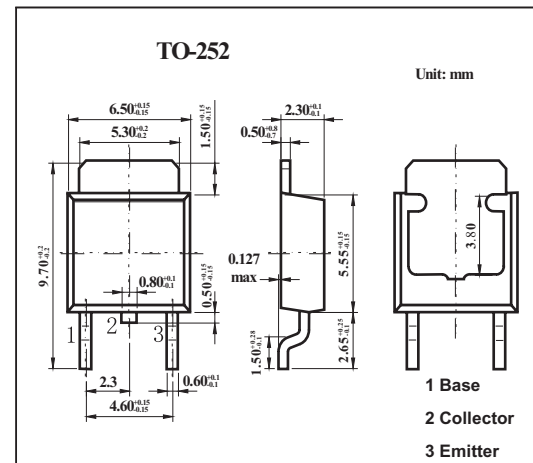


## NPN Triple Diffused Planar Silicon Transistor

## 2SC4003

## ■ Features

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

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

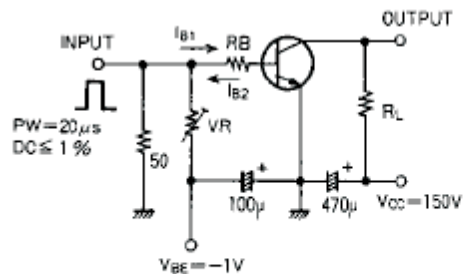
Parameter	Symbol	Rating	Unit
Collector to base voltage	$V_{CB0}$	400	V
Collector to emitter voltage	$V_{CE0}$	400	V
Emitter to base voltage	$V_{EB0}$	5	V
Collector current (DC)	$I_c$	200	mA
Collector current (Pulse)	$I_{cp}$	400	mA
Total Power dissipation $T_a = 25^\circ\text{C}$ $T_c = 25^\circ\text{C}$	$P_c$	1	W
		10	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

## 2SC4003

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
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
Output Capacitance	$C_{ob}$	$V_{CB}=30\text{V}, f=1\text{MHz}$		4		pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB}=30\text{V}, f=1\text{MHz}$		3		pF
Turn-ON Time	$t_{on}$	see specified Test Circuit		0.25		$\mu\text{s}$
Turn-OFF Time	$t_{off}$			5		$\mu\text{s}$

## ■ Switching Time Test Circuit

Unit (Resistance :  $\Omega$ , Capacitance : F)
 $10I_{B1} = -10I_{B2} = I_C = 50\text{mA}$   
 $R_L = 3\text{k}\Omega, R_B = 200\Omega$  at  $I_C = 50\text{mA}$ 

## ■ hFE Classification

Marking	D	E
hFE	60 to 120	100 to 200