



No. 1969A

**2SC3750**

NPN Triple Diffused Planar Type Silicon Transistor  
SWITCHING REGULATOR APPLICATIONS

**Features**

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

**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	$I_C$	5	A
Peak Collector Current	$i_{cp}$	$PW \leq 300\mu s, \text{Duty cycle} \leq 10\%$	10 A
Base Current	$I_B$	2	A
Collector Dissipation	$P_C$	$T_c = 25^\circ C$	30 W
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55 to +150	°C

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

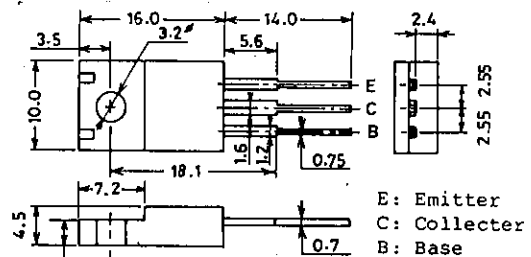
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=500V, I_E=0$			10	µA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			10	µA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=5V, I_C=0.6A$	15*		50*	
	$h_{FE}(2)$	$V_{CE}=5V, I_C=3A$	8			
Gain Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=0.6A$		18		MHz
Output Capacitance	$c_{ob}$	$V_{CB}=10V, f=1MHz$		80		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=0.6A$			1.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3A, I_B=0.6A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	800			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	500			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V

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\*: The 2SC3750 is classified by 0.6A  $h_{FE}$  as follows:

15	L	30	20	M	40	30	N	50
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**Package Dimensions 2041 (unit:mm)**



E: Emitter  
C: Collector  
B: Base

SANYO: TO220ML

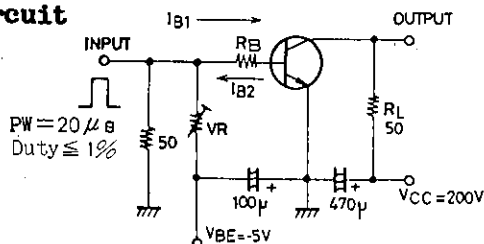
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Collector-to-Emitter Sustain Voltage

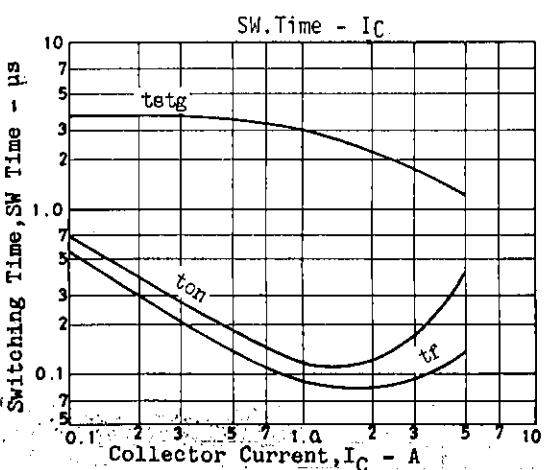
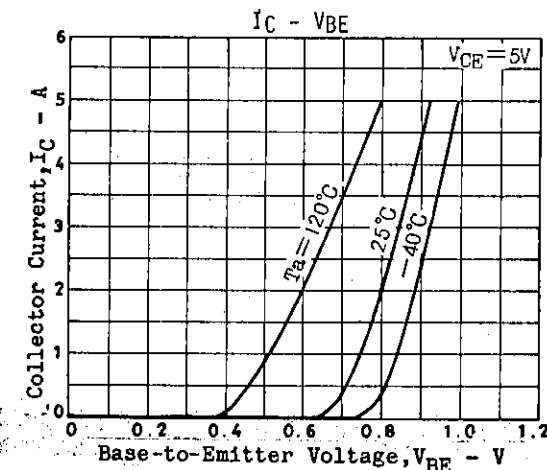
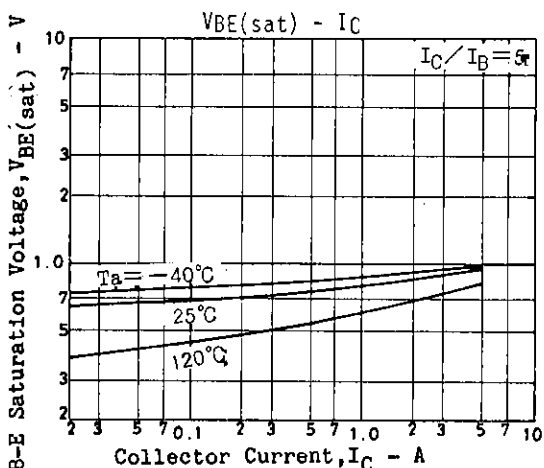
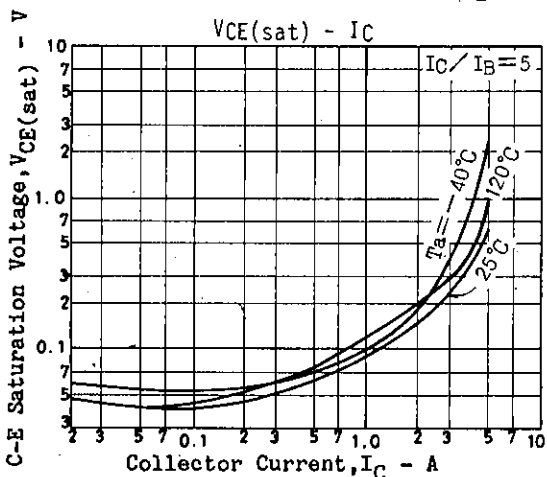
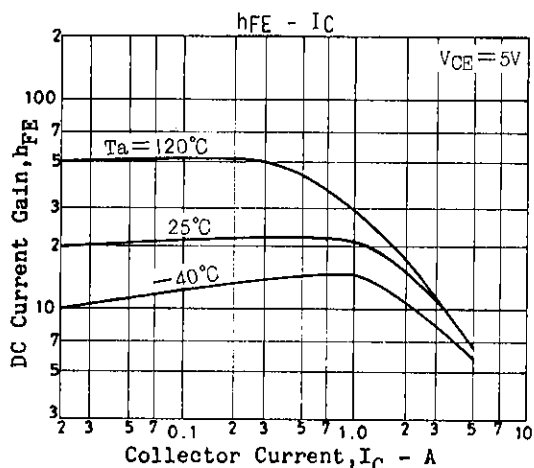
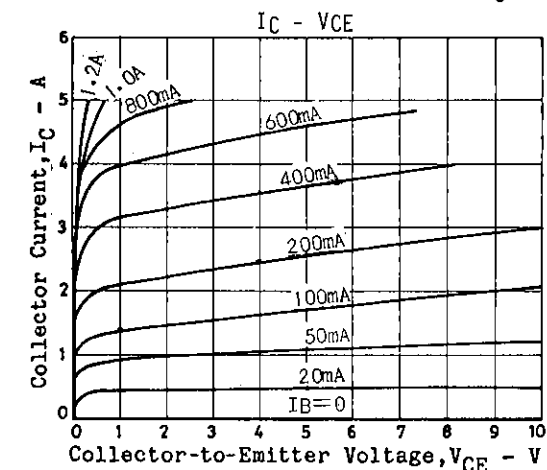
$V_{CEX}(sus)$   $I_C=2.5A,$   
 $I_{B1}=-I_{B2}=1A,$   
 $L=1mH, Clamped$   
 $t_{on}$   $V_{CC}=200V,$   
 $t_{stg}$   $5I_{B1}=-2.5I_{B2}=I_C=4A,$   
 $t_f$   $R_L=50ohm$

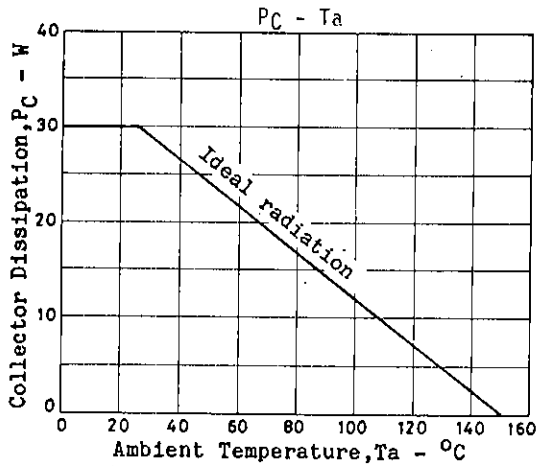
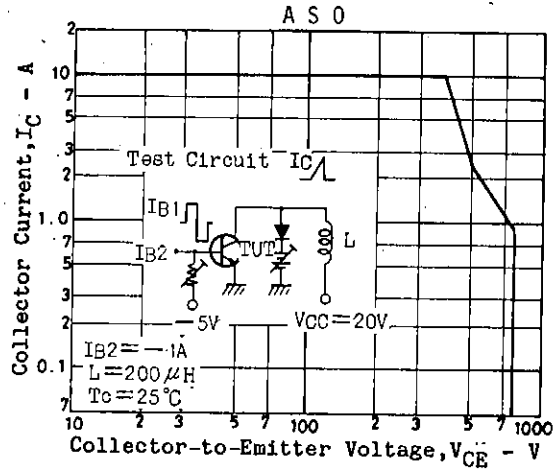
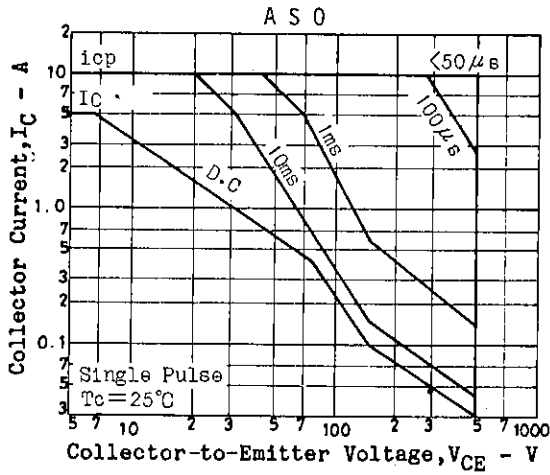
	min	typ	max	unit
Collector-to-Emitter Sustain Voltage	500			V
Turn-on Time		0.5		$\mu s$
Storage Time		3.0		$\mu s$
Fall Time		0.3		$\mu s$

Switching Time Test Circuit



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





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