

**2SC4002**

High-Voltage Driver Applications

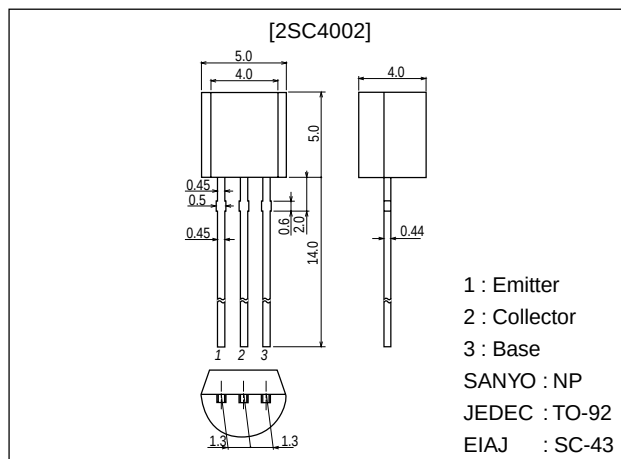
Features

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

Package Dimensions

unit:mm

2003B



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		400	V
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		600	mW
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=300\text{V}, I_E=0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			0.1	μA
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
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.6	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			1.0	V

* : The 2SC4002 is classified by 50mA h_{FE} as follows :

60	D	120	100	E	200
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SANYO Electric Co., Ltd. Semiconductor Business Headquarters

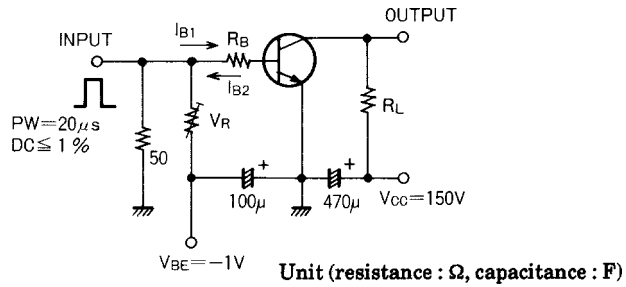
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

D1598HA (KT)/6139MO, TS No.2960-1/3

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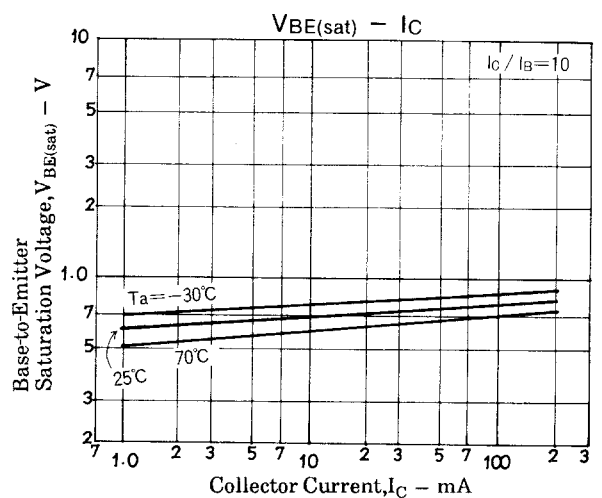
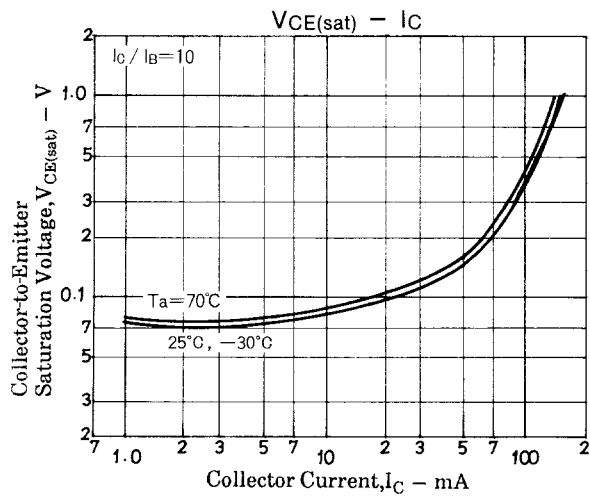
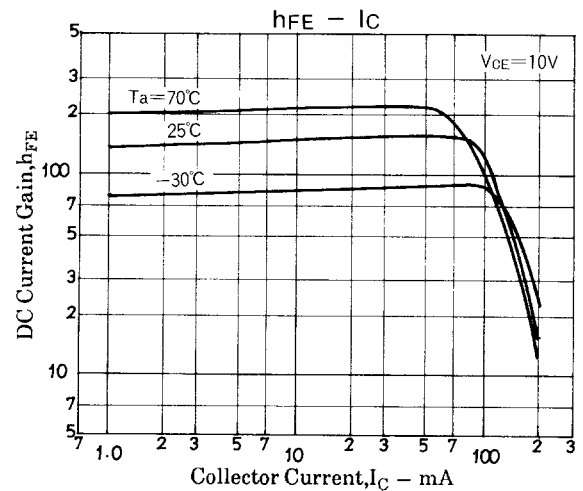
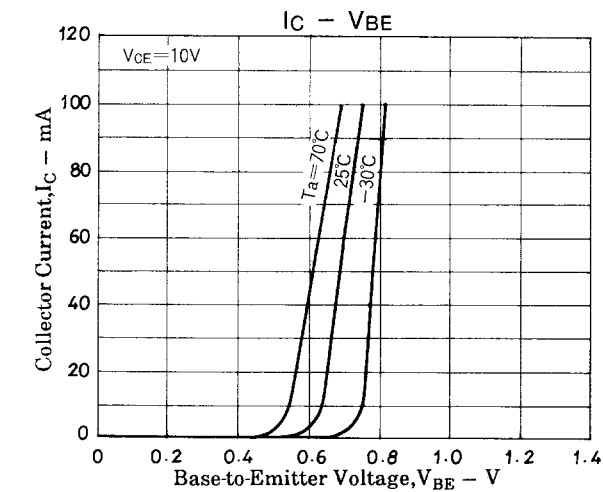
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	400			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	5			V
Output 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		μs
Turn-OFF Time	t_{off}	See specified test circuit.		5.0		μs

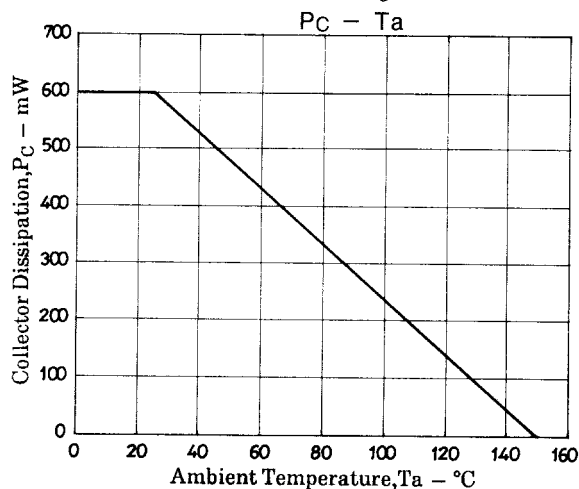
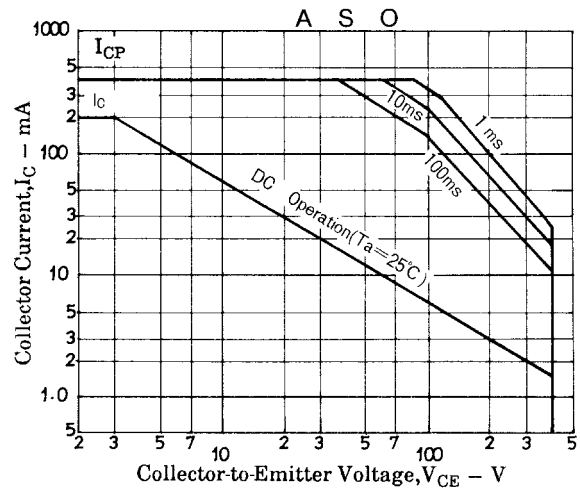
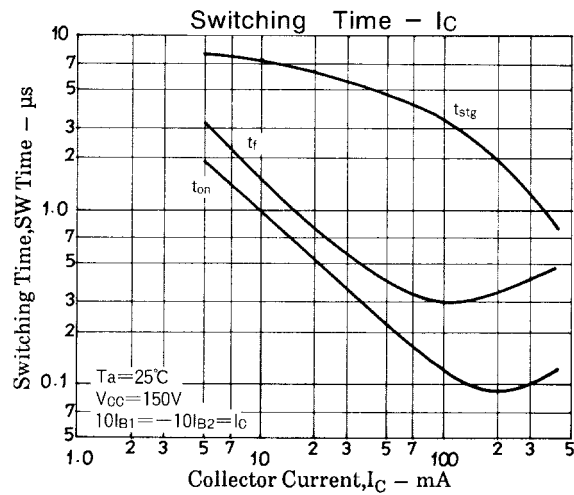
Switching Time Test Circuit



$$10I_{B1} = -10I_{B2} = I_C = 50mA$$

$$R_L = 3k\Omega, R_B = 200\Omega \text{ at } I_C = 50mA$$





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