

2SC3989

NPN Triple Diffused Planar Silicon Transistor

500V/25A Switching Regulator Applications

Features

- High breakdown voltage, high reliability
- Fast switching speed (t_f : 0.1 μ s typ)
- Adoption of MBIT process

Absolute Maximum Ratings at Ta=25°C

			unit
Collector-to-Base Voltage	V_{CBO}	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} PW \leq 300 μ s, Duty Cycle \leq 10%	40	A
Base Current	I_B	8	A
Collector Dissipation	P_C Tc=25°C	200	W
Junction Temperature	T_J	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Electrical Characteristics at Ta=25°C

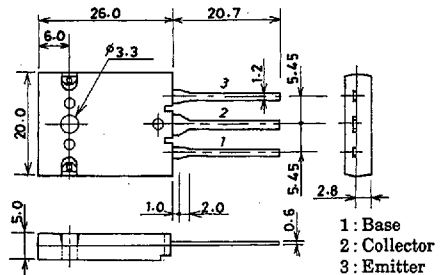
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=500V, I_E=0$			10	μ A
Emitter Cutoff Voltage	V_{EBO}	$V_{EB}=5V, I_C=0$			10	μ A
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5V, I_C=2.4A$	15*		50*	
	$h_{FE(2)}$	$V_{CE}=5V, I_C=12A$	8			
Gain Bandwidth Product	f_T	$V_{CE}=10V, I_C=2.4A$		18		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		260		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=12A, I_B=2.4A$			1.0	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=12A, I_B=2.4A$			1.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	800			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	500			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$			7	V
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=10A, I_{B1}=-I_{B2}=2A$ L=200 μ H, Clamped	500			
Turn-on Time	t_{on}	$V_{CC}=200V,$			0.5	μ s
Storage Time	t_{stg}	$5I_{B1}=-2.5I_{B2}=I_C=14A$			3.0	μ s
Fall Time	t_f	$R_L=14.3\Omega$			0.3	μ s

*: The $h_{FE(1)}$ of the 2SC3989 is classified as follows. When specifying the $h_{FE(1)}$ rank, specify two ranks or more in principle.

15	L	30	20	M	40	30	N	50
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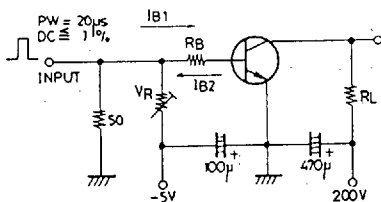
Package Dimensions 2048B

(unit: mm)



SANYO: TO3PBL

Switching Time Test Circuit



Unit (Resistance : Ω , Capacitance : F)

SANYO Electric Co., Ltd. Semiconductor Business Headquarters

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN