

	No.996B	<h1 style="margin: 0;">2SC3039</h1> <p style="margin: 0;">NPN Triple Diffused Planar Silicon Transistor</p> <p style="margin: 0;">FOR SWITCHING REGULATORS</p>
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**Features**

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

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

Collector-to-Base Voltage	$V_{CBO}$	500	V	unit
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	$i_{cp}$	14	A	
		$PW \leq 300\mu s,$ Duty Cycle $\leq 10\%$		
Base Current	$I_B$	3	A	
Collector Dissipation	$P_C$	1.75	W	
		$T_c=25^\circ C$		
Junction Temperature	$T_j$	150	$^\circ C$	
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$	

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

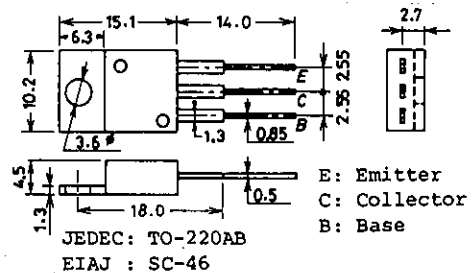
				min typ max unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=400V, I_E=0$		10 $\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$		10 $\mu A$
DC Current Gain	$h_{FE}(1)$	$V_{CE}=5V, I_C=0.8A$	15*	50*
	$h_{FE}(2)$	$V_{CE}=5V, I_C=4A$	8	
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=4A, I_B=0.8A$		1.0 V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=4A, I_B=0.8A$		1.5 V
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-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	$V_{CEO(sus)}$	$I_C=7A, I_B=1.4A, L=50\mu H$	400	V
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=7A, I_{B1}=1.4A, L=200\mu H,$ $I_{B2}=-1.4A, \text{clamped}$	400	V
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=1.5A, I_{B1}=0.3A, L=200\mu H,$ $I_{B2}=-0.3A, \text{clamped}$	450	V

Continued on next page.

\*: The  $h_{FE}(1)$  of the 2SC3039 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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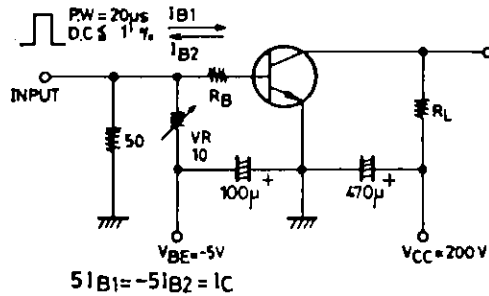
**Package Dimensions 2010A**  
(unit:mm)



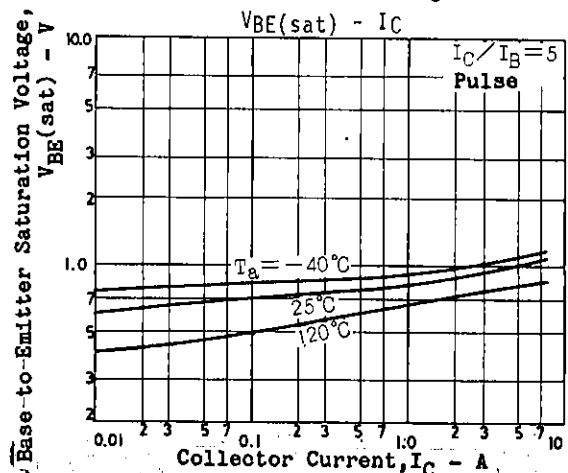
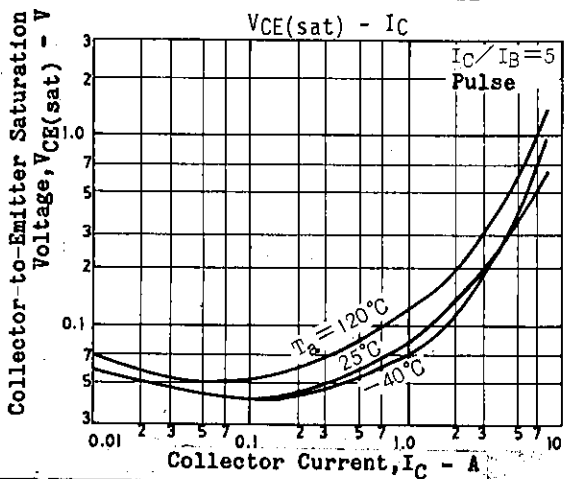
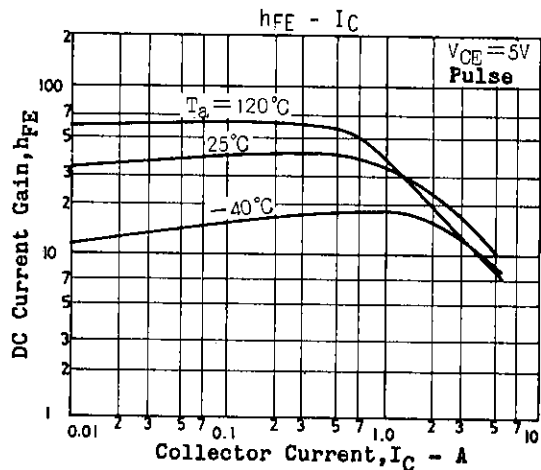
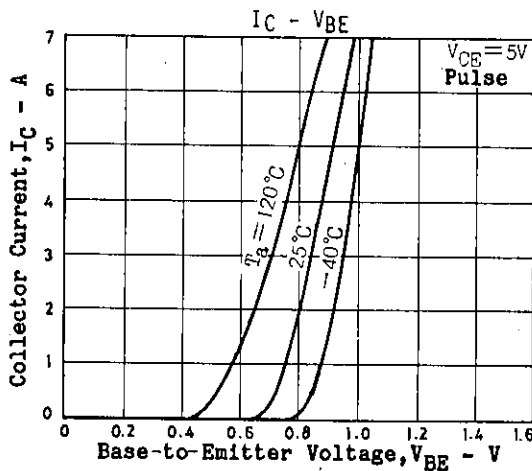
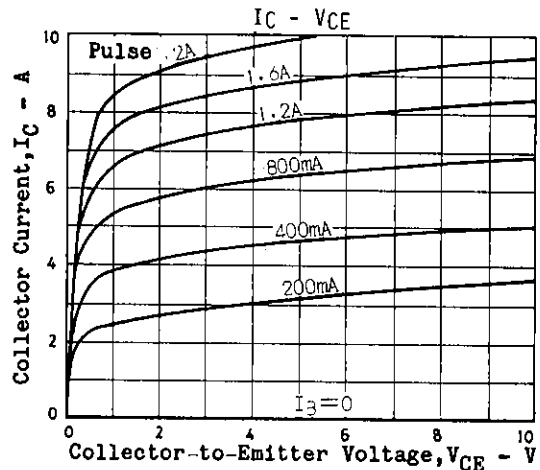
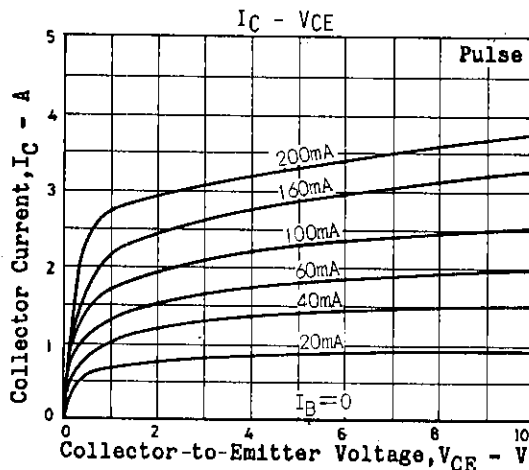
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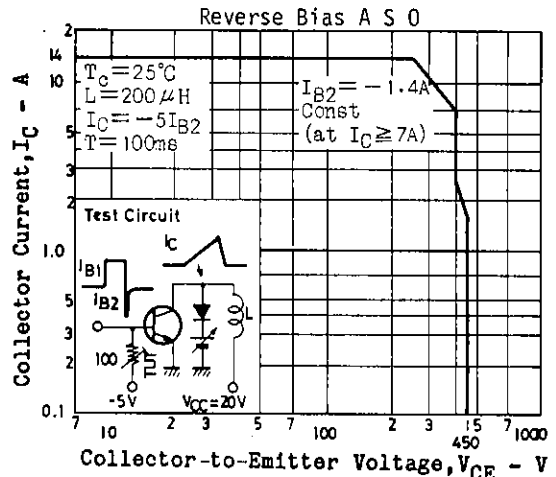
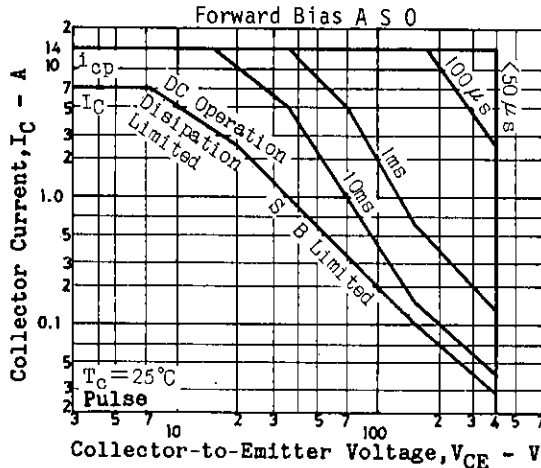
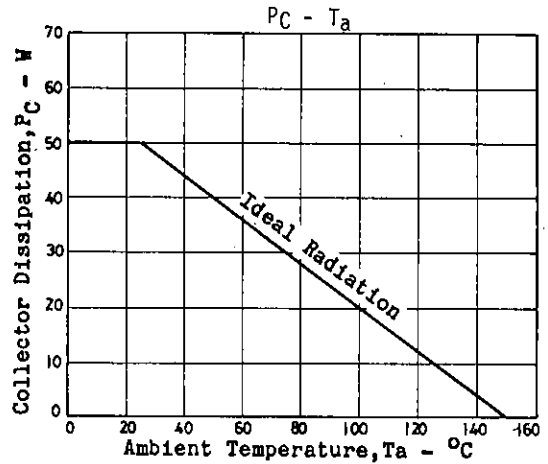
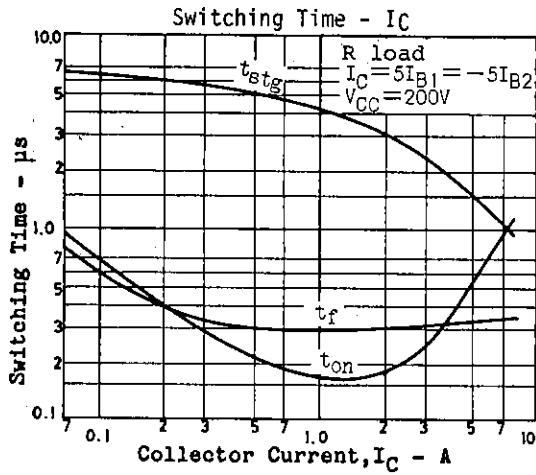
			min	typ	max	unit
Turn-ON Time	$t_{on}$	$I_C=5A, I_{B1}=1A, I_{B2}=-1A,$ $R_L=40\Omega, V_{CC}=200V$			1.0	$\mu s$
Storage Time	$t_{stg}$	" "			2.5	$\mu s$
Fall Time	$t_f$	" "			1.0	$\mu s$

Switching Time Test Circuit



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





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