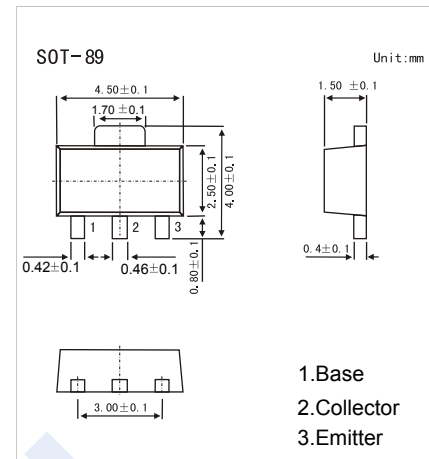


## PNP Transistors

### 2SA1418-HF

#### ■ Features

- Adoption of FBET, MBIT Processes
- High Breakdown Voltage and Large Current Capacity
- Fast Switching Speed
- Complementary to 2SC3648-HF
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



#### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	-180	V
Collector - Emitter Voltage	V <sub>CEO</sub>	-160	
Emitter - Base Voltage	V <sub>EB0</sub>	-6	
Collector Current - Continuous	I <sub>C</sub>	-0.7	A
Collector Current - Pulsed	I <sub>CP</sub>	-1.5	
Collector Power Dissipation	P <sub>C</sub>	500	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature range	T <sub>stg</sub>	-55 to 150	

#### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Collector- base breakdown voltage	V <sub>CB0</sub>	I <sub>C</sub> = -100 μA, I <sub>E</sub> =0	-180			V	
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>C</sub> = -1 mA, R <sub>BE</sub> =∞	-160				
Emitter - base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = -100 μA, I <sub>C</sub> =0	-6				
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = -120 V, I <sub>E</sub> =0			-0.1	μA	
Emitter cut-off current	I <sub>EB0</sub>	V <sub>EB</sub> = -4V, I <sub>C</sub> =0			-0.1		
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =-250mA, I <sub>B</sub> =- 25mA		-0.2	-0.5	V	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =-250mA, I <sub>B</sub> =- 25mA		-0.85	-1.2		
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -100mA	100		400		
Turn-on time	t <sub>on</sub>	See Test Circuit.		60		ns	
Storage time	t <sub>s</sub>				900		
Fall time	t <sub>f</sub>				60		
Output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10V, I <sub>E</sub> = 0, f=1MHz		11		pF	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -10V, I <sub>E</sub> = -50mA		120		MHz	

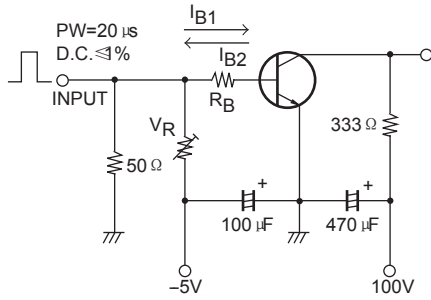
#### ■ Classification of h<sub>FE</sub>

Type	2SA1418-R-HF	2SA1418-S-HF	2SA1418-T-HF
Range	100-200	140-280	200-400
Marking	ADR* <sub>F</sub>	ADS* <sub>F</sub>	ADT* <sub>F</sub>

### PNP Transistors

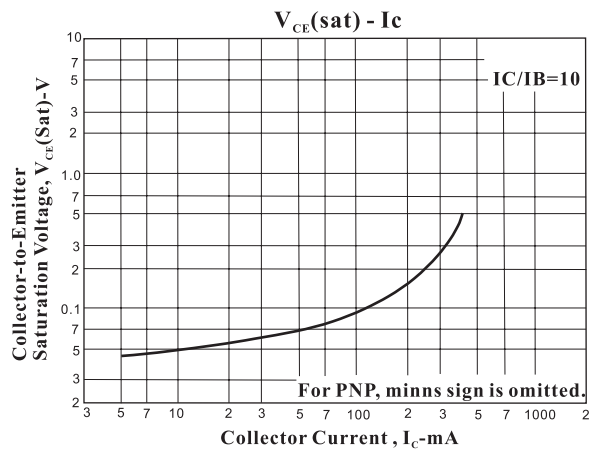
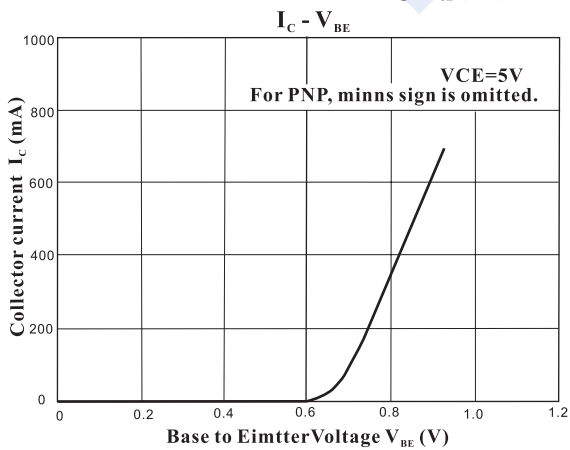
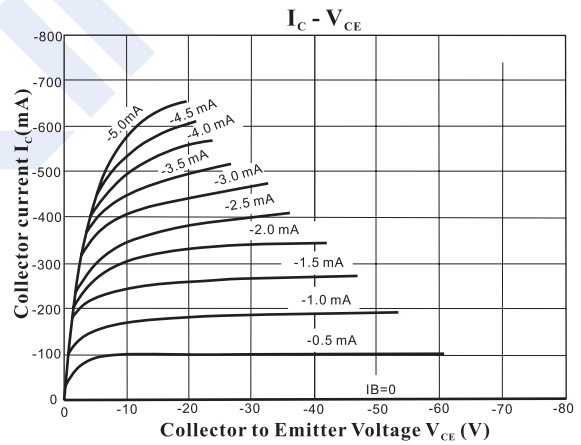
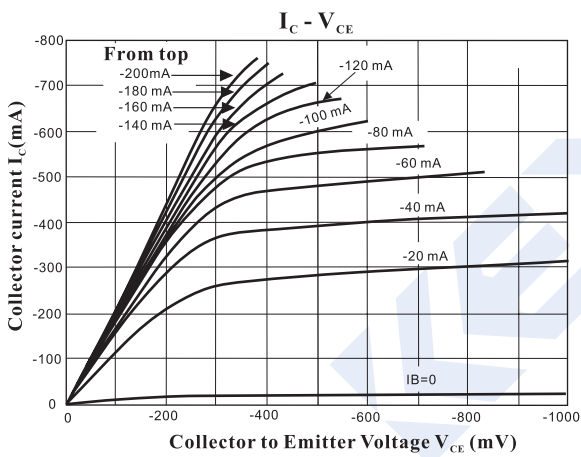
### 2SA1418-HF

■ Test Circuit



$I_C = 20I_{B1} = -20I_{B2} = 300\text{mA}$   
 (For PNP, the polarity is reversed)

■ Typical Characteristics



### PNP Transistors

### 2SA1418-HF

■ Typical Characteristics

