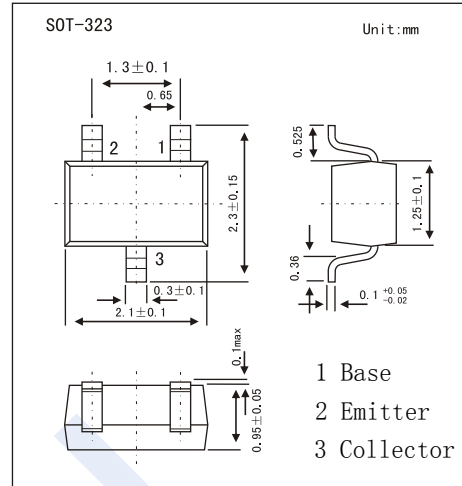


## NPN Transistors

## 2SC4102

## ■ Features

- High Breakdown Voltage
- Complementary to 2SA1579

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	120	V
Collector - Emitter Voltage	$V_{CE0}$	120	
Emitter - Base Voltage	$V_{EB0}$	5	
Collector Current - Continuous	$I_C$	50	mA
Collector Current - Pulse *1	$I_{cp}$	100	
Collector Power Dissipation *2	$P_C$	200	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 150	

\*1 :  $P_w=100\text{ms}$  Single Pulse

\*2 Each terminal mounted on a reference footprint

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_C = 100 \mu\text{A}, I_E = 0$	120			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_C = 1 \text{mA}, I_B = 0$	120			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}, I_C = 0$	5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 100\text{V}, I_E = 0$			0.5	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4\text{V}, I_C = 0$			0.5	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10 \text{mA}, I_B = 1\text{mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10 \text{mA}, I_B = 1\text{mA}$			1.2	
DC current gain	$h_{FE}$	$V_{CE} = 6\text{V}, I_C = 2\text{mA}$	180		560	
Collector output capacitance	$C_{ob}$	$V_{CB} = 12\text{V}, I_E = 0, f = 1\text{MHz}$		2.5		pF
Transition frequency	$f_T$	$V_{CE} = 12\text{V}, I_E = -2\text{mA}, f = 100\text{MHz}$		140		MHz

■ Classification of  $h_{FE}$ 

Type	2SC4102-R	2SC4102-S
Range	180-390	270-560
Marking	TR	TS

# NPN Transistors

## 2SC4102

■ Typical Characteristics

Fig.1 Ground Emitter Propagation Characteristics

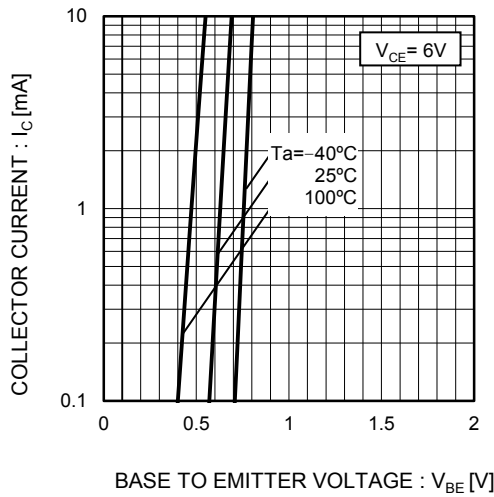


Fig.2 Typical Output Characteristics

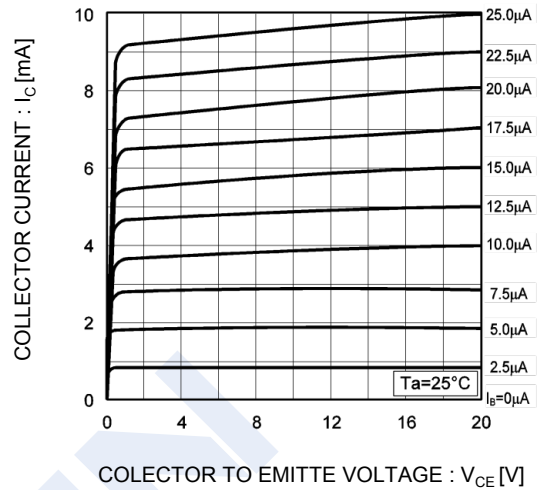


Fig.3 DC Current Gain vs. Collector Current(I)

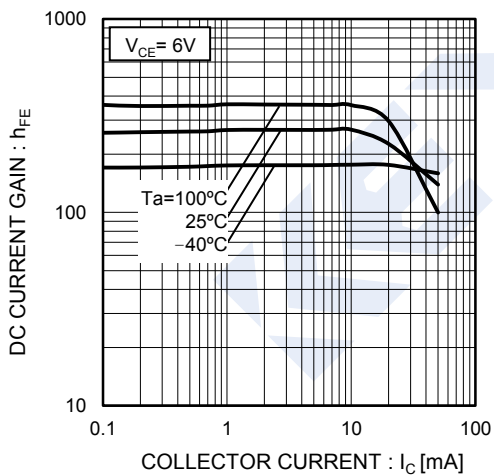


Fig.4 DC Current Gain vs. Collector Current(II)

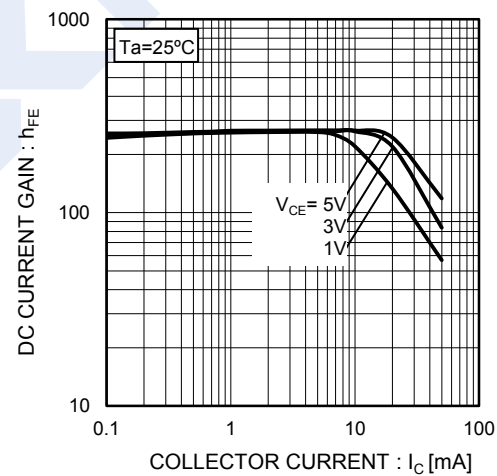


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

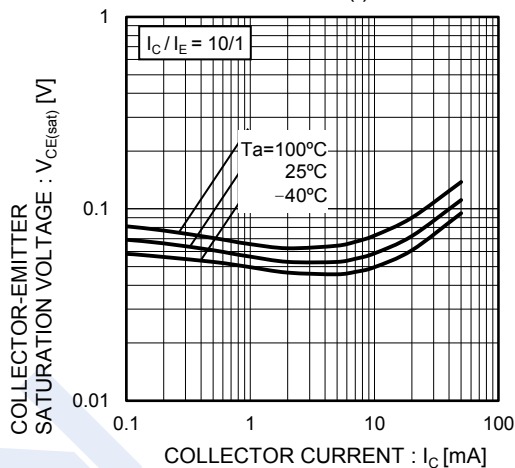
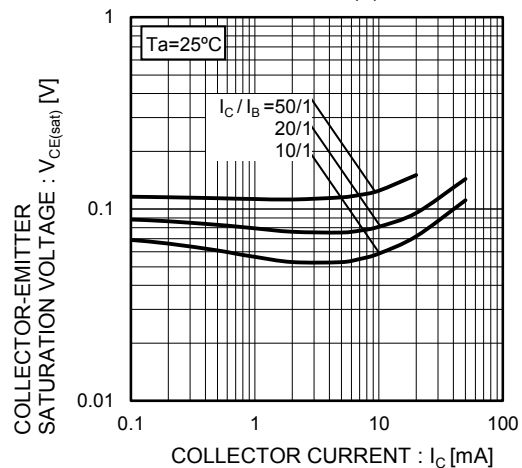


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)



## NPN Transistors

### 2SC4102

■ Typical Characteristics

Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

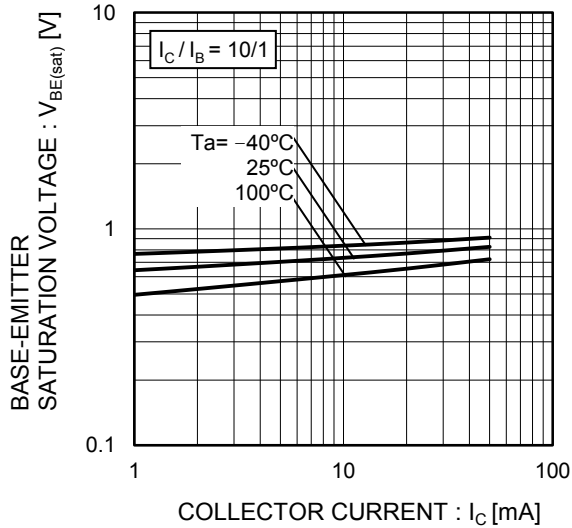


Fig.8 Gain Bandwidth Product vs. Emitter Current

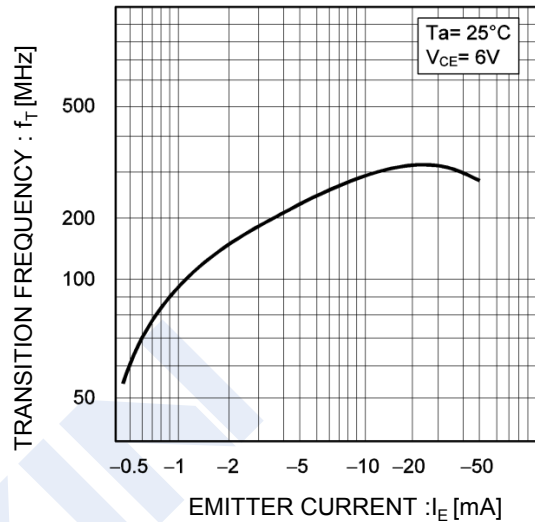


Fig.9 Emitter input capacitance vs. Emitter-Base Voltage  
Collector output capacitance vs. Collector-Base Voltage

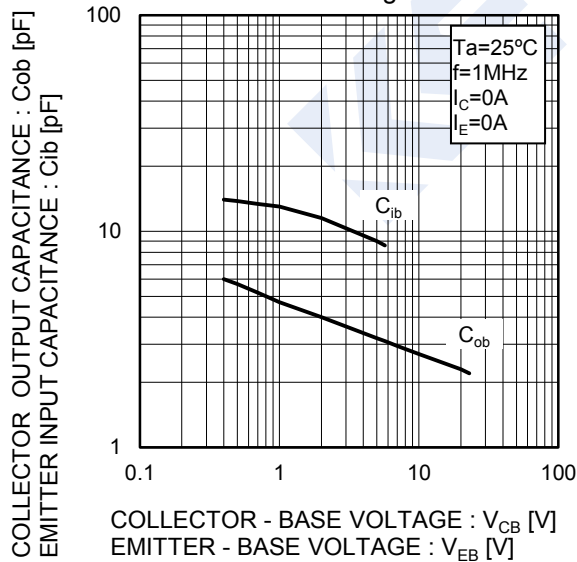


Fig.10 Safe Operating Area

