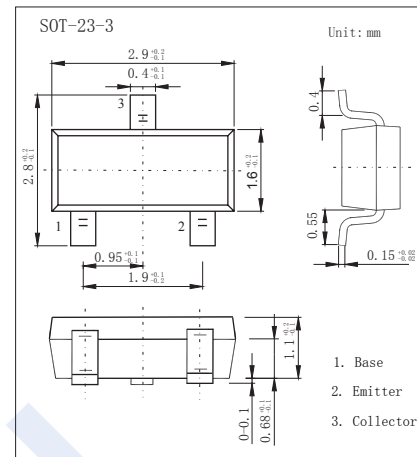


## PNP Transistors

### 2SA1163-HF

#### ■ Features

- High voltage:  $V_{CEO} = -120\text{ V}$
- High  $h_{FE}$ :  $h_{FE} = 200\sim 700$
- Low noise:  $NF = 1\text{ dB (typ.)}$ ,  $10\text{ dB (max)}$
- Small package
- Complementary to 2SC2713-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	$V_{CBO}$	-120	V
Collector - Emitter Voltage	$V_{CEO}$	-120	
Emitter - Base Voltage	$V_{EBO}$	-5	
Collector Current - Continuous	$I_C$	-100	mA
Base Current	$I_B$	-20	
Collector Power Dissipation	$P_C$	150	W
Junction Temperature	$T_J$	125	$^\circ\text{C}$
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	$V_{CBO}$	$I_C = -100\ \mu\text{A}$ , $I_E = 0$	-120			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = -1\ \text{mA}$ , $I_B = 0$	-120			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = -100\ \mu\text{A}$ , $I_C = 0$	-5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = -120\ \text{V}$ , $I_E = 0$			-100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\ \text{V}$ , $I_C = 0$			-100	
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	
DC current gain	$h_{FE}$	$V_{CE} = -6\ \text{V}$ , $I_C = -2\ \text{mA}$	200		700	
Noise figure	NF	$V_{CE} = -6\ \text{V}$ , $I_C = -0.1\ \text{mA}$ , $f = 1\ \text{kHz}$ , $R_g = 10\ \text{k}\Omega$ ,		1	10	dB
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\ \text{V}$ , $I_E = 0$ , $f = 1\ \text{MHz}$		4		pF
Transition frequency	$f_T$	$V_{CE} = -6\ \text{V}$ , $I_C = -1\ \text{mA}$		100		MHz

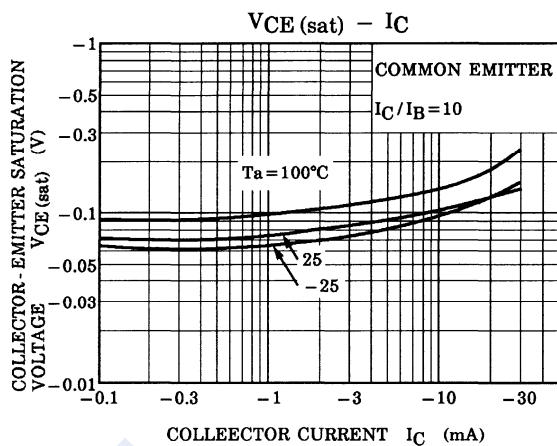
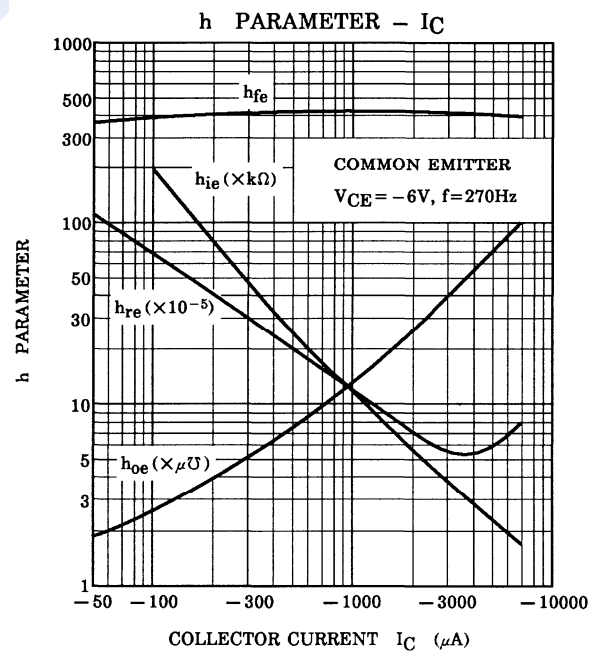
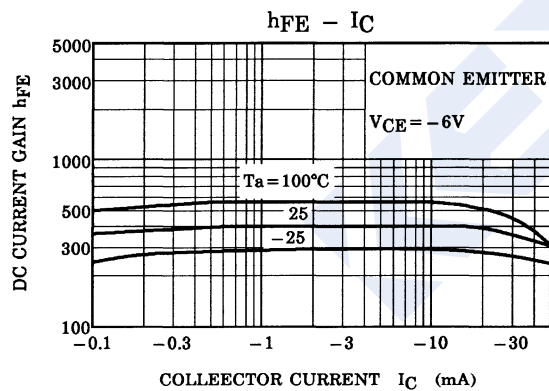
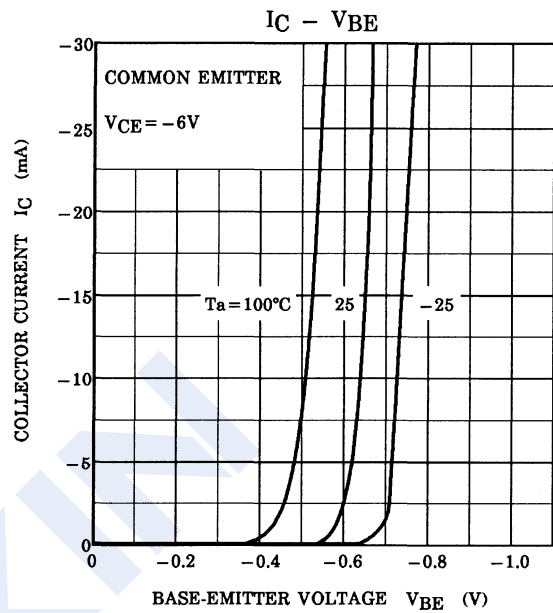
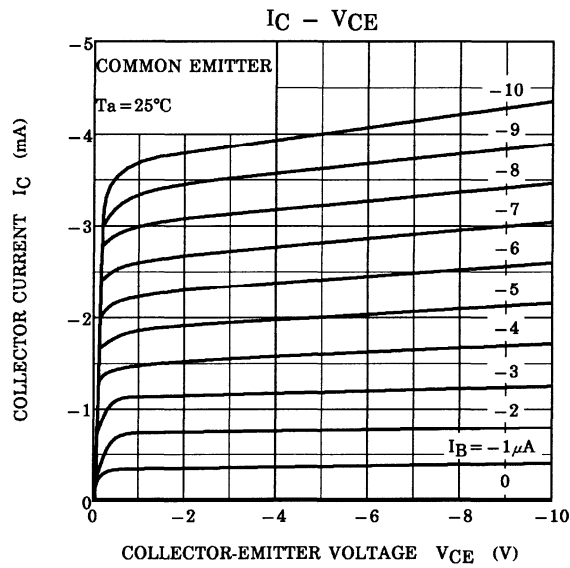
#### ■ Classification of $h_{FE}$

Type	2SA1163-G-HF	2SA1163-L-HF
Range	200-400	350-700
Marking	CG <sub>F</sub>	CL <sub>F</sub>

# PNP Transistors

## 2SA1163-HF

■ Typical Characteristics



# PNP Transistors

## 2SA1163-HF

■ Typical Characteristics

