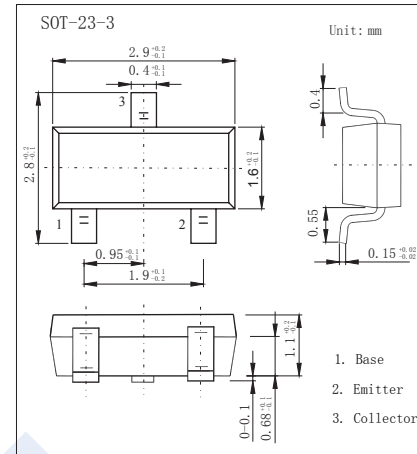


## PNP Transistors

## 2SA1338-HF

## ■ Features

- Adoption of FBET process.
- High breakdown voltage :  $V_{CEO}=-50V$ .
- Large current capacity and high fr.
- Ultrasmall-sized package permitting sets to be small sized, slim.
- Complementary to 2SC3392-HF
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish

■ Absolute Maximum Ratings  $T_a = 25^\circ C$ 

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-60	V
Collector-emitter voltage	$V_{CEO}$	-50	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-500	mA
Collector current (pulse)	$I_{CP}$	-800	mA
Collector dissipation	$P_C$	200	mW
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$

■ Electrical Characteristics  $T_a = 25^\circ C$ 

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_C = -100 \mu A, I_E = 0$	-60			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = -1 mA, I_B = 0$	-50			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = -100 \mu A, I_C = 0$	-5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = -40 V, I_E = 0$			-100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -4 V, I_C = 0$			-100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100 mA, I_B = -10 mA$		0.15	0.4	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = -100 mA, I_B = -10 mA$		0.8	1.2	
DC current gain	$h_{FE}$	$V_{CE} = -5V, I_C = -10mA$	100		560	
Turn-on time	$t_{on}$	$V_{CC} = -20V, I_C = -10 _{B1} = -10 _{B2} = 100mA$		70		ns
Storage time	$t_{stg}$			400		
Fall time	$t_r$			50		
Common base output capacitance	$C_{ob}$	$V_{CB} = -10V, f = 1MHz$		5.6		pF
Transition frequency	$f_T$	$V_{CE} = -10V, I_C = -50mA$		200		MHz

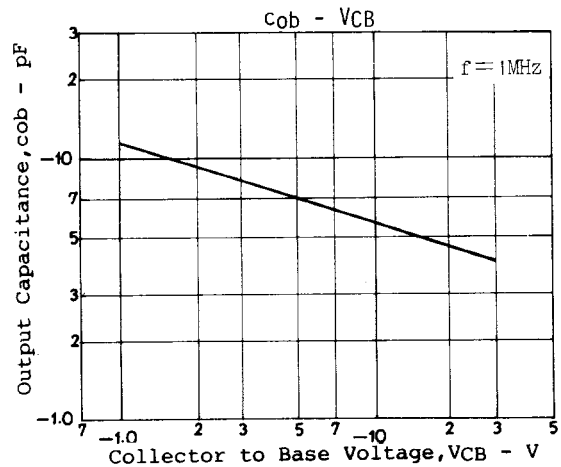
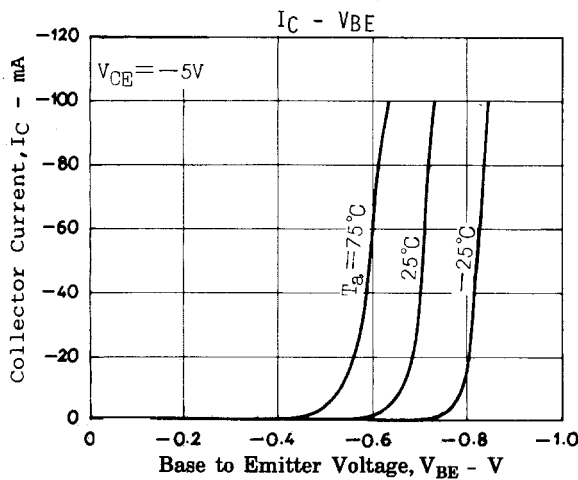
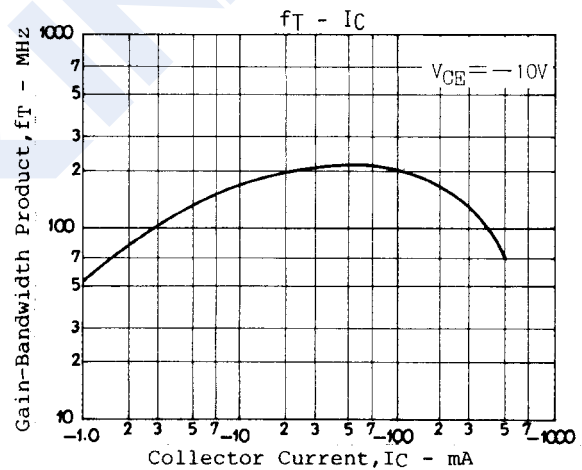
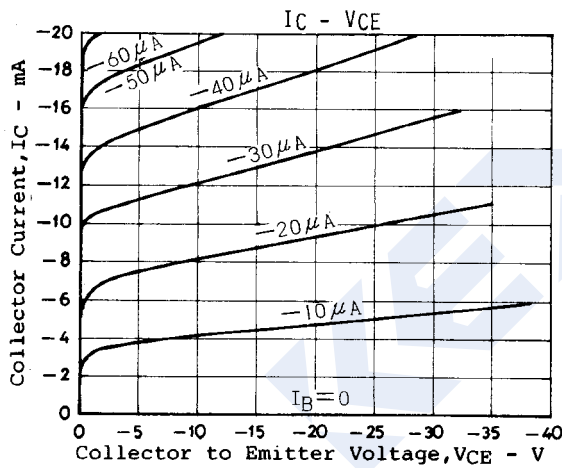
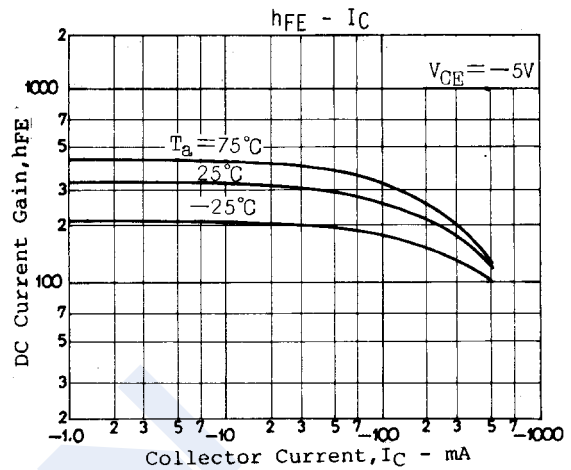
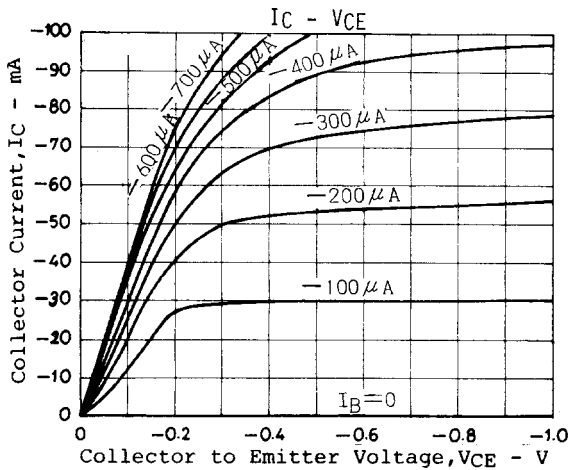
■ Classification of  $h_{FE}$ 

Type	2SA1338-AL4-HF	2SA1338-AL5-HF	2SA1338-AL6-HF	2SA1338-AL7-HF
Range	100-200	140-280	200-400	280-560
Marking	AL4 <sub>F</sub>	AL5 <sub>F</sub>	AL6 <sub>F</sub>	AL7 <sub>F</sub>

### PNP Transistors

### 2SA1338-HF

■ Typical Characteristics



### PNP Transistors

### 2SA1338-HF

■ Typical Characteristics

