

## NPN Transistors

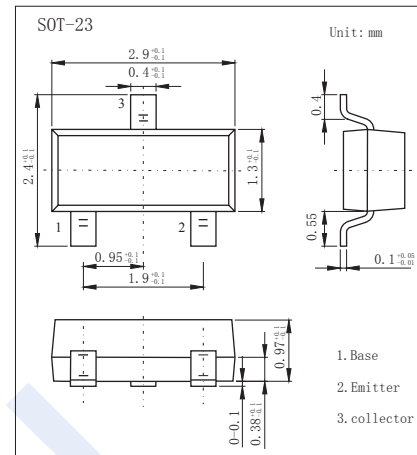
### 2SD601A-HF

#### ■ Features

- High  $h_{FE}$
- Low  $V_{CE(sat)}$
- For general amplification
- Complimentary to 2SB709A-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	$V_{CBO}$	60	V
Collector - Emitter Voltage	$V_{CEO}$	50	
Emitter - Base Voltage	$V_{EBO}$	7	
Collector Current - Continuous	$I_C$	100	mA
Collector Power Dissipation	$P_C$	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
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	$V_{CBO}$	$I_C = 100 \mu\text{A}, I_E = 0$	60			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = 2 \text{ mA}, I_B = 0$	50			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 100 \mu\text{A}, I_C = 0$	7			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 50 \text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Collector-emitter cut-off current	$I_{CEO}$	$V_{CE} = 30 \text{ V}, I_B = 0$			100	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5 \text{ V}, I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$			0.3	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$			1.2	
DC current gain	$h_{FE(1)}$	$V_{CE} = 2 \text{ V}, I_C = 100 \text{ mA}$	90			
	$h_{FE(2)}$	$V_{CE} = 10 \text{ V}, I_C = 2 \text{ mA}$	160		460	
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		3.5		pF
Transition frequency	$f_T$	$V_{CE} = 10 \text{ V}, I_C = 2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz

#### ■ Classification of $h_{FE(2)}$

Type	2SD601A-Q-HF	2SD601A-R-HF	2SD601A-S-HF
Range	160-260	210-340	290-460
Marking	ZQ <sub>F</sub>	ZR <sub>F</sub>	ZS <sub>F</sub>