

<b>SANYO</b>	No.2959A	<b>2SC4003</b>
	NPN Triple Diffused Planar Silicon Transistor	
High-Voltage Driver Applications		

**Features**

- High breakdown voltage
- Adoption of MBIT process
- Excellent  $h_{FE}$  linearity

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

Collector to Base Voltage	$V_{CB0}$	400		V	unit
Collector to Emitter Voltage	$V_{CEO}$	400		V	
Emitter to Base Voltage	$V_{EBO}$	5		V	
Collector Current	$I_C$	200		mA	
Collector Current(Pulse)	$I_{CP}$	400		mA	
Collector Dissipation	$P_C$	1		W	
		$T_c = 25^\circ\text{C}$		10	W
Junction Temperature	$T_J$			150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$			-55 to +150	$^\circ\text{C}$

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

			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 300\text{V}, I_E = 0$			0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4\text{V}, I_C = 0$			0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}, I_C = 50\text{mA}$	60*		200*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = 30\text{V}, I_C = 10\text{mA}$		70		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			0.6	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	400			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	400			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5			V

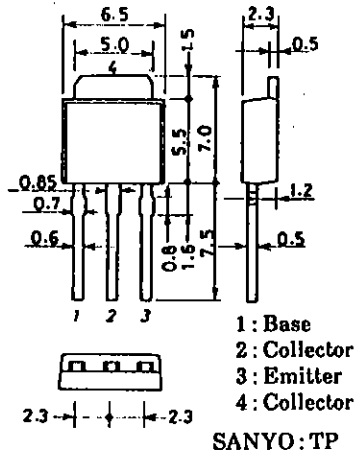
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\* : The 2SC4003 is classified by 50mA  $h_{FE}$  as follows :

60 D 120	100 E 200
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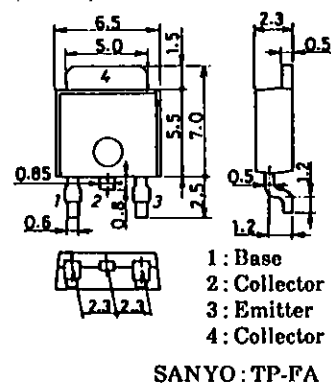
**Package Dimensions 2045B**

(unit : mm)



**Package Dimensions 2044B**

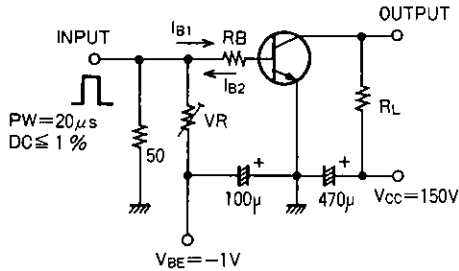
(unit : mm)



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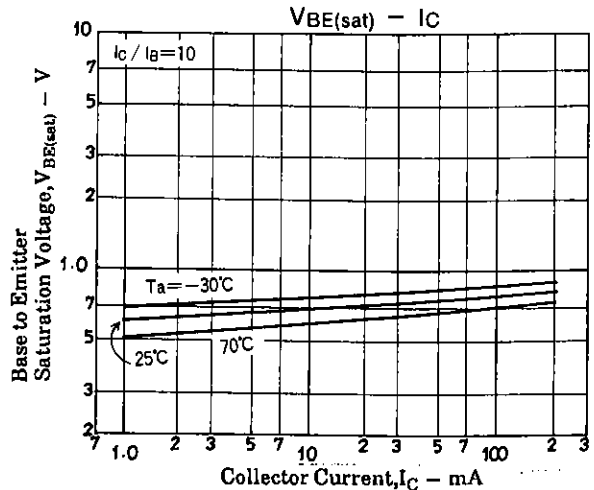
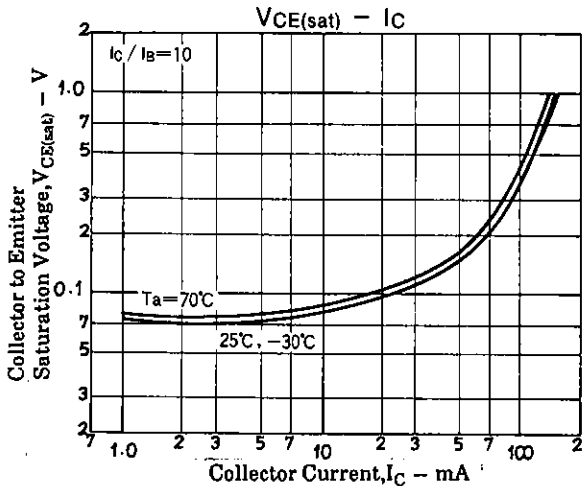
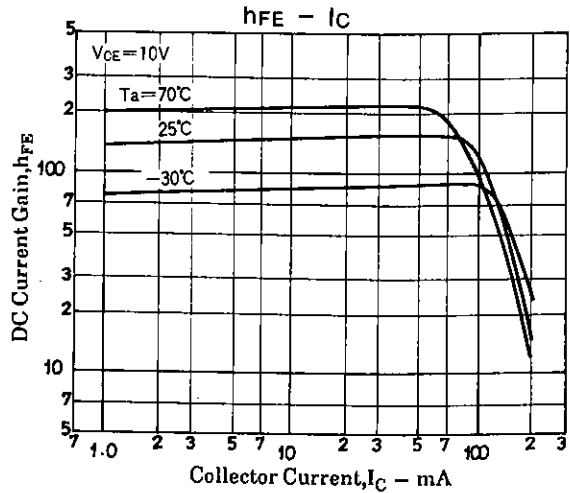
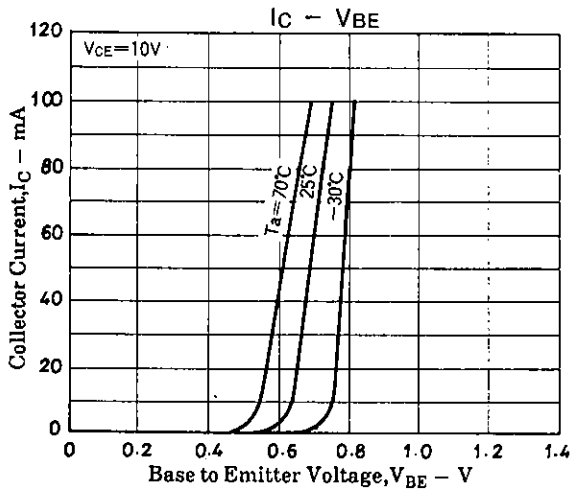
			min	typ	max	unit
Output Capacitance	$C_{ob}$	$V_{CB} = 30V, f = 1MHz$		4		pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB} = 30V, f = 1MHz$		3		pF
Turn-ON Time	$t_{on}$	See specified Test Circuit.		0.25		$\mu s$
Turn-OFF Time	$t_{off}$	"		5.0		$\mu s$

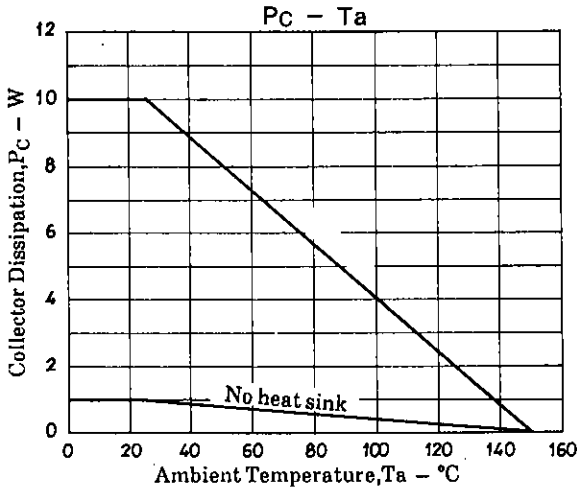
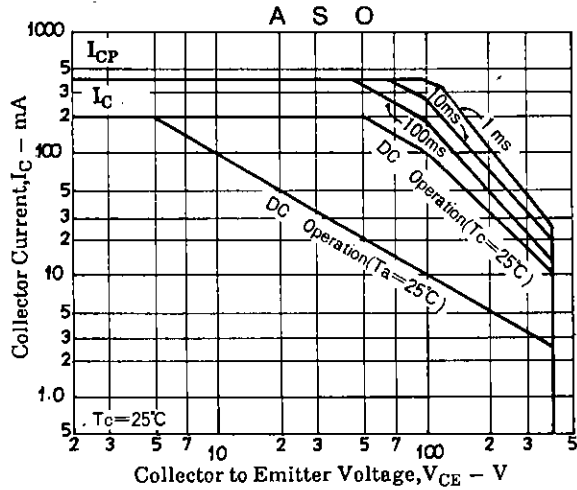
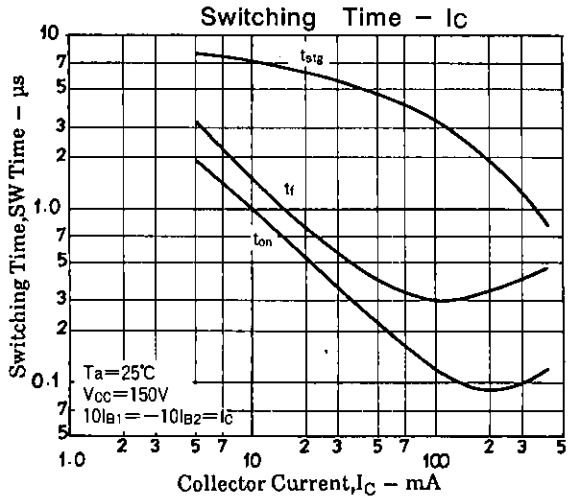
Switching Time Test Circuit



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

$10I_{B1} = -10I_{B2} = I_C = 50mA$   
 $R_L = 3k\Omega, R_B = 200\Omega$  at  $I_C = 50mA$





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