

	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 $T_a=25^\circ C$

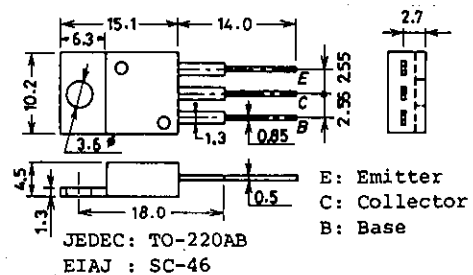
			min	typ	max unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=400V, I_E=0$			10 μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			10 μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5V, I_C=0.8A$	15*		50*
	$h_{FE(2)}$	$V_{CE}=5V, I_C=4A$	8		
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=4A, I_B=0.8A$			1.0 V
B-E 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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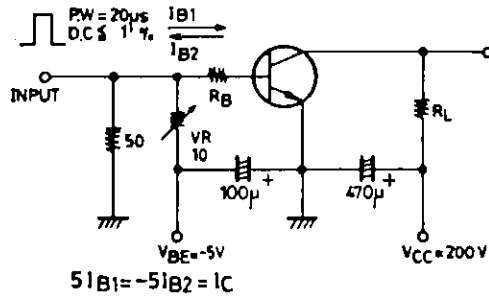
Package Dimensions 2010A
(unit:mm)



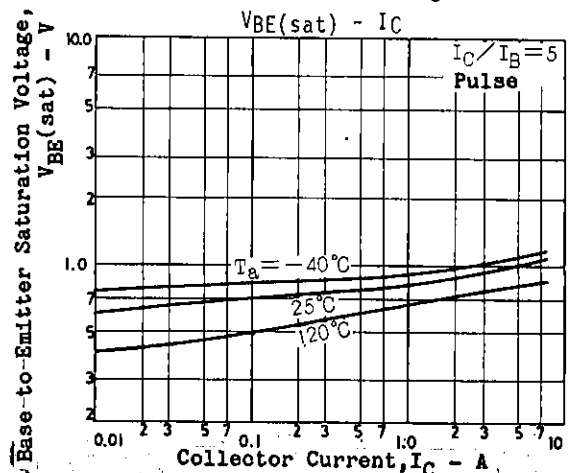
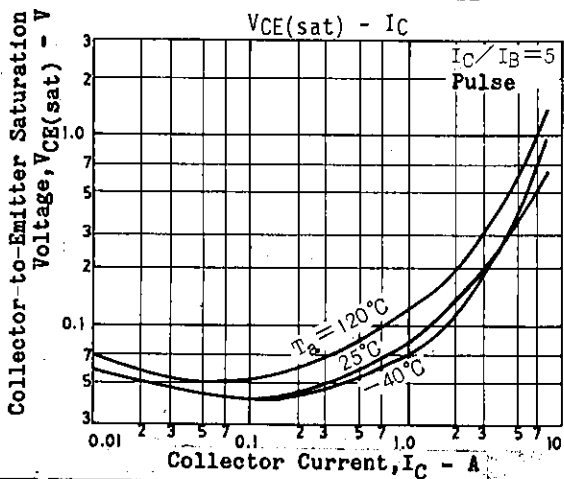
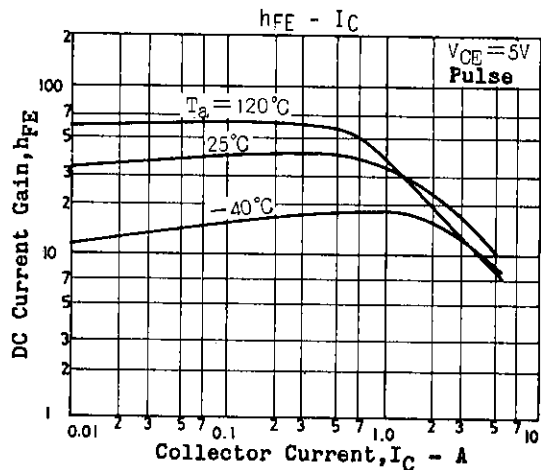
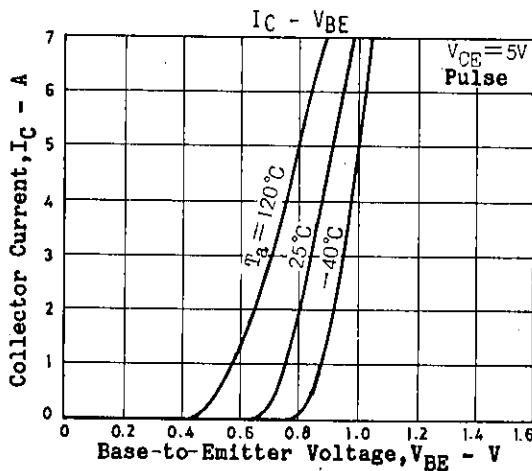
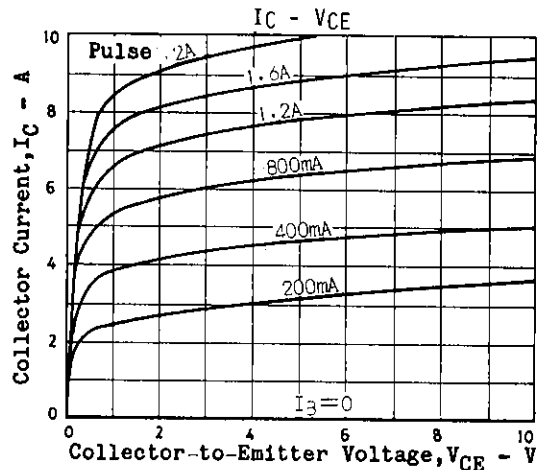
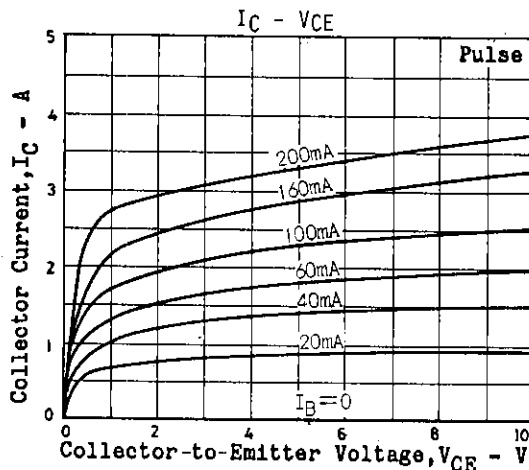
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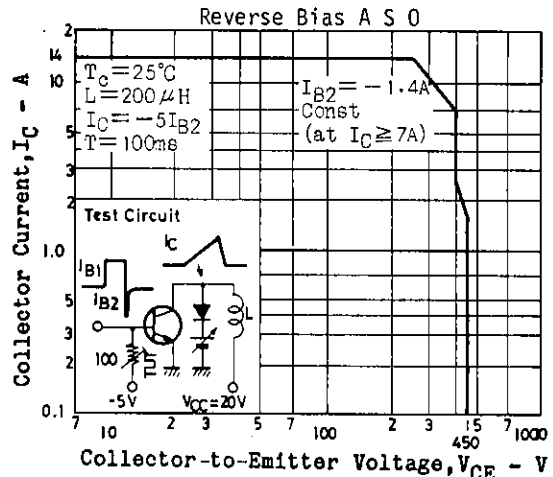
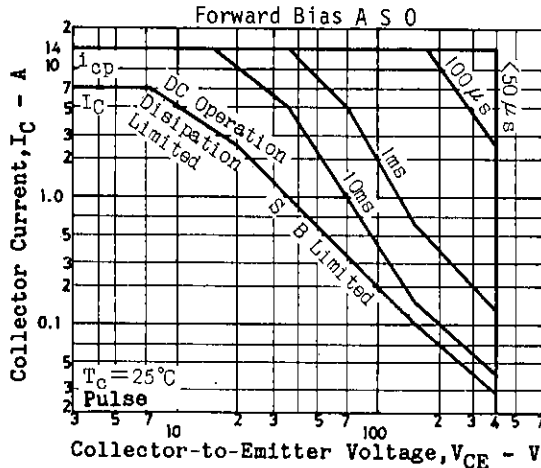
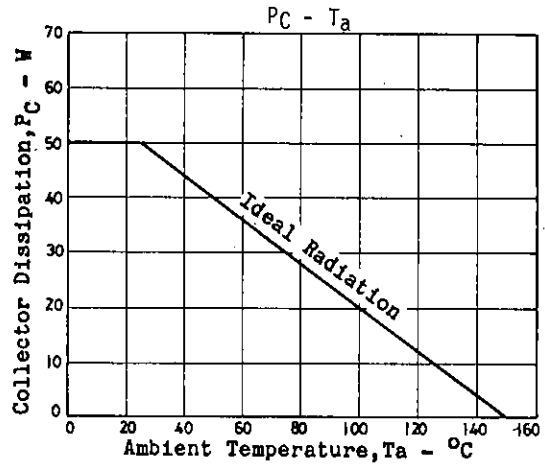
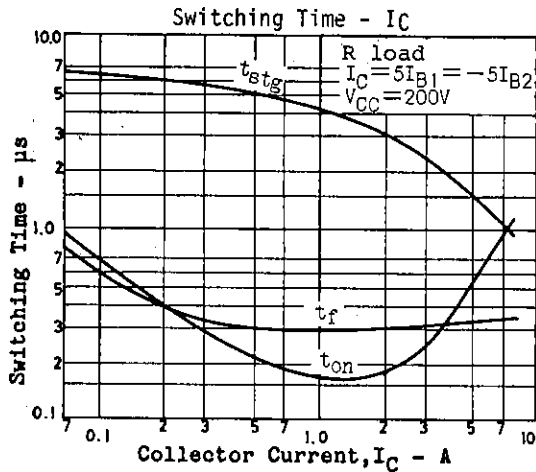
			min	typ	max	unit
Turn-ON Time	t_{on}	$I_C=5A, I_{B1}=1A, I_{B2}=-1A,$ $R_L=40ohms, V_{CC}=200V$			1.0	μs
Storage Time	t_{stg}	" "			2.5	μs
Fall Time	t_f	" "			1.0	μs

Switching Time Test Circuit



Unit (Resistance : Ω , Capacitance : F)





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