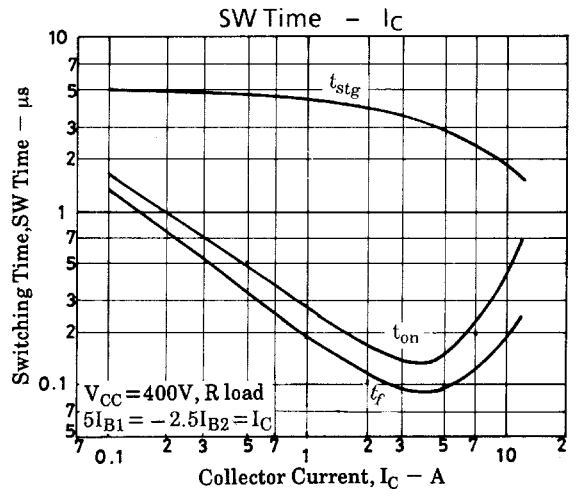
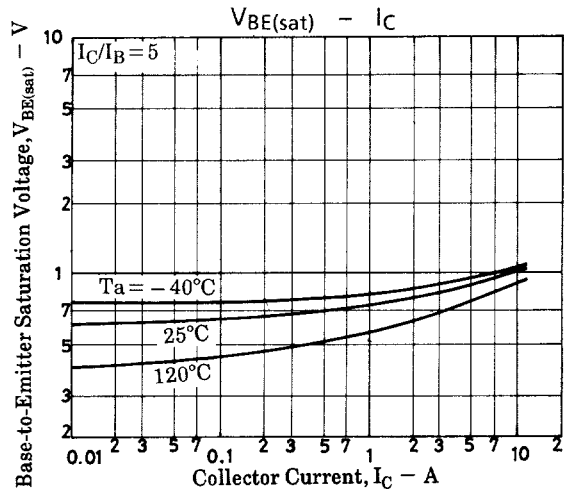
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=6A, I_B=1.2A$			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=6A, I_B=1.2A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	1100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	800			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	$I_C=6A, I_{B1}=-I_{B2}=-1.2A, L=500\mu H, \text{clamped}$	800			V
Turn-ON Time	t_{on}	$V_{CC}=400V, 5I_{B1}=-2.5I_{B2}=I_C=8A, R_L=50\Omega$			0.5	μs
Storage Time	t_{stg}	$V_{CC}=400V, 5I_{B1}=-2.5I_{B2}=I_C=8A, R_L=50\Omega$			3.0	μs
Fall Time	t_f	$V_{CC}=400V, 5I_{B1}=-2.5I_{B2}=I_C=8A, R_L=50\Omega$			0.3	μs

Switching Time Test Circuit



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