Ordering number : ENN2960A

ON Semiconductor®

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DATA SHEET

NPN Triple Diffused Planar Silicon Transistor

2SC4002 — High-Voltage Driver Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°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	Tj		150	°C
Storage Temperature	Tstg		–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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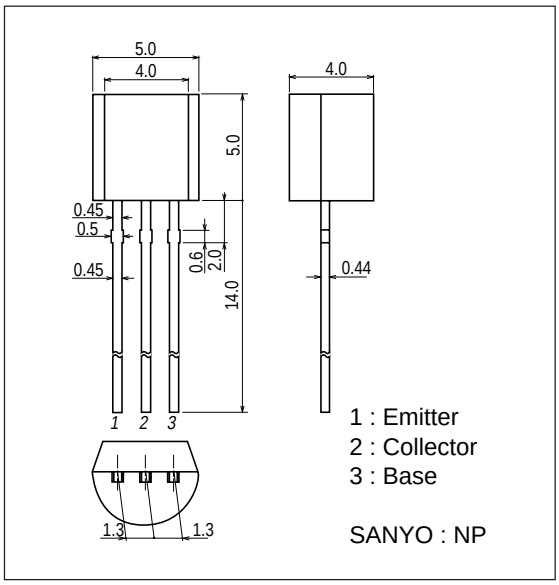
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Time	t_{on}	See specified test circuit.		0.25		μs
Turn-OFF Time	t_{off}	See specified test circuit.		5.0		μs

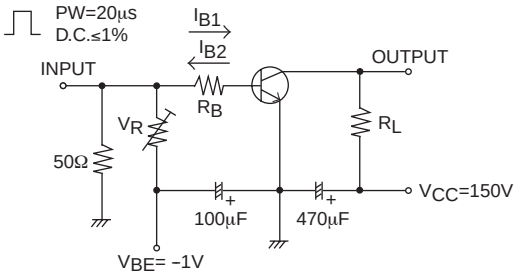
Package Dimensions

unit : mm

2003B

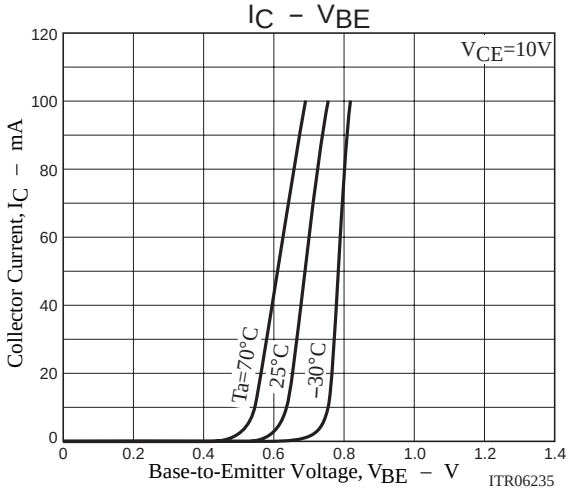


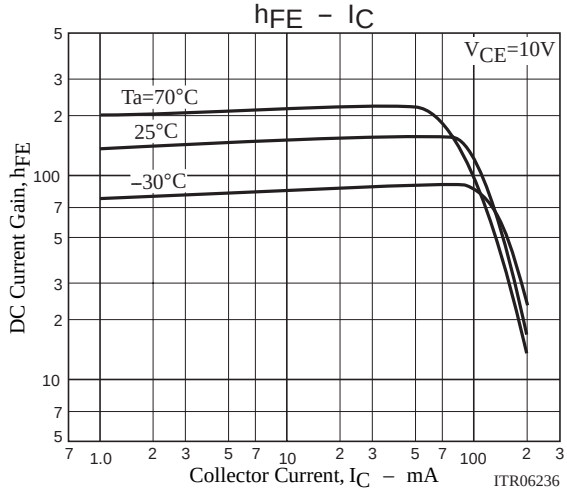
Switching Time Test Circuit

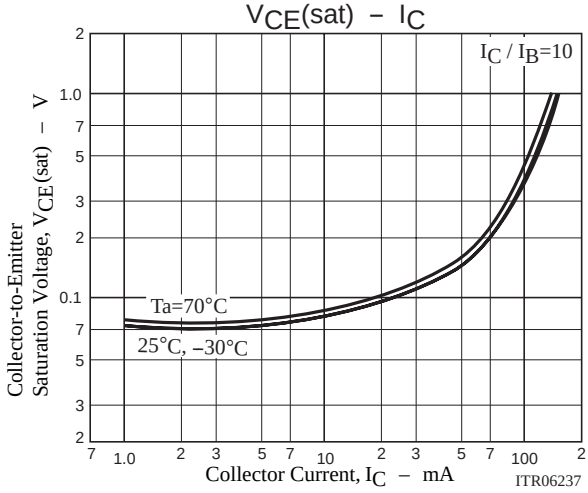


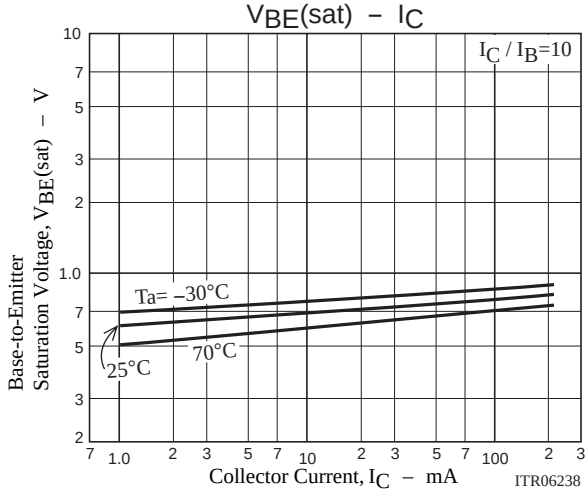
$10I_{B1} = -10I_{B2} = I_C = 50mA$

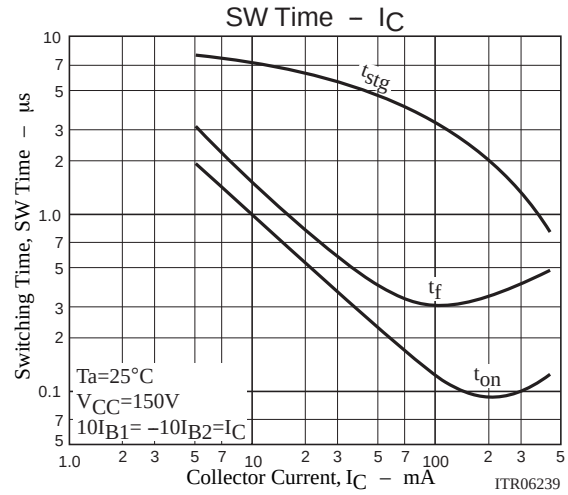
$R_L = 3k\Omega$, $R_B = 200\Omega$ at $I_C = 50mA$

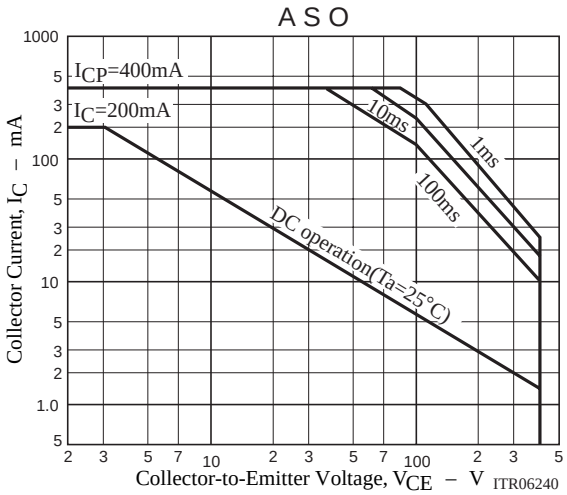


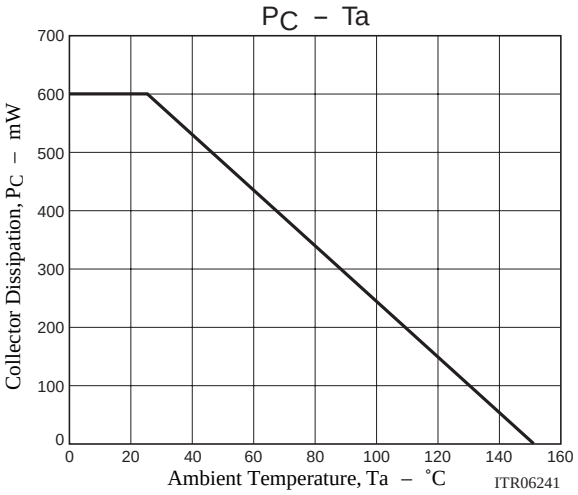












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