

**SANYO**

No.2482

2SC4161

NPN Triple Diffused Planar Type  
Silicon Transistor

SWITCHING REGULATOR APPLICATIONS

**Features**

- . High breakdown voltage, high reliability
- . Fast switching speed ( $t_f=0.1\mu s$  typ)
- . Wide ASO
- . Adoption of MBIT process
- . Micaless package facilitating mounting

**Absolute Maximum Ratings at  $T_a=25^\circ C$**

			unit
Collector-to-Base Voltage	$V_{CBO}$	500	V
Collector-to-Emitter Voltage	$V_{CEO}$	400	V
Emitter-to-Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	7	A
Peak Collector Current	$i_{cp}$	$PW \leq 300\mu s, \text{duty cycle} \leq 10\%$	14 A
Base Current	$I_B$	3	A
Collector Dissipation	$P_C$	2	W
		$T_c=25^\circ C$	30 W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$

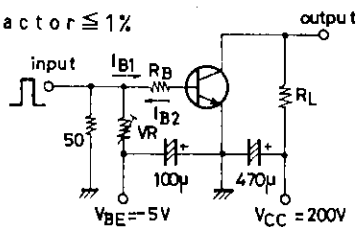
**Electrical Characteristics at  $T_a=25^\circ C$**

			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=400V, I_E=0$			10	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			10	$\mu A$
DC Current Gain	$h_{FE1}$	$V_{CE}=5V, I_C=0.8A$	15*		50*	
	$h_{FE2}$	$V_{CE}=5V, I_C=4A$	10			
	$h_{FE3}$	$V_{CE}=5V, I_C=10mA$	10			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=0.8A$		20		MHz
Output Capacitance	$c_{ob}$	$V_{CB}=10V, f=1MHz$		80		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=4A, I_B=0.8A$			0.8	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=4A, I_B=0.8A$			1.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	500			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	400			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V

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**Switching Time Test Circuit**

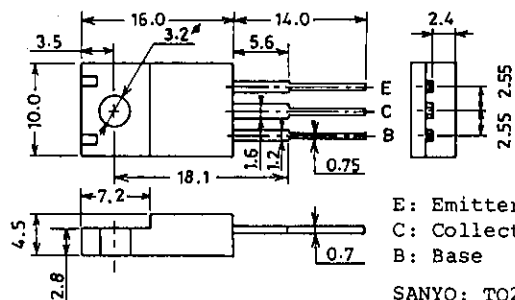
$PW=20\mu s, \text{duty factor} \leq 1\%$



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

**Package Dimensions 2041**

(unit:mm)



E: Emitter  
C: Collector  
B: Base

SANYO: TO220ML

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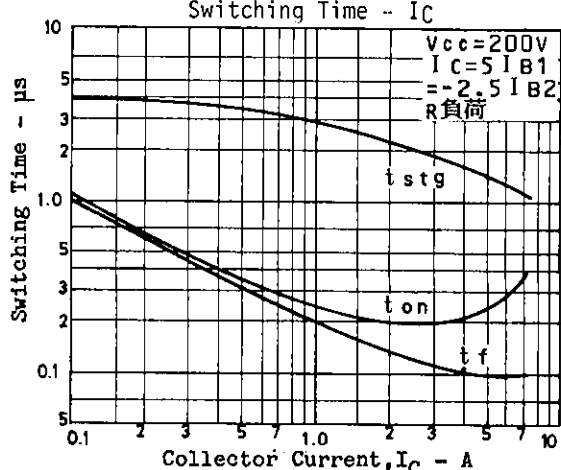
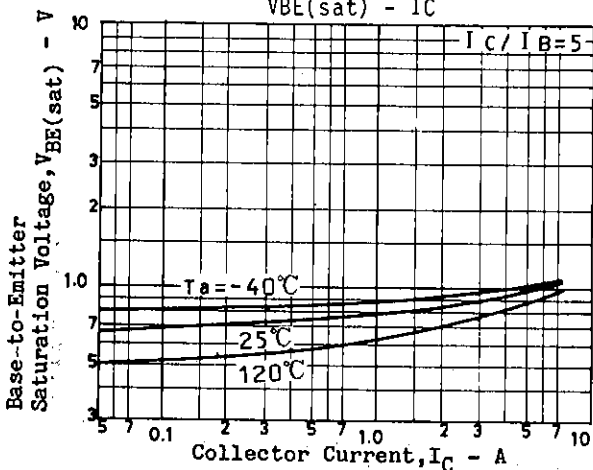
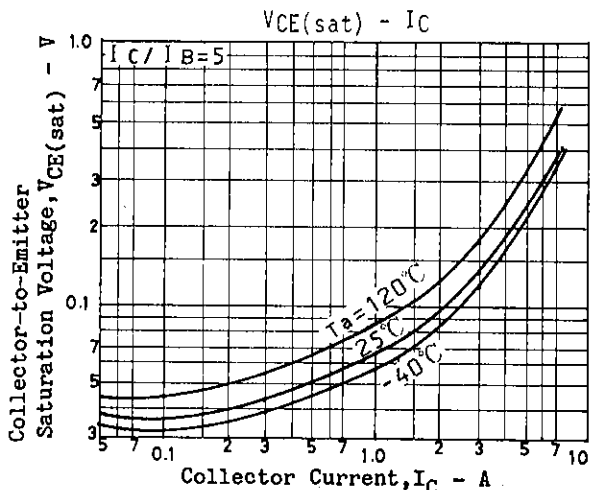
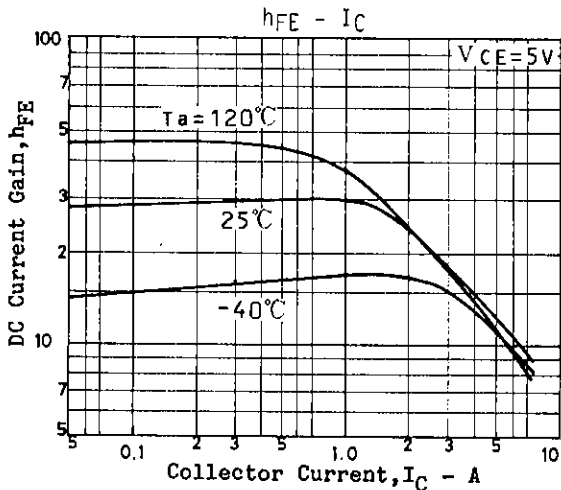
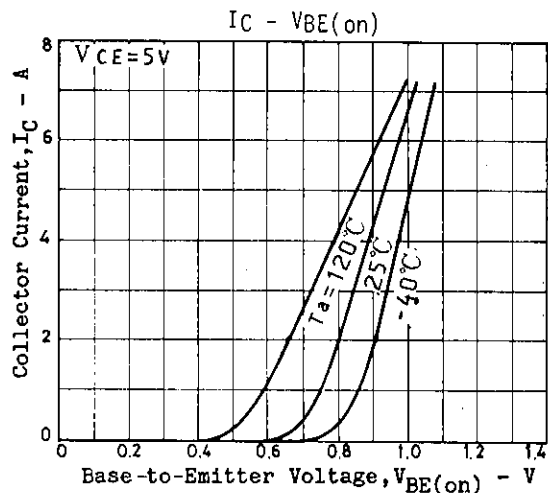
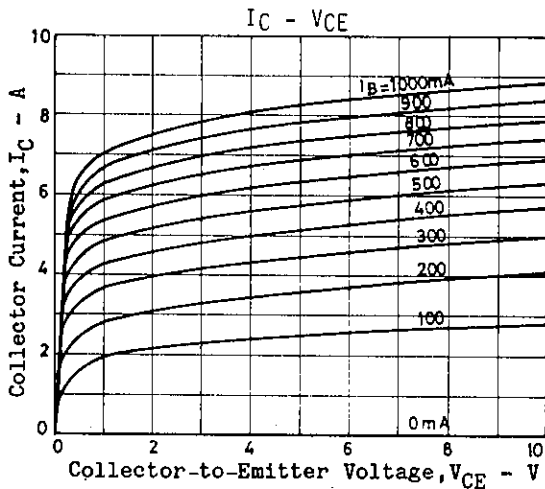
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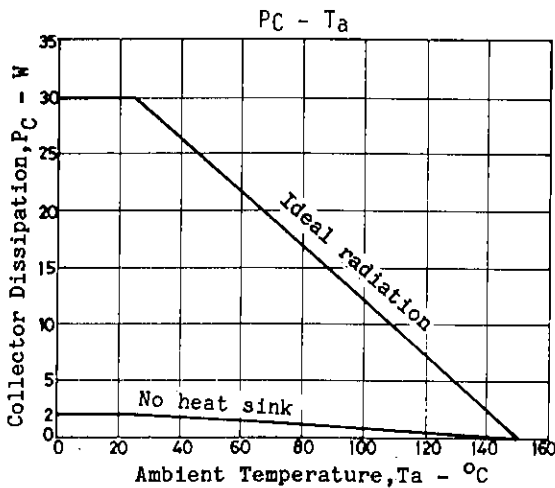
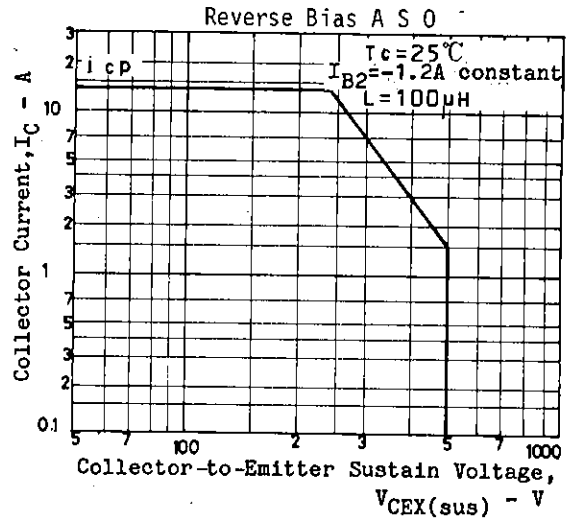
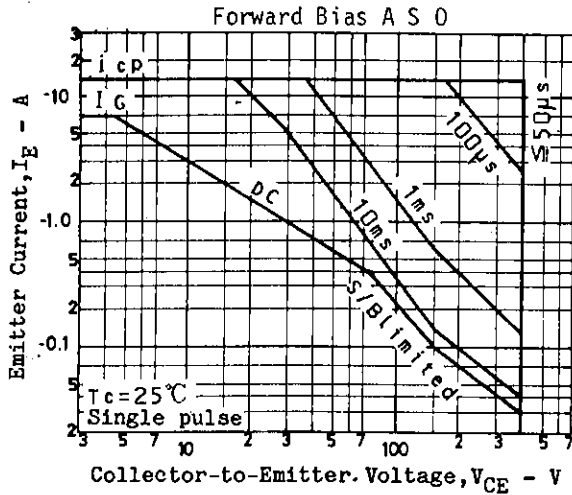
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			min	typ	max	unit
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=3A, I_{B1}=0.3A,$ $I_{B2}=-1.2A, L=1mH, \text{clamped}$	400			V
Turn-on Time	$t_{on}$	$I_C=5A, I_{B1}=1A, I_{B2}=-2A,$ $R_L=40\text{ohms}, V_{CC}=200V$			0.5	$\mu s$
Storage Time	$t_{stg}$	" "			2.5	$\mu s$
Fall Time	$t_f$	" "			0.3	$\mu s$

\*: The  $h_{FE1}$  of the 2SC4161 is classified as follows. When specifying the  $h_{FE1}$  rank, specify two ranks or more in principle.

15	L	30	20	M	40	30	N	50
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