Ordering number:ENN2235D

NPN Triple Diffused Planar Silicon Transistor

2SC3992

800V/12A Switching Regulator Applications

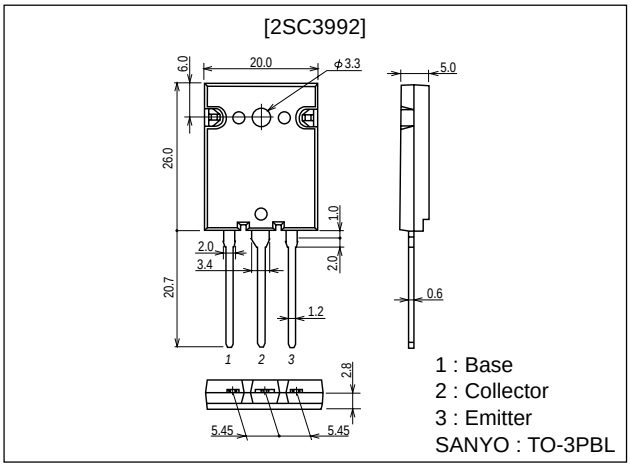
Features

- 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_{CBO}		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	Tc=25˚C	200	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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=0.8A	10*		40*	
	$h_{FE}2$	V_{CE}=5V, I_C=4A	8			

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

Continued on next page.

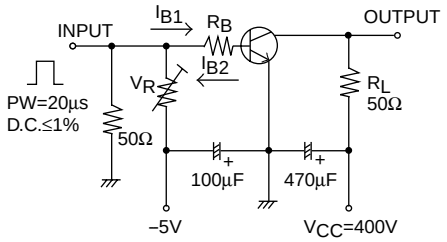
Rank	K	L	M
h_{FE}	10 to 20	15 to 30	20 to 40

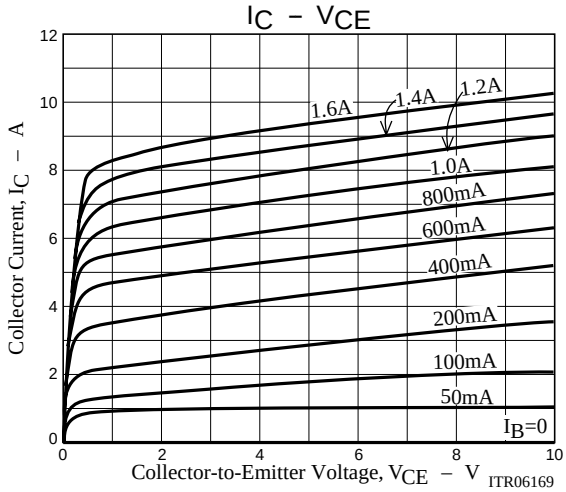
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

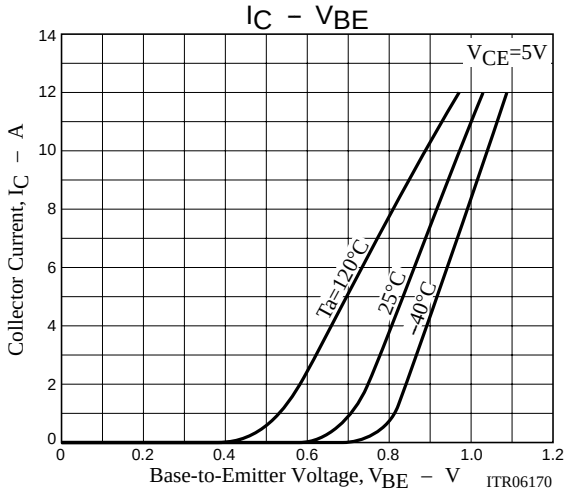
Continued from preceding page.

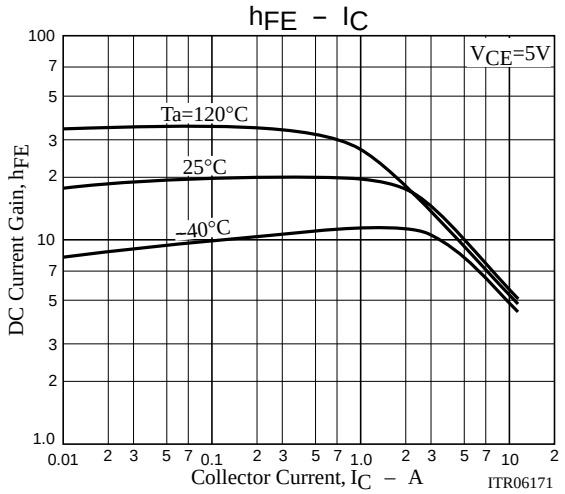
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=0.8A		15		MHz
Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz		215		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=6A, I_B=1.2A			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=6A, 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}=∞	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=500μH, clamped	800			V
Turn-ON Time	t_{on}	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=8A, R_L=50Ω			0.5	μs
Storage Time	t_{stg}	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=8A, R_L=50Ω			3.0	μs
Fall Time	t_f	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=8A, R_L=50Ω			0.3	μs

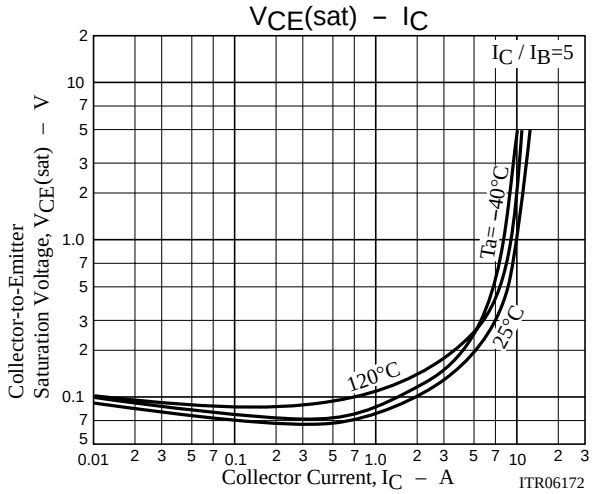
Switching Time Test Circuit



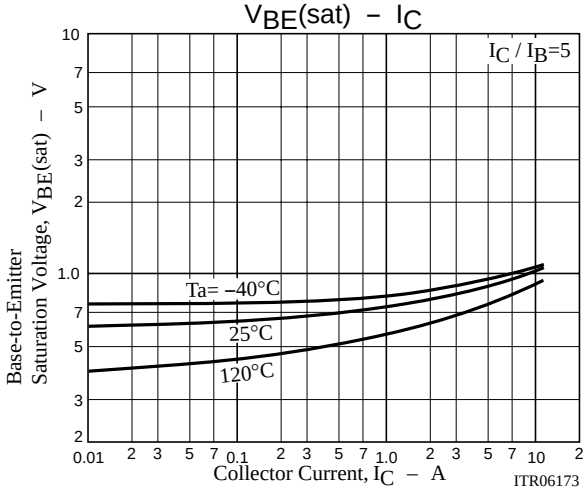




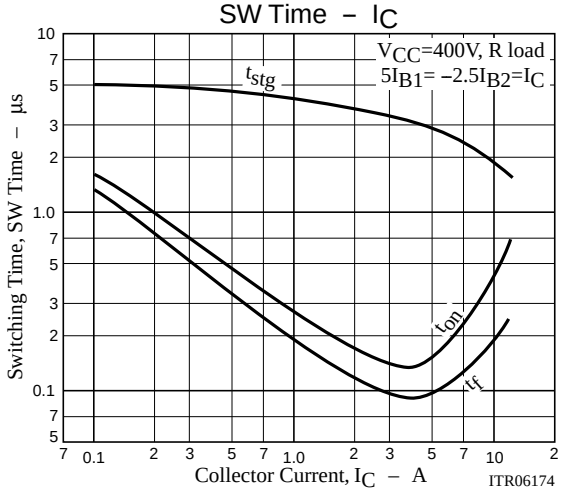




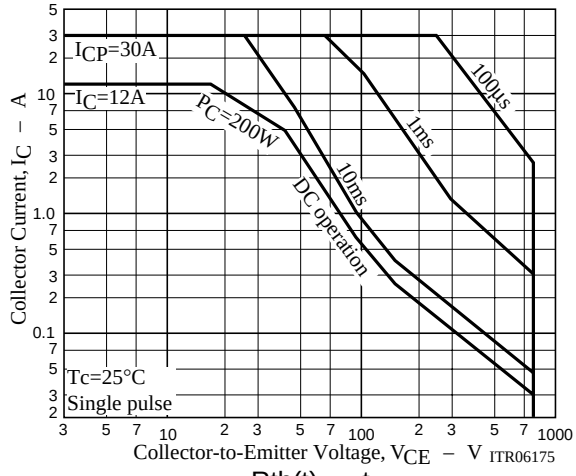
$V_{BE}(sat)$ – I_C



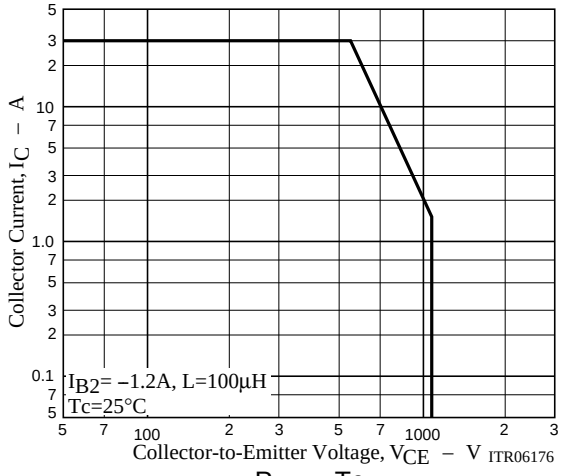
SW Time – I_C



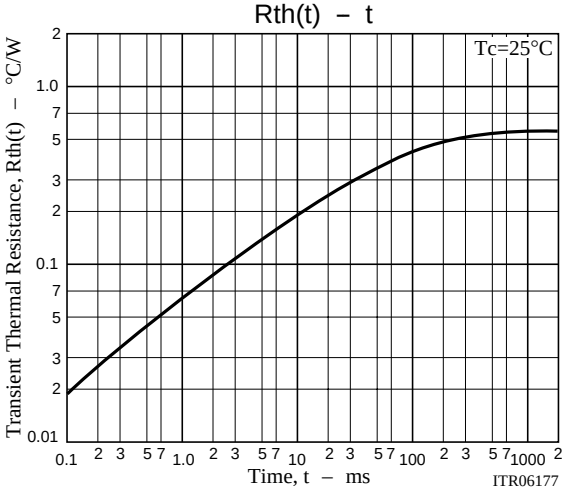
Forward Bias A S O



Reverse Bias A S O



Rth(t) – t



P_C – Tc