



# 2SC4003 — High-Voltage Driver Applications

NPN Triple Diffused Planar Silicon Transistor

## Features

- High breakdown voltage.
- Adoption of MBIT process.
- Excellent hFE linearity.

## Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		400	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		400	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		5	V
Collector Current	I <sub>C</sub>		200	mA
Collector Current (Pulse)	I <sub>CP</sub>		400	mA
Collector Dissipation	P <sub>C</sub>		1	W
		T <sub>c</sub> =25°C	10	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =300V, I <sub>E</sub> =0			0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			0.1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA	60*		200*	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =30V, I <sub>C</sub> =10mA		70		MHz
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.6	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			1.0	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =10μA, I <sub>E</sub> =0	400			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	400			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	5			V

\* : The 2SC4003 is classified by 50mA h<sub>FE</sub> as follows :

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Rank	D	E
h <sub>FE</sub>	60 to 120	100 to 200

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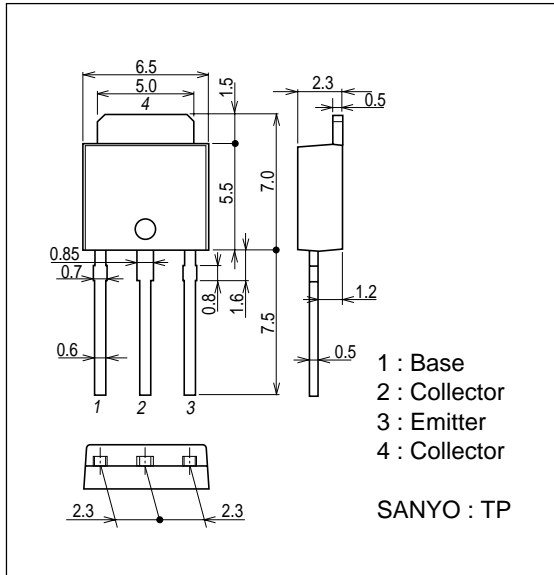
# 2SC4003

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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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	$t_{off}$	See specified test circuit.		5.0		$\mu s$

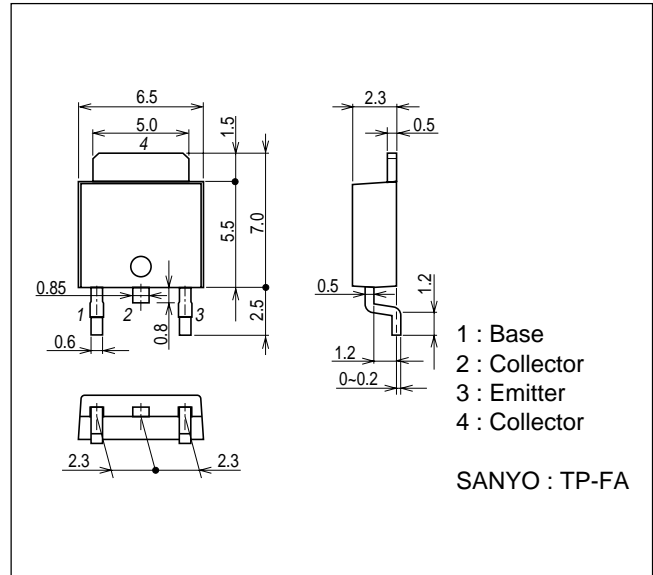
## Package Dimensions

unit : mm  
2045B

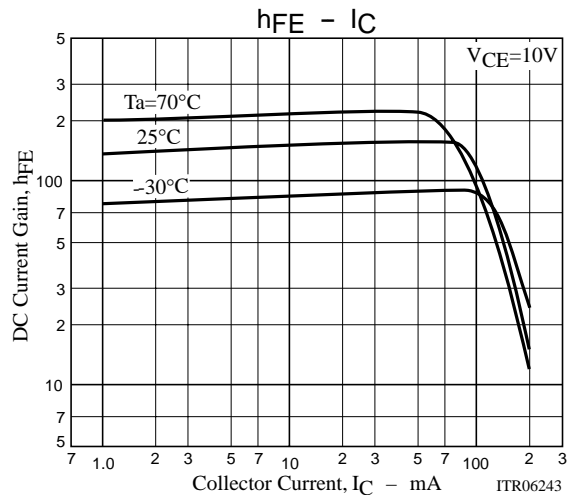
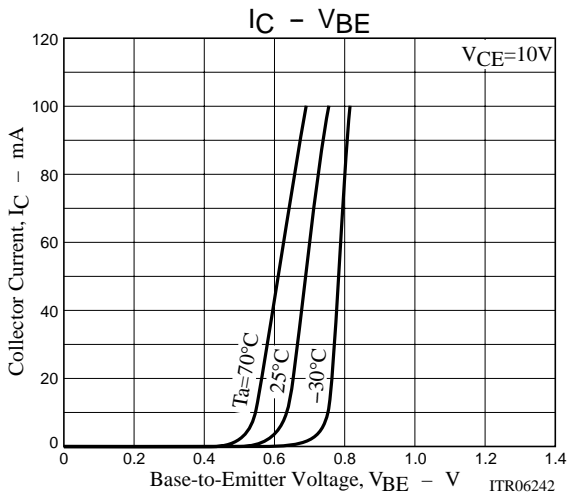
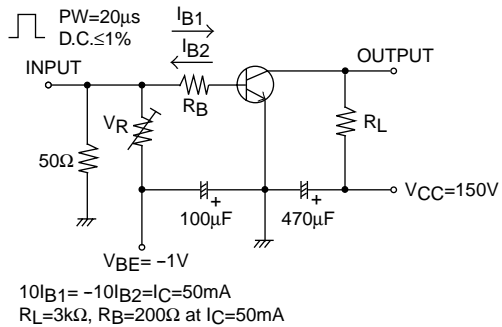


## Package Dimensions

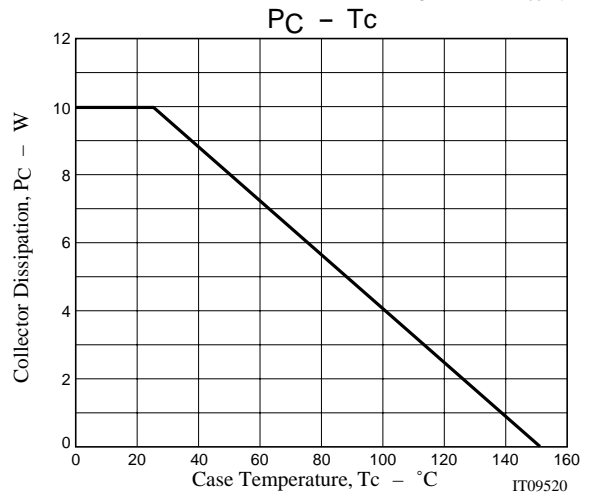
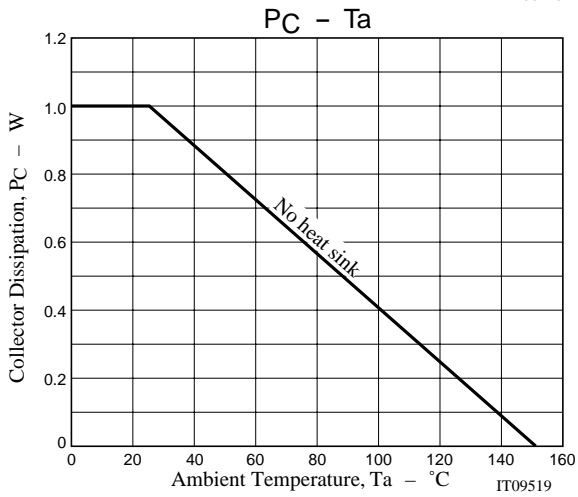
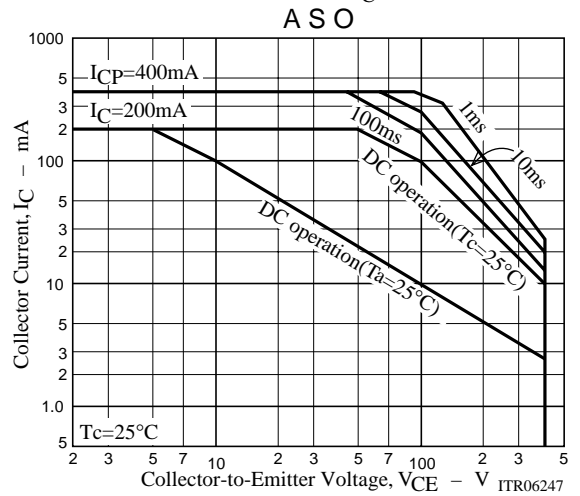
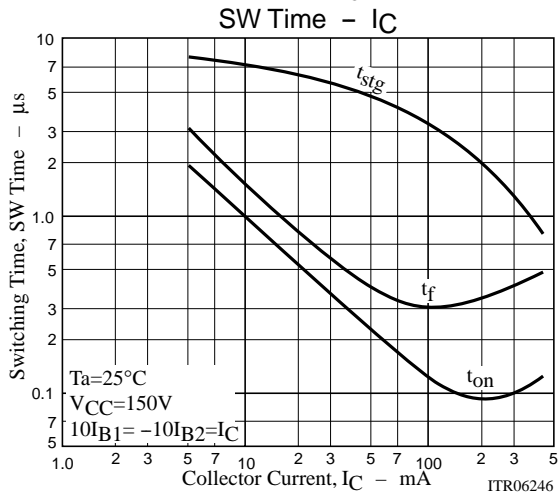
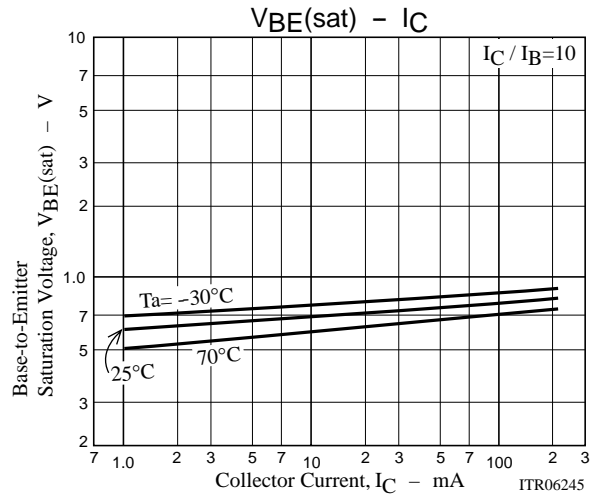
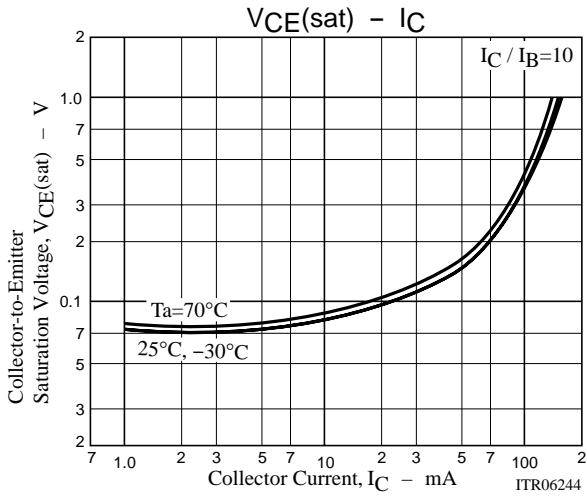
unit : mm  
2044B



## Switching Time Test Circuit



# 2SC4003



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