

<b>SANYO</b>	No. 1011B	<b>2SC3087</b>
NPN Triple Diffused Planar Silicon Transistor <b>FOR SWITCHING REGULATORS</b>		

**Features**

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

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

			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	$I_C$	5	A
Peak collector current	$i_{cp}$	10	A
		$PW \leq 300 \mu s,$ $Duty Cycle \leq 10\%$	
Base current	$I_B$	2	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 ~ +150	$^\circ C$

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

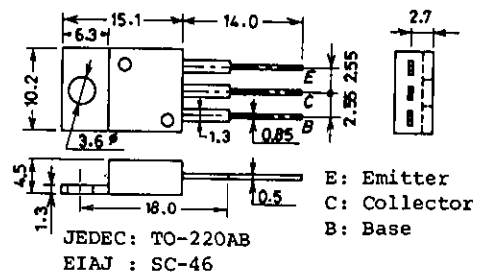
			min	typ	max	unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 500 V, I_E = 0$			10	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 5 V, I_C = 0$			10	$\mu A$
DC current gain	$h_{FE(1)}$	$V_{CE} = 5 V, I_C = 0.6 A$	15*			
	$h_{FE(2)}$	$V_{CE} = 5 V, I_C = 3 A$	8			
Collector-to-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3 A, I_B = 0.6 A$			1.0	V
Base-to-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3 A, I_B = 0.6 A$			1.5	V
Gain-bandwidth product	$f_T$	$V_{CE} = 10 V, I_C = 0.6 A$		18		MHz
Output capacitance	$c_{ob}$	$V_{CB} = 10 V, f = 1 MHz$		80		pF
Collector-to-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1 mA, I_E = 0$	800			V
Collector-to-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 4 mA, R_{BE} = \infty$	500			V
Emitter-to-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1 mA, I_C = 0$	7			V
Collector-to-emitter sustain voltage	$V_{CEO(sus)}$	$I_C = 5 A, L = 50 \mu H, I_B = 1 A$	500			V
Collector-to-emitter sustain voltage	$V_{CEX(sus)}$	$I_C = 5 A, L = 200 \mu H, I_{B1} = -I_{B2}$	500			V
	(1)	$= 1 A, clamped$				
Collector-to-emitter sustaining voltage	$V_{CEX(sus)}$	$I_C = 1.2 A, L = 200 \mu H, I_{B1} = 0.24 A$	550			V
	(2)	$I_{B2} = -0.24 A, clamped$				

Continued on next page.

\*: The  $h_{FE(1)}$  of the 2SC3087 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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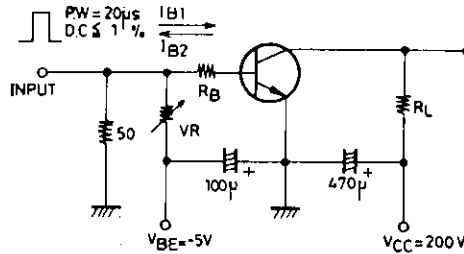
**Package Dimensions 2010A**  
(unit: mm)



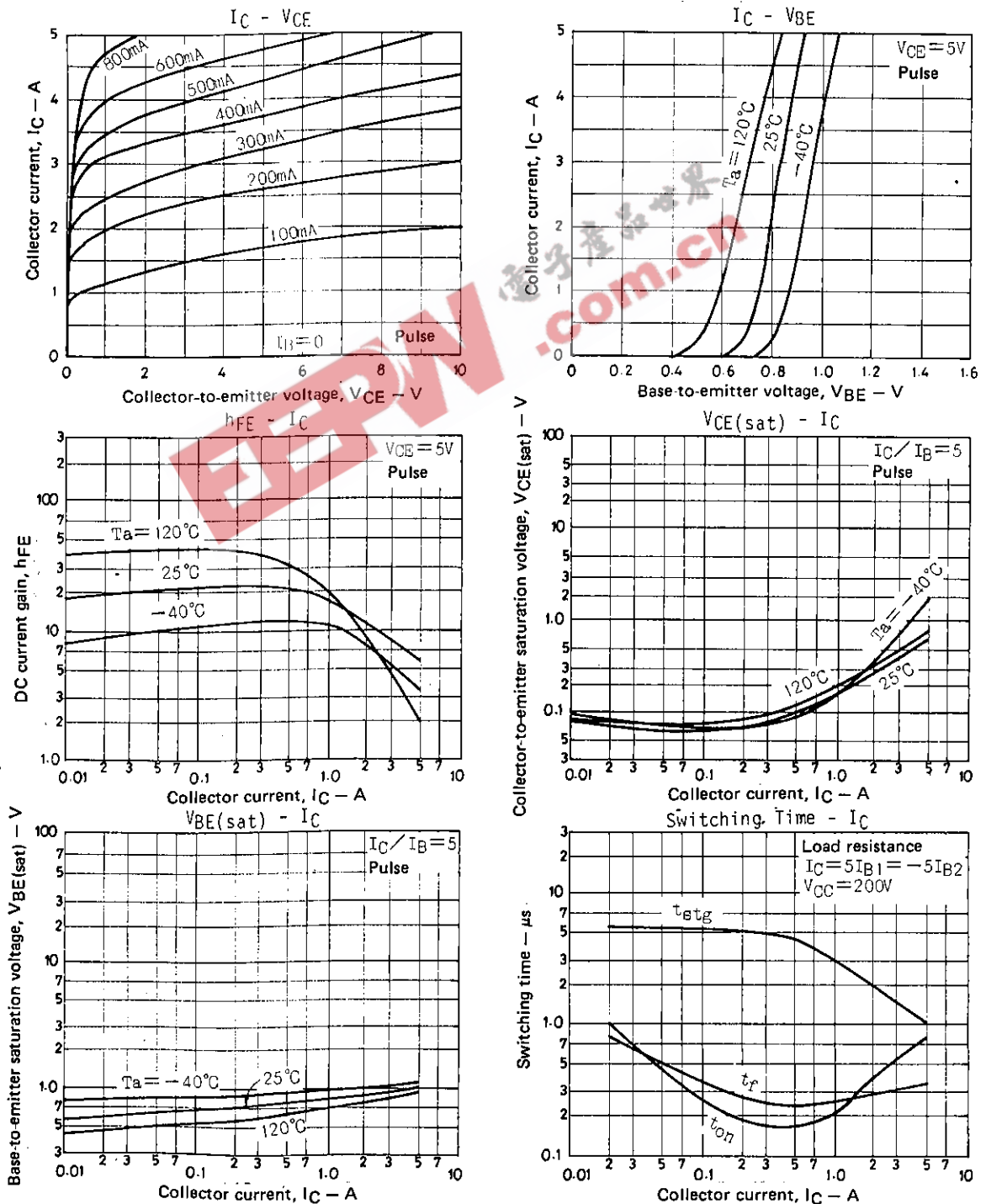
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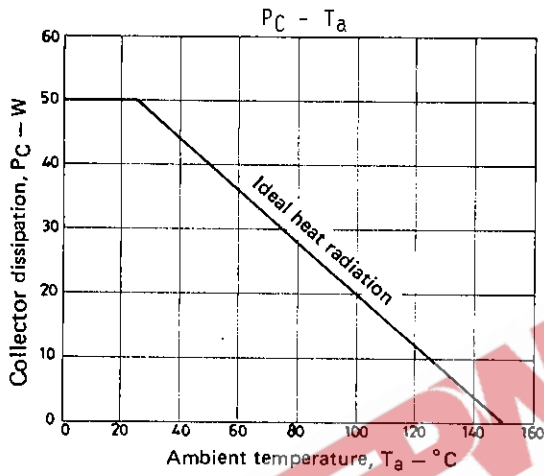
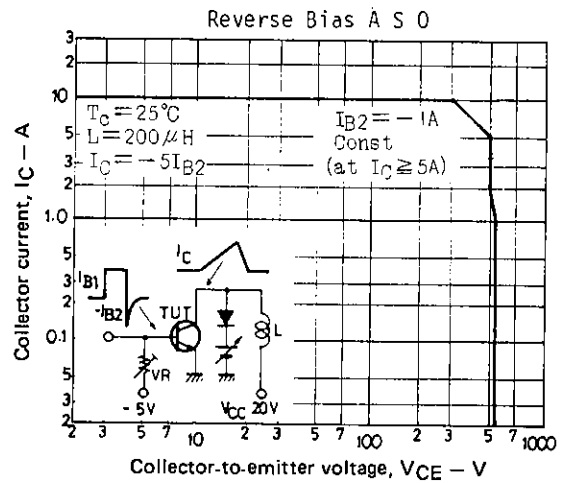
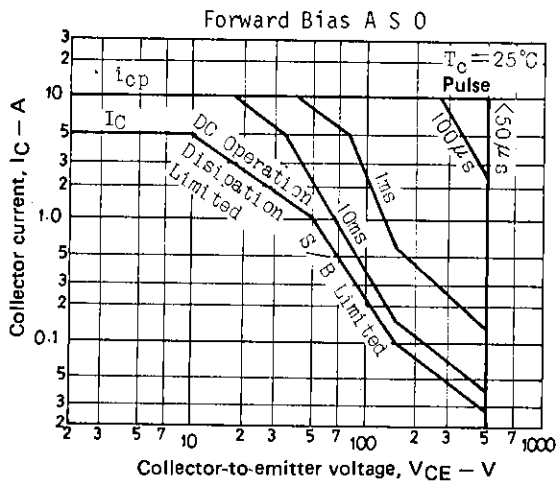
			min	typ	max	unit
Turn-on time	$t_{on}$	$I_C = 4\text{ A}, I_{B1} = 0.8\text{ A}, I_{B2} = -0.8\text{ A},$ $R_L = 50\ \Omega, V_{CC} = 200\text{ V}$			1.0	$\mu\text{s}$
Storage time	$t_{stg}$	$I_C = 4\text{ A}, I_{B1} = 0.8\text{ A}, I_{B2} = -0.8\text{ A},$ $R_L = 50\ \Omega, V_{CC} = 200\text{ V}$			3.0	$\mu\text{s}$
Fall time	$t_f$	$I_C = 4\text{ A}, I_{B1} = 0.8\text{ A}, I_{B2} = -0.8\text{ A},$ $R_L = 50\ \Omega, V_{CC} = 200\text{ V}$			1.0	$\mu\text{s}$

Switching Time Test Circuit



Unit (Resistance :  $\Omega$ , Capacitance : F)  $5 I_{B1} = -5 I_{B2} = I_C$





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