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DATA SHEET

2SC4002 — NPN Triple Diffused Planar Silicon Transistor

High-Voltage Driver Applications

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 _{CB0}		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	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

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

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

Rank	D	E
h _{FE}	60 to 120	100 to 200

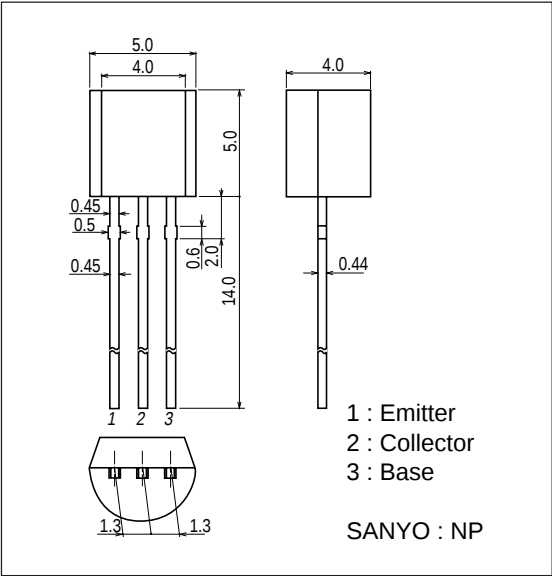
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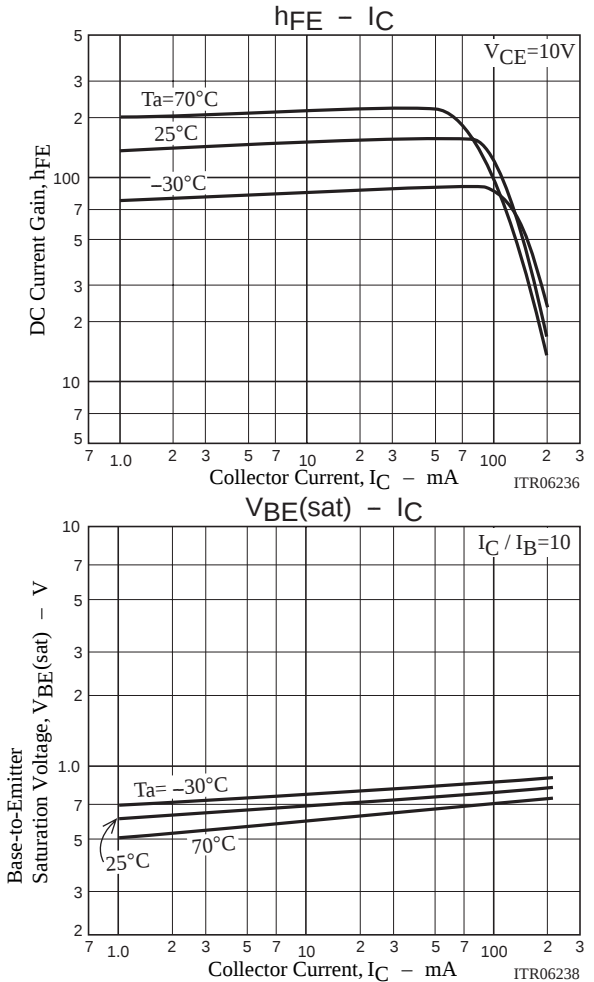
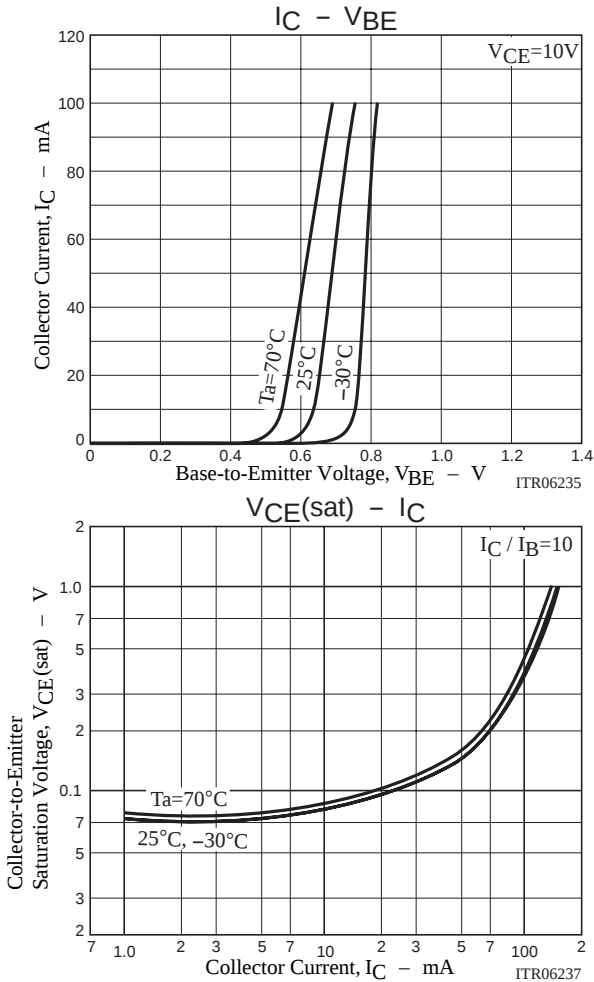
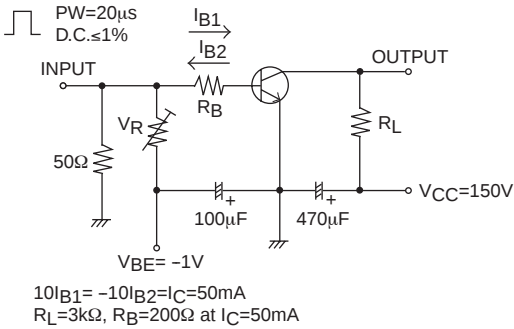
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Time	t_{on}	See specified test circuit.		0.25		μs
Turn-OFF Time	t_{off}	See specified test circuit.		5.0		μs

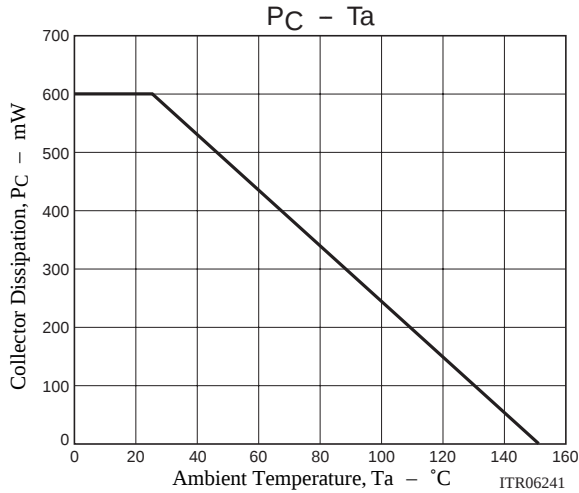
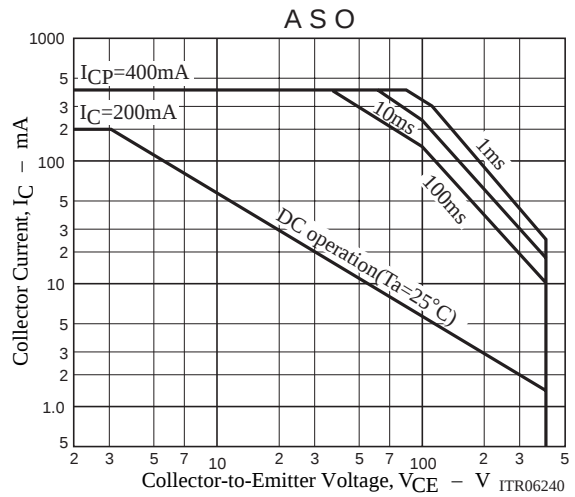
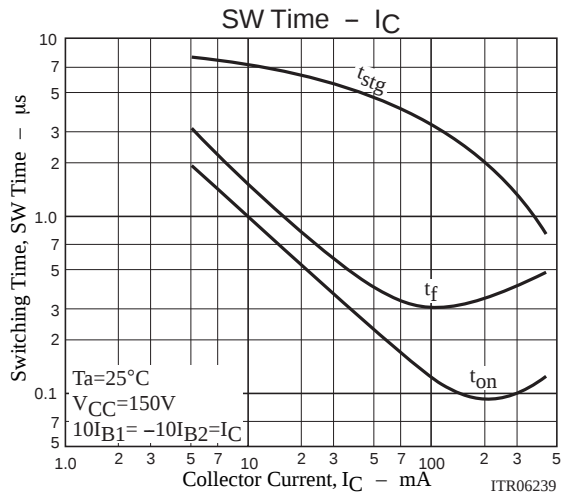
Package Dimensions

unit : mm
2003B



Switching Time Test Circuit





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