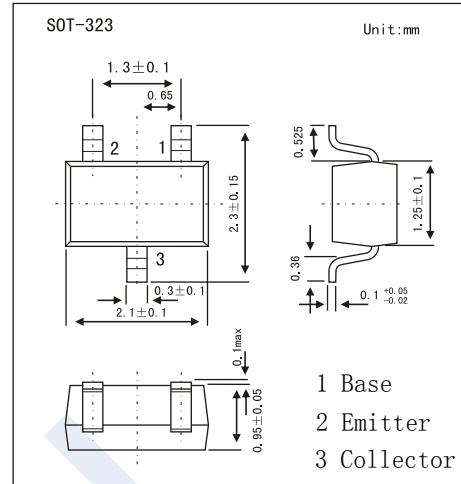


## NPN Transistors

## 2SC4180

## ■ Features

- High DC Current Gain
- Complementary to 2SA1612

■ 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 Power Dissipation	$P_C$	150	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 150	

■ 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	$I_{CB0}$	$V_{CB} = 120\text{V}, I_E = 0$			50	nA
Emitter cut-off current	$I_{EB0}$	$V_{EB} = 5\text{V}, I_C = 0$			50	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$			0.3	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$			1.2	
Base - emitter voltage	$V_{BE}$	$V_{CE} = 6\text{V}, I_C = 1 \text{ mA}$	0.55		0.65	
DC current gain	$h_{FE}$	$V_{CE} = 6\text{V}, I_C = 1 \text{ mA} \text{ *1}$	135		900	
		$V_{CE} = 6\text{V}, I_C = 0.1 \text{ mA}$	100			
Collector output capacitance	$C_{ob}$	$V_{CB} = 30\text{V}, I_E = 0, f = 1 \text{ MHz}$			2.5	pF
Transition frequency	$f_T$	$V_{CE} = 6\text{V}, I_C = 1 \text{ mA}$	50			MHz

\*1 :Pulse:  $P_w \leq 350 \mu\text{s}$  Duty Cycle  $\leq 2\%$

■ Classification of  $h_{fe}(1)$ 

Type	2SC4180-D15	2SC4180-D16	2SC4180-D17	2SC4180-D18
Range	135-270	200-400	300-600	450-900
Marking	D15	D16	D17	D18