



SANYO Semiconductors

DATA SHEET

NPN Triple Diffused Planar Silicon Transistor

2SC3090 — For Switching Regulators

Features

- . High breakdown voltage ( $V_{CBO} \geq 800V$ ).
- . Fast switching speed.
- . Wide ASO.

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

			unit
Collector-to-Base Voltage	$V_{CBO}$	800	V
Collector-to-Emitter Voltage	$V_{CEO}$	500	V
Emitter-to-Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	10	A
Peak Collector Current	$i_{cp}$	20	A
		$PW \leq 300\mu s$	
		Duty cycle $\leq 10\%$	
Base Current	$I_B$	4	W
Collector Dissipation	$P_C$	2.5	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	$I_{CBO}$	$V_{CB}=500V, I_E=0$			10	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			10	$\mu A$
DC Current Gain	$h_{FE}(1)$	$V_{CE}=5V, I_C=1.2A$	15*		50*	
	$h_{FE}(2)$	$V_{CE}=5V, I_C=6A$	8			
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=6A, I_B=1.2A$			1.0	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=6A, I_B=1.2A$			1.5	V
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=1.2A$		18		MHz
Output Capacitance	$c_{ob}$	$V_{CB}=10V, f=1MHz$		160		pF
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	800			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	500			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
C-E Sustain Voltage	$V_{CEO(sus)}$	$I_C=10A, I_B=2A, L=50\mu H$	500			V
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=10A, I_{B1}=2A, L=200\mu H,$	500			V
	(1)	$I_{B2}=-2A, \text{clamped}$				
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=2.4A, I_{B1}=0.48A, L=$	550			V
	(2)	$200\mu H, I_{B2}=-0.48A, \text{clamped}$				

\*: The  $h_{FE}(1)$  of the 2SC3090 is classified as follows. When specifying the  $h_{FE}(1)$  rank, specify two ranks or more in principle.

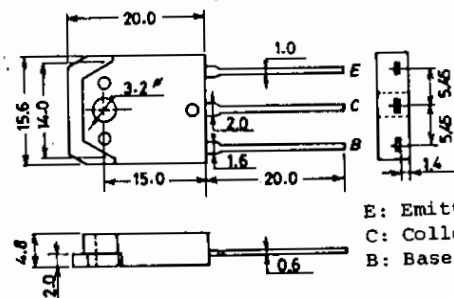
15	L	30	20	M	40
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30	N	50
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Package Dimensions 2022

(unit:mm)

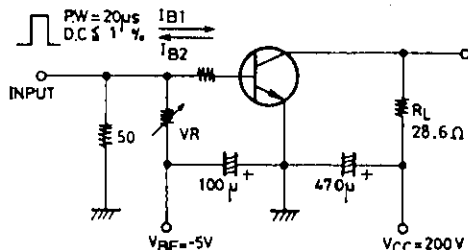


E: Emitter  
C: Collector  
B: Base

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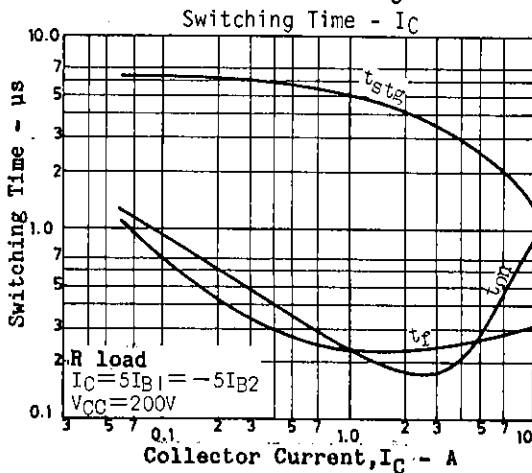
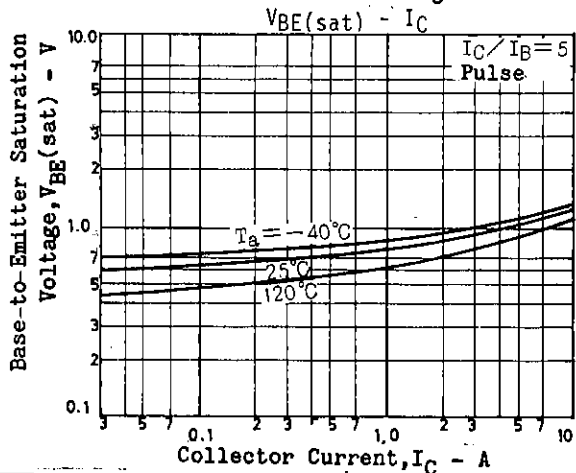
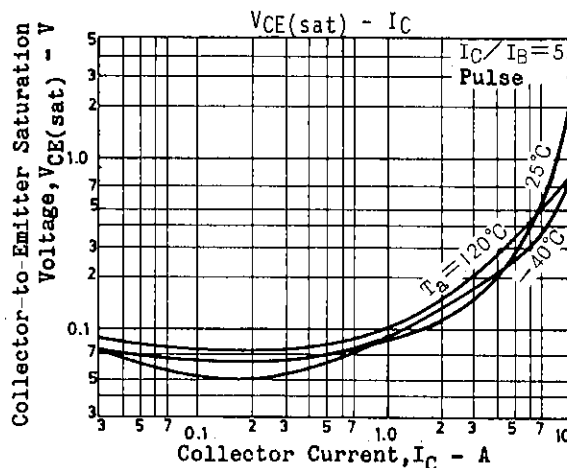
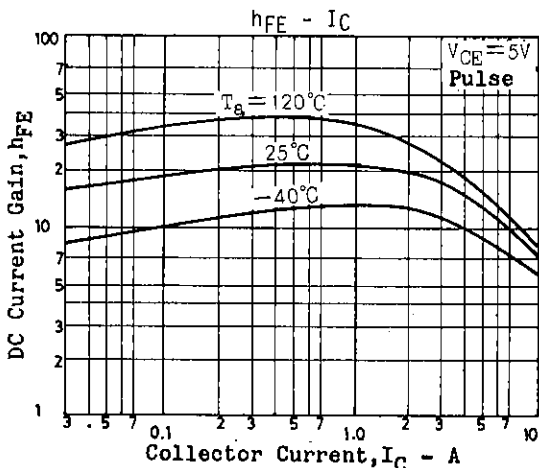
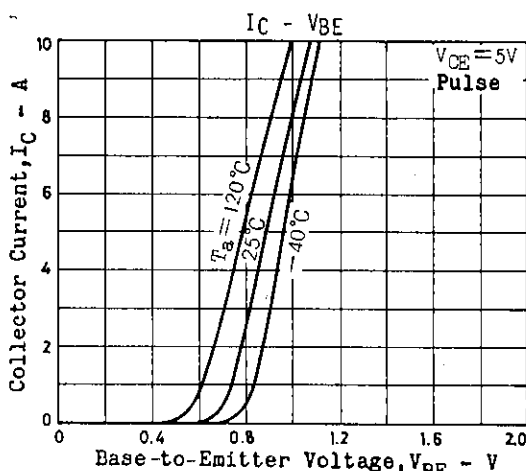
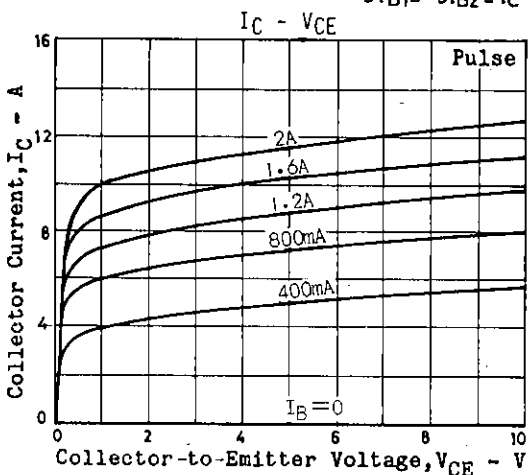
			min	typ	max	unit
Turn-ON Time	$t_{on}$	$I_C=7A, I_{B1}=0.14A, I_{B2}=-1.4A;$ $R_L=28.6ohms, V_{CC}=200V$			1.0	$\mu s$
Storage Time	$t_{stg}$	" "			3.0	$\mu s$
Fall Time	$t_f$	" "			1.0	$\mu s$

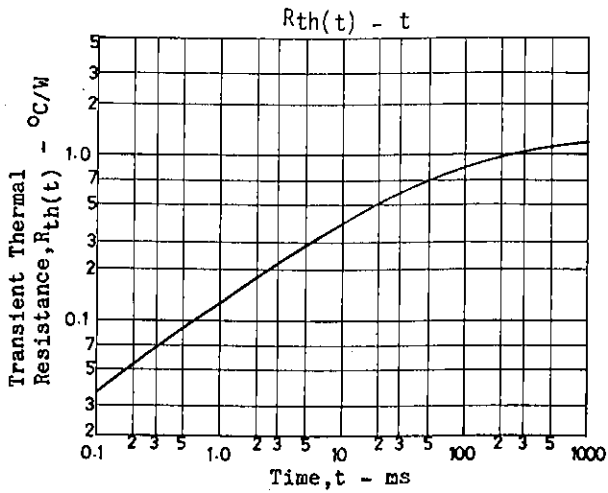
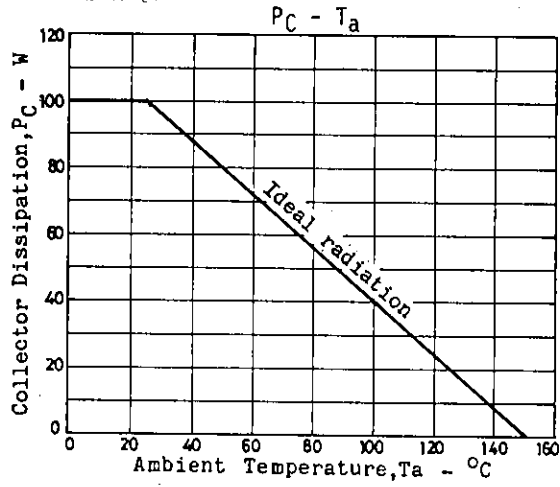
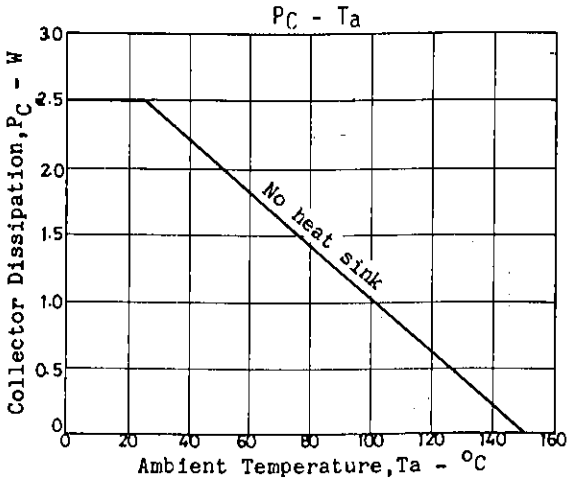
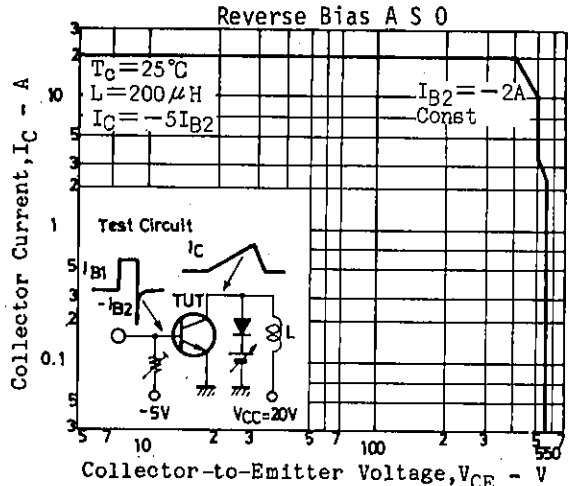
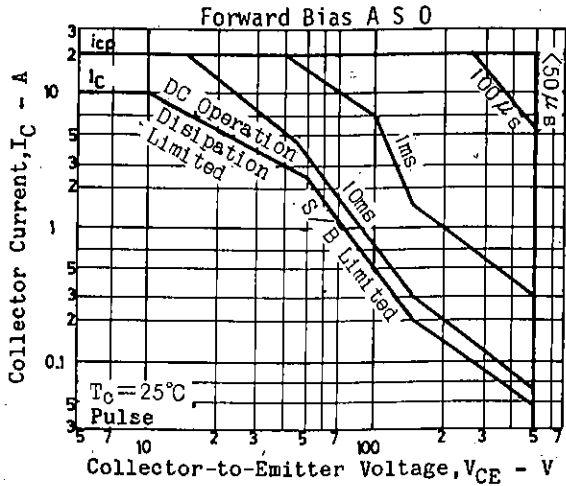
Switching Time Test Circuit



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

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





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