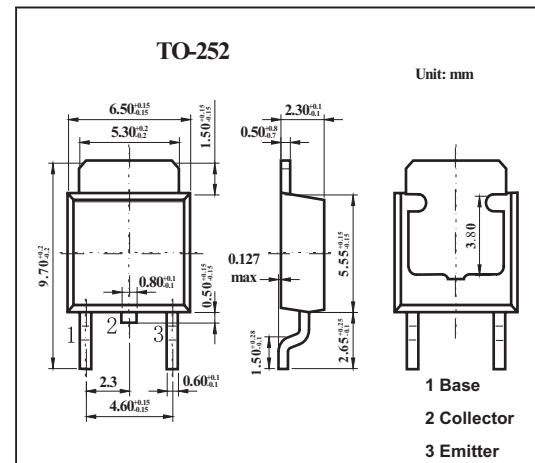


## NPN Epitaxial Planar Silicon Transistor

## 2SC4027

## ■ Features

- High voltage and large current capacity
- Adoption of MBIT process
- Fast switching time

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

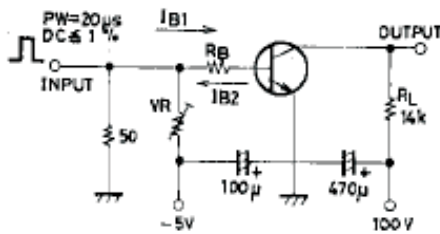
Parameter	Symbol	Rating	Unit
Collector to base voltage	$V_{CBO}$	180	V
Collector to emitter voltage	$V_{CEO}$	160	V
Emitter to base voltage	$V_{EBO}$	6	V
Collector current (DC)	$I_C$	1.5	A
Collector current (Pulse)	$I_{cp}$	2.5	A
Total Power dissipation $T_a = 25^\circ\text{C}$ $T_c = 25^\circ\text{C}$	$P_C$	1	W
		15	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

## 2SC4027

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
collector cutoff current	$I_{CBO}$	$V_{CB}=120V, I_E=0$			1.0	$\mu\text{A}$
emitter cutoff current	$I_{EBO}$	$V_{EB}=4V, I_C=0$			1.0	$\mu\text{A}$
DC current Gain	$h_{FE}$	$V_{CE}=5V, I_C=100\text{mA}$	100		400	
		$V_{CE}=5V, I_C=10\text{mA}$	80			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=50\text{mA}$		120		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1\text{MHz}$		12		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=50\text{mA}$		0.13	0.45	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=50\text{mA}, I_B=50\text{mA}$		0.85	1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	180			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	160			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6			V
Turn-ON Time	$t_{on}$	see specified Test Circuit		60		$\mu\text{s}$
Storage Time	$t_{stg}$			1.2		$\mu\text{s}$
Turn-OFF Time	$t_{off}$			80		$\mu\text{s}$

## ■ Switching Time Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 0.7A$   
For PNP, the polarity is reversed.

Unit (Resistance :  $\Omega$ , Capacitance : F)

■  $h_{FE}$  Classification

Marking	R	S	T
$h_{FE}$	100 to 120	140 to 280	200 to 400