

<b>SANYO</b>	No.2556	2 S C 3 9 8 9
	NPN Triple Diffused Planar Type Silicon Transistor	
<b>SWITCHING REGULATOR APPLICATIONS</b>		

**Features**

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

**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
Peak Collector Current	$i_{cp}$ PW $\leq$ 300 $\mu$ 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

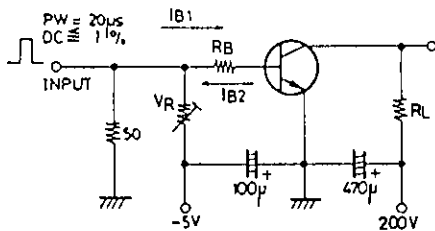
**Electrical Characteristics at Ta=25°C**

			min	typ	max	unit
Collector Cutoff Current	$I_{CB0}$	$V_{CB}=500V, I_E=0$			10	$\mu$ A
Emitter Cutoff Voltage	$I_{EBO}$	$V_{EB}=5V, I_C=0$			10	$\mu$ 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	$V_{CEX(sus)}$	$I_C=10A, I_{B1}=-I_{B2}=2A$ $L=200\mu H, \text{Clamped}$	500			
Turn-on Time	$t_{on}$	$V_{CC}=200V,$ $5I_{B1}=-2.5I_{B2}=I_C=14A$ $R_L=14.3ohms$			0.5	$\mu$ s
Storage Time	$t_{stg}$				3.0	$\mu$ s
Fall Time	$t_f$				0.3	$\mu$ 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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**Switching Time Test Circuit**



Unit (Resistance :  $\Omega$ , Capacitance : F)

**Package Dimensions 2048**  
(unit: mm)

