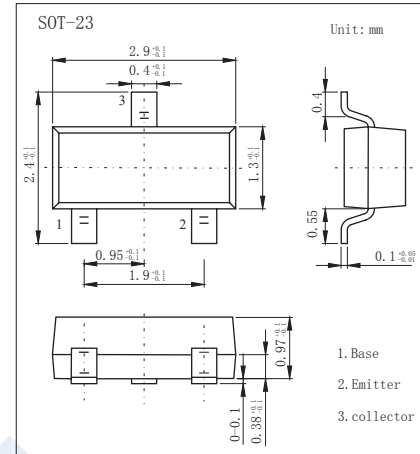


## NPN Transistors

### 2SC1654

#### ■ Features

- Collector Current Capability  $I_c=50\text{mA}$
- Collector Emitter Voltage  $V_{CE0}=160\text{V}$



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	180	V
Collector - Emitter Voltage	$V_{CE0}$	160	
Emitter - Base Voltage	$V_{EB0}$	5	
Collector Current - Continuous	$I_c$	50	mA
Collector Power Dissipation	$P_c$	150	mW
Junction Temperature	$T_J$	125	°C
Storage Temperature Range	$T_{stg}$	-55 to 125	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_c = 100 \mu\text{A}, I_E = 0$	180			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_c = 1 \text{mA}, I_B = 0$	160			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}, I_C = 0$	5			
Collector-base cut-off current	$I_{CB0}$	$V_{CB} = 160 \text{V}, I_E = 0$			0.1	uA
Emitter cut-off current	$I_{EB0}$	$V_{EB} = 5 \text{V}, I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = 50 \text{mA}, I_B = 5 \text{mA}$			0.3	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = 50 \text{mA}, I_B = 5 \text{mA}$			1	
DC current gain	$h_{FE}$	$V_{CE} = 3 \text{V}, I_c = 1 \text{mA}$	70			
		$V_{CE} = 3 \text{V}, I_c = 15 \text{mA}$	90		400	
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 \text{V}, I_E = 0, f = 1 \text{MHz}$		2.3		pF
Transition frequency	$f_T$	$V_{CE} = 10 \text{V}, I_E = -10 \text{mA}$		120		MHz

#### ■ Classification of $h_{FE}(2)$

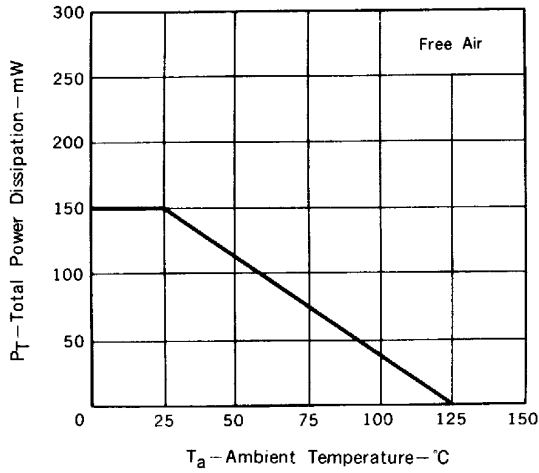
Type	2SC1654-N5	2SC1654-N6	2SC1654-N7
Range	90-180	135-270	200-400
Marking	N5	N6	N7

### NPN Transistors

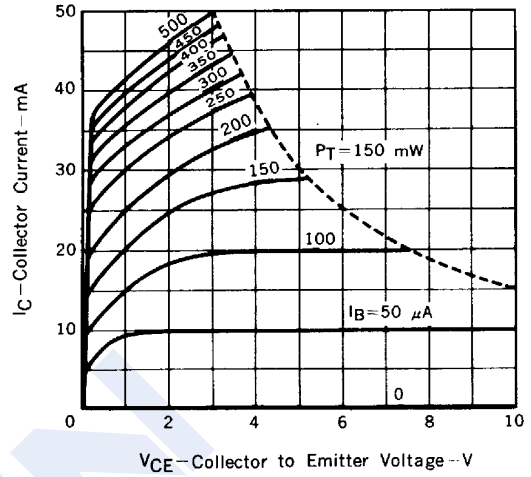
## 2SC1654

■ Typical Characteristics

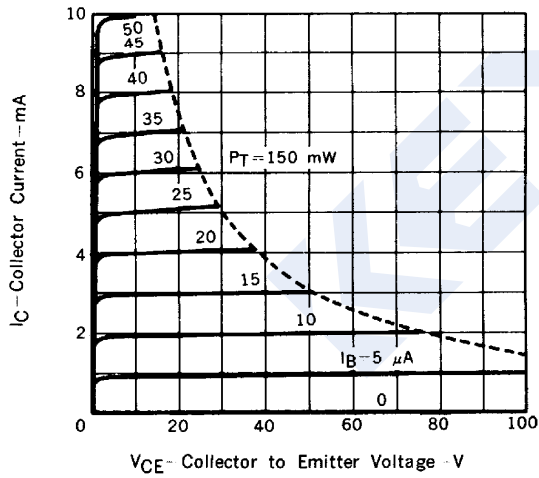
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



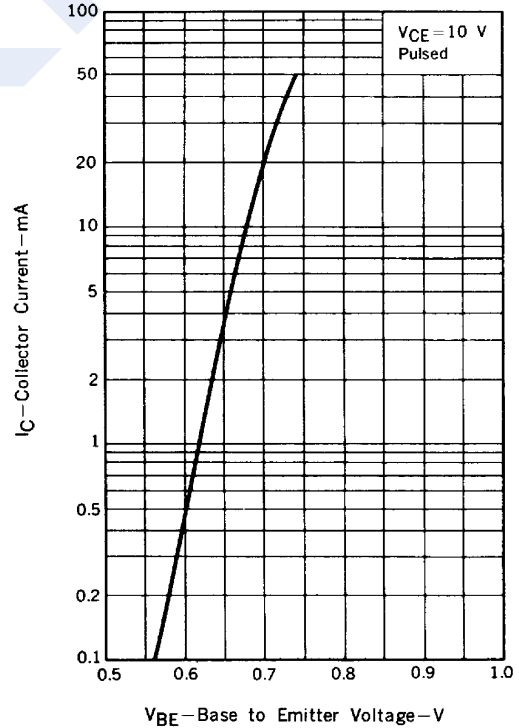
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



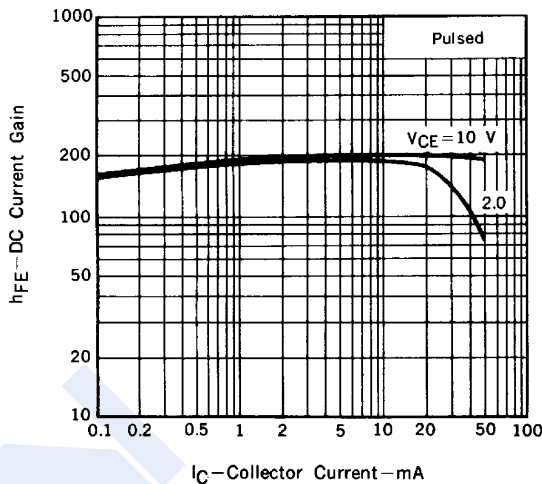
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT



# NPN Transistors

## 2SC1654

■ Typical Characteristics

