

SANYO

No.949B

2SC3038

NPN Triple Diffused Planar Silicon Transistor

FOR SWITCHING REGULATORS

Features

- . High breakdown voltage ($V_{CBO} \geq 500V$)
- . Fast switching speed.
- . Wide ASO.

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	4	A
Peak Collector Current	i_{cp}	8	A
		PW $\leq 300\mu s$, Duty Cycle $\leq 10\%$	
Base Current	I_B	1.5	A
Collector Dissipation	P_C	1.75	W
		$T_c=25^\circ C$	
		40	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to +150	$^\circ C$

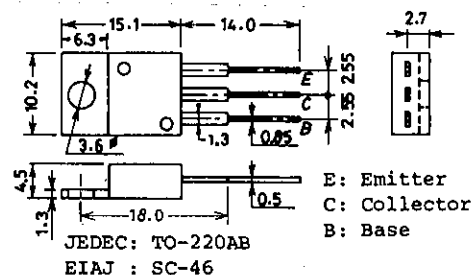
Electrical Characteristics at $T_a=25^\circ C$

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=400V, I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			10	μA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=5V, I_C=0.4A$	15*		50*	
	$h_{FE}(2)$	$V_{CE}=5V, I_C=2A$	8			
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=2A, I_B=0.4A$			1.0	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=2A, I_B=0.4A$			1.5	V
Gain Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.4A$		20		MHz
Output Capacitance	c_{ob}	$V_{CB}=10V, f=1MHz$		40		pF
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
C-E Sustain Voltage	$V_{CEO(sus)}$	$I_C=4A, I_B=0.8A, L=50\mu H$	400			V
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=4A, I_{B1}=0.8A, L=200\mu H,$	400			V
	(1)	$I_{B2}=-0.8A, \text{clamped}$				
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=0.75A, I_{B1}=0.15A, L=200\mu H$	450			V
	(2)	$I_{B2}=-0.15A, \text{clamped}$				

Continued on next page.

*: The $h_{FE}(1)$ of the 2SC3038 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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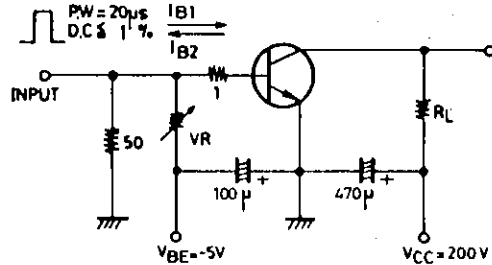
Package Dimensions 2010A
(unit:mm)**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

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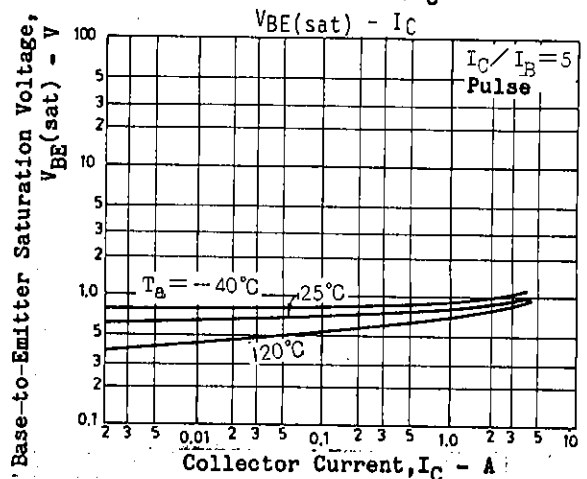
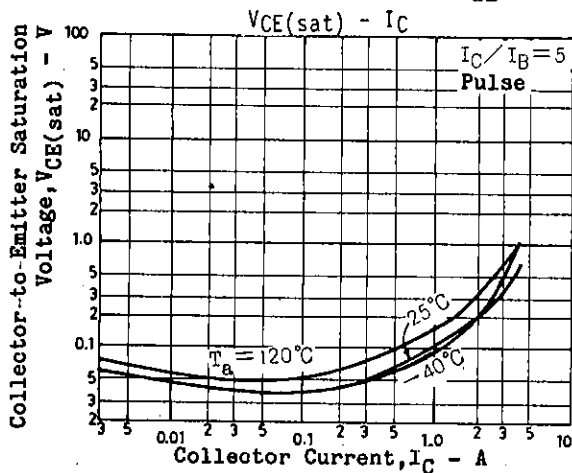
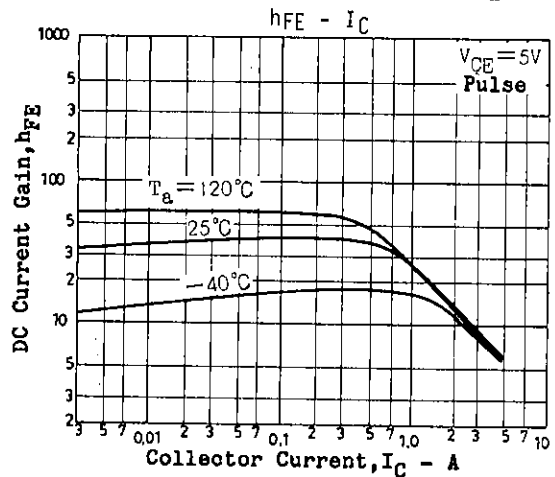
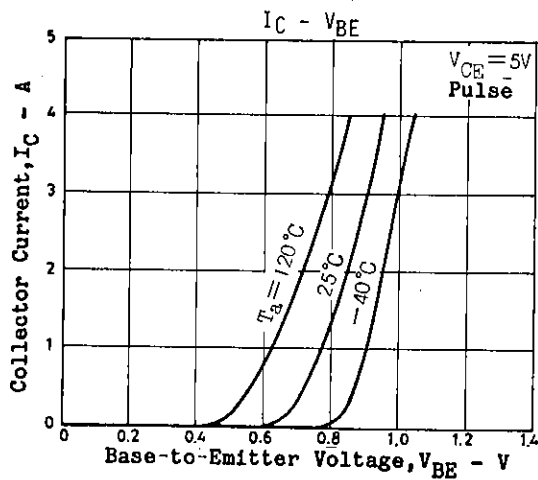
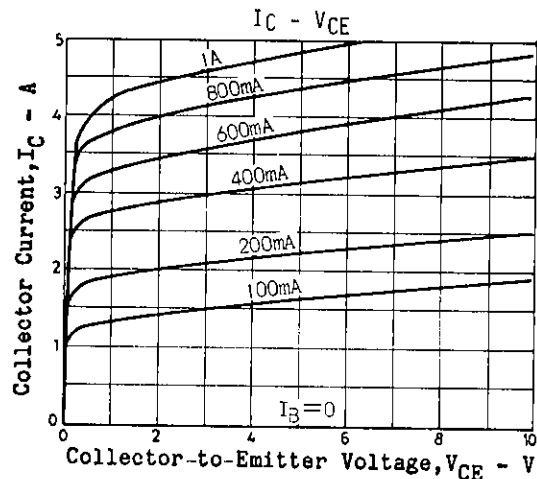
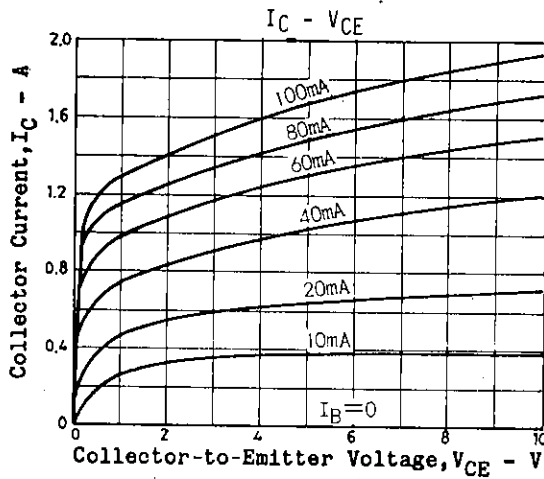
			min	typ	max	unit
Turn-ON Time	t_{on}	$I_C=3A, I_{B1}=0.6A, I_{B2}=-0.6A,$ $R_L=66.6\Omega, V_{CC}=200V$			1.0	μs
Storage Time	t_{stg}	" "			2.5	μs
Fall Time	t_f	" "			1.0	μs

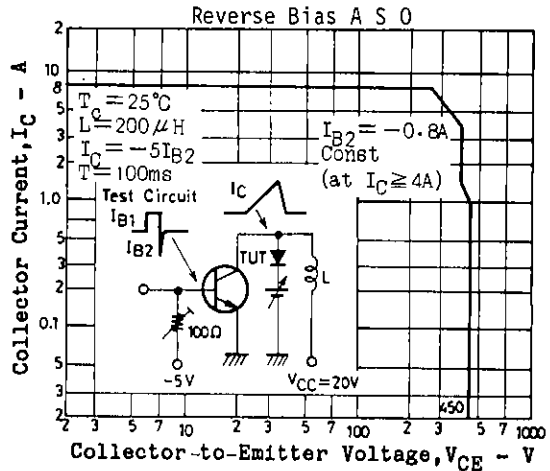
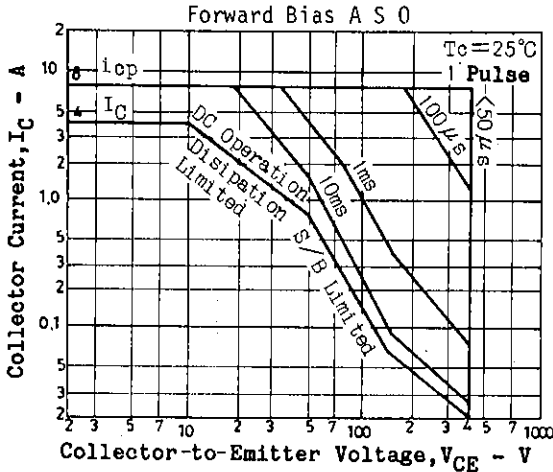
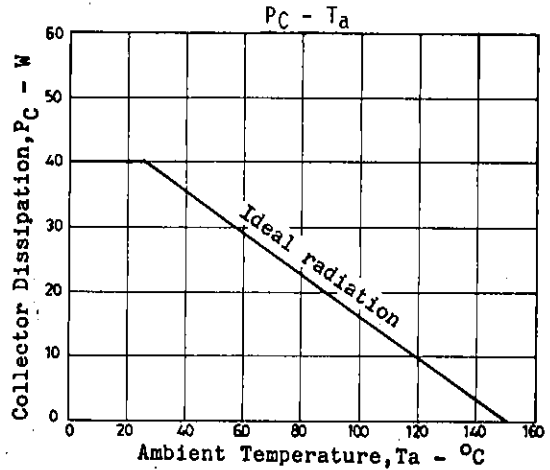
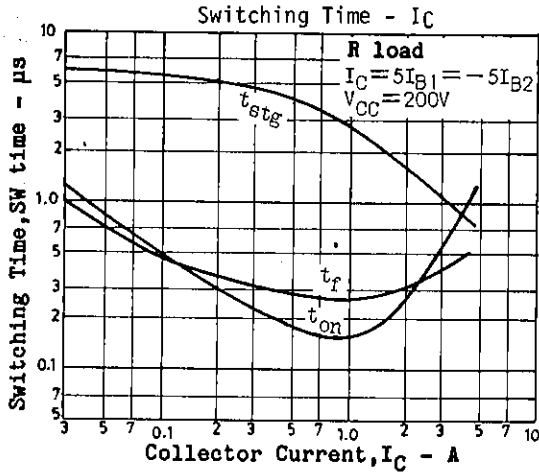
Switching Time Test Circuit



$5I_{B1} = -5I_{B2} = I_C$

Unit (Resistance : Ω , Capacitance : F)





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