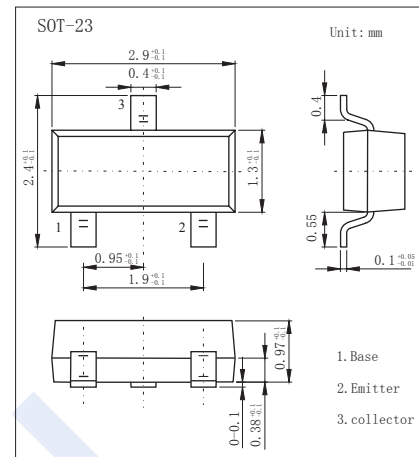


NPN Transistors

2SC4104

■ Features

- High f_r
- Small reverse transfer capacitance
- Complementary to 2SA1580



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	70	V
Collector - Emitter Voltage	V_{CE0}	60	
Emitter - Base Voltage	V_{EB0}	4	
Collector Current - Continuous	I_C	50	mA
Peak Collector Current	I_{CP}	100	
Collector Power Dissipation	P_C	200	mW
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}	$I_C = 100 \mu\text{A}, I_E = 0$	70			V
Collector-emitter breakdown voltage	V_{CE0}	$I_C = 1 \text{ mA}, I_B = 0$	60			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu\text{A}, I_C = 0$	4			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 40 \text{ V}, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 3 \text{ V}, I_C = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 20 \text{ mA}, I_B = 2 \text{ mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 20 \text{ mA}, I_B = 2 \text{ mA}$			1	
DC current gain	h_{FE}	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$	60		270	
Base-collector time constant	r_{bb}, C_c	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$		8		ps
Reverse transfer capacitance	C_{re}	$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$		1		pF
Output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$		1.3		
Transition frequency	f_r	$V_{CE} = 10 \text{ V}, I_E = 10 \text{ mA}$	350	700		MHz

■ Classification of h_{FE}

Marking	YY3	YY4	YY5
Range	60-120	90-180	135-270