

# 2SC4152

## Silicon NPN triple diffusion planar type

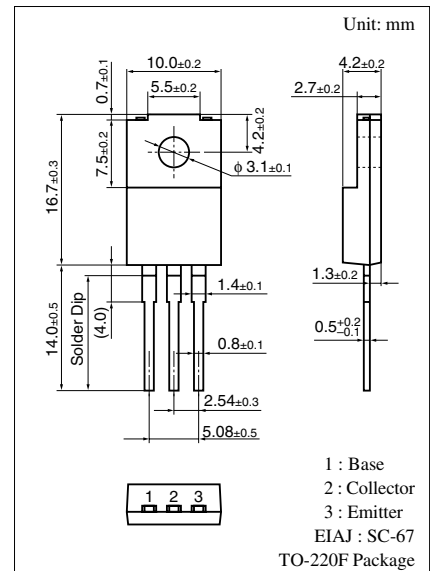
For high breakdown voltage high-speed switching

### ■ Features

- High-speed switching
- High collector to base voltage  $V_{CBO}$
- Wide area of safe operation (ASO)
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$
- Full-pack package which can be installed to the heat sink with one screw

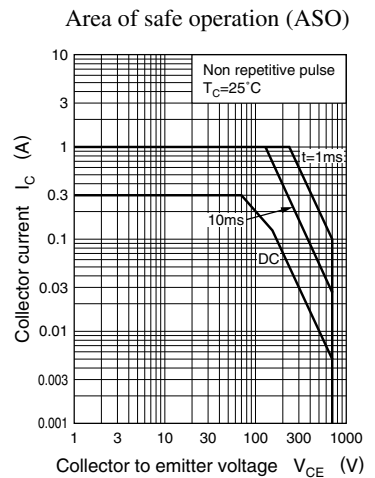
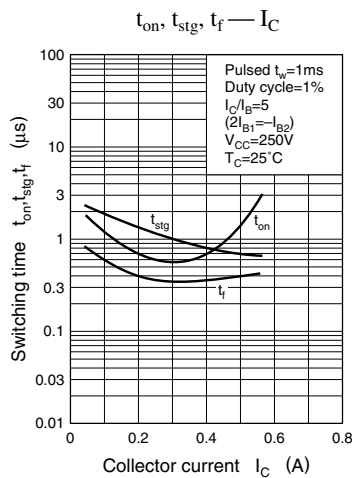
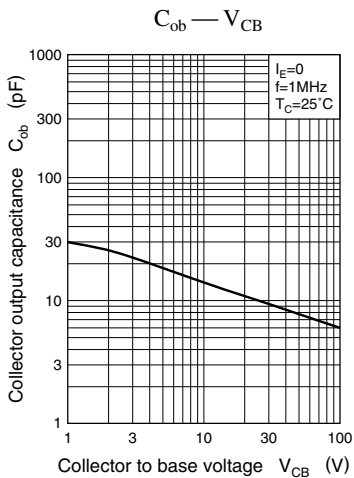
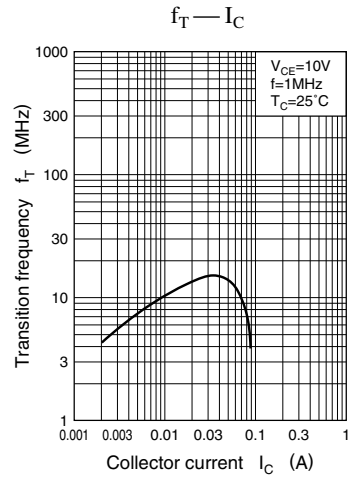
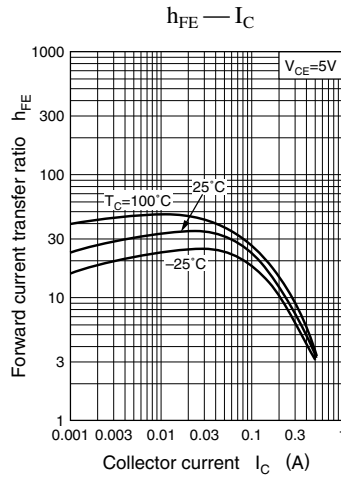
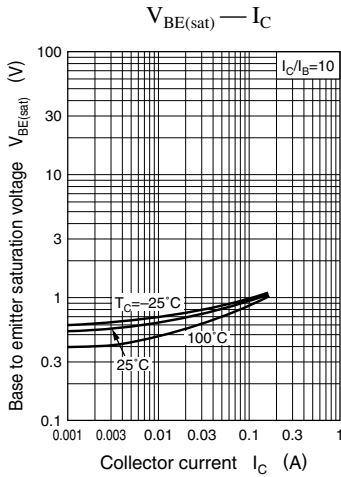
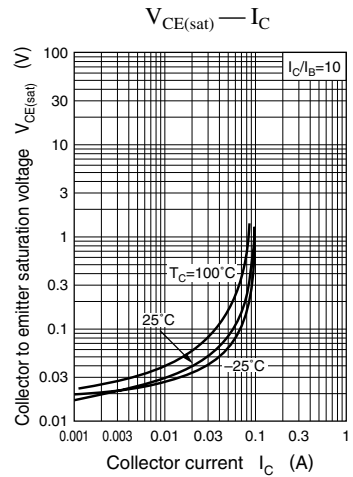
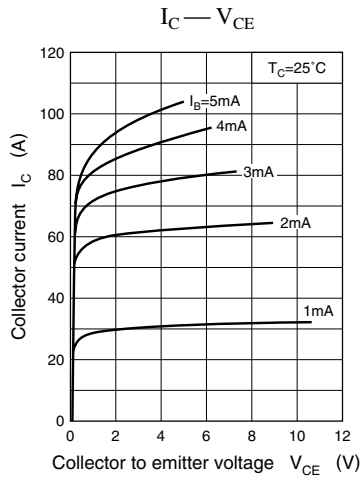
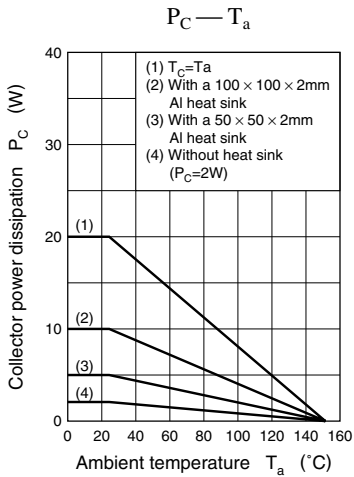
### ■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	
Collector to base voltage	$V_{CBO}$	1 400	V	
Collector to emitter voltage	$V_{CER}$	1 400	V	
	$V_{CEO}$	700	V	
Emitter to base voltage	$V_{EBO}$	5	V	
Peak collector current	$I_{CP}$	1.0	A	
Collector current	$I_C$	0.3	A	
Collector power dissipation	$T_C = 25^\circ\text{C}$	$P_C$	20	W
	$T_a = 25^\circ\text{C}$		2	
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	



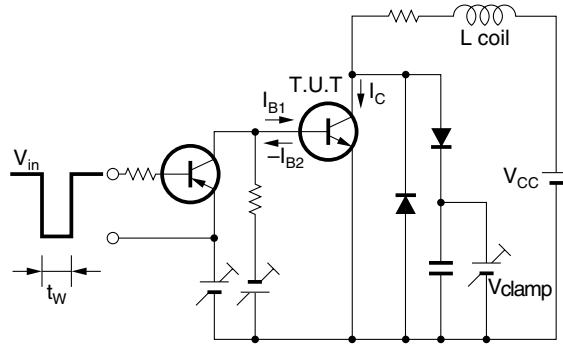
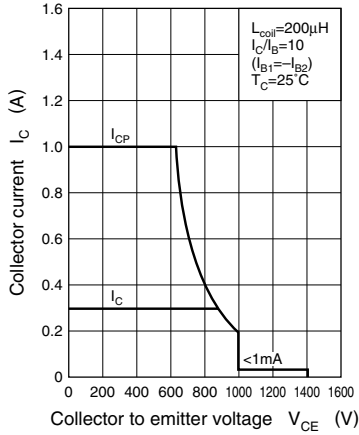
### ■ Electrical Characteristics $T_C = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 1\ 100\ \text{V}$ , $I_E = 0$			10	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 4\ \text{V}$ , $I_C = 0$			10	$\mu\text{A}$
Collector to emitter voltage	$V_{CER}$	$I_C = 1\ \text{mA}$ , $R_{BE} = 100\ \Omega$	1 400			V
	$V_{CEO}$	$I_C = 1\ \text{mA}$ , $I_B = 0$	700			V
Emitter to base voltage	$V_{EBO}$	$I_E = 1\ \text{mA}$ , $I_C = 0$	5			V
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 5\ \text{V}$ , $I_C = 30\ \text{mA}$	10		40	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 60\ \text{mA}$ , $I_B = 6\ \text{mA}$			2	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 60\ \text{mA}$ , $I_B = 6\ \text{mA}$			2	V
Transition frequency	$f_T$	$V_{CE} = 10\ \text{V}$ , $I_C = 30\ \text{mA}$ , $f = 1\ \text{MHz}$		12		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 100\ \text{V}$ , $I_E = 0$ , $f = 1\ \text{MHz}$		6		pF
Turn-on time	$t_{on}$	$I_C = 0.15\ \text{A}$ , $I_{B1} = 15\ \text{mA}$ , $I_{B2} = -30\ \text{mA}$ , $V_{CC} = 250\ \text{V}$			2	$\mu\text{s}$
Storage time	$t_{stg}$				3	$\mu\text{s}$
Fall time	$t_f$				1	$\mu\text{s}$

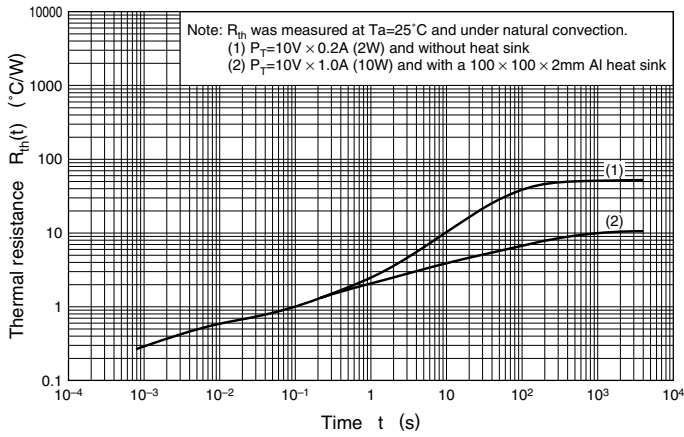


Area of safe operation, reverse bias ASO

Reverse bias ASO measuring circuit



$R_{th(t)} - t$



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