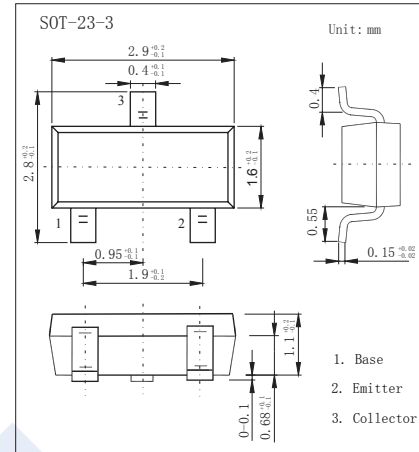


## NPN Transistors

### 2SD814-HF

#### ■ Features

- High collector to emitter voltage  $V_{CE0}$ .
- Low noise voltage  $NV$ .
- Complimentary to 2SB792-HF
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	150	V
Collector - Emitter Voltage	$V_{CE0}$	150	
Emitter - Base Voltage	$V_{EB0}$	5	
Collector Current - Continuous	$I_c$	50	mA
Collector Current - Pulse	$I_{cp}$	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	$V_{CB0}$	$I_c = 100 \mu\text{A}, I_E = 0$	150			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_c = 1 \text{mA}, I_B = 0$	150			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}, I_C = 0$	5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 100 \text{V}, I_E = 0$			100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4 \text{V}, I_C = 0$			100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = 30 \text{mA}, I_B = 3 \text{mA}$			1	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = 30 \text{mA}, I_B = 3 \text{mA}$			1.2	
DC current gain	$h_{FE}$	$V_{CE} = 5 \text{V}, I_c = 10 \text{mA}$	90		330	
Noise voltage	$NV$	$V_{CE} = 10 \text{V}, I_c = 1 \text{mA}, G_v = 80 \text{dB}$ $R_g = 100 \text{k}\Omega, \text{Function} = \text{FLAT}$		150		mV
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 \text{V}, I_E = 0, f = 1 \text{MHz}$		2.3		pF
Transition frequency	$f_T$	$V_{CE} = 10 \text{V}, I_E = -10 \text{mA}, f = 200 \text{MHz}$		150		MHz

#### ■ Classification of $h_{fe}$

Type	2SD814-Q-HF	2SD814-R-HF	2SD814-S-HF
Range	90-155	130-220	185-330
Marking	PQ <sub>F</sub>	PR <sub>F</sub>	PS <sub>F</sub>

### NPN Transistors

### 2SD814-HF

■ Typical Characteristics

