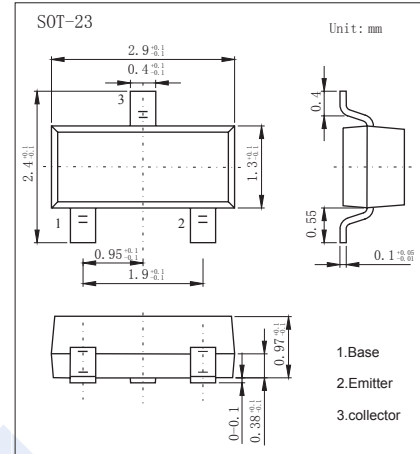


## NPN Transistors

### BFS17-HF (KFS17-HF)

#### ■ Features

- Collector Current Capability  $I_C=25\text{mA}$
- Collector Emitter Voltage  $V_{CE0}=15\text{V}$
- 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	$V_{CBO}$	25	V
Collector - Emitter Voltage	$V_{CEO}$	15	
Emitter - Base Voltage	$V_{EBO}$	2.5	
Collector Current - Continuous	$I_C$	25	mA
Collector Current - Pulse	$I_{CP}$	50	
Collector Power Dissipation	$P_C$	300	mW
Thermal Resistance From Junction to Soldering Point	$R_{\theta JS}$	260	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to 150	

#### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_C = 100 \mu\text{A}, I_E = 0$	25			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = 1 \text{mA}, I_B = 0$	15			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 100 \mu\text{A}, I_C = 0$	2.5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 25 \text{V}, I_E = 0$			100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 2.5 \text{V}, I_C = 0$			100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 25 \text{mA}, I_B = 2.5 \text{mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 25 \text{mA}, I_B = 2.5 \text{mA}$			1.2	
DC current gain	$h_{FE}$	$V_{CE} = 1 \text{V}, I_C = 2 \text{mA}$	25	90		
		$V_{CE} = 1 \text{V}, I_C = 25 \text{mA}$	25	90		
Collector Capacitance	$C_C$	$V_{CB} = 10 \text{V}, I_E = I_C = 0, f = 1 \text{MHz}$			1.5	pF
Emitter Capacitance	$C_e$	$V_{EB} = 0.5 \text{V}, I_C = I_E = 0, f = 1 \text{MHz}$			2	
Feedback Capacitance	$C_{re}$	$V_{CE} = 5 \text{V}, I_C = 1 \text{mA}, f = 1 \text{MHz}$		0.65		
Noise Figure	NF	$V_{CE} = 5 \text{V}, I_C = 2 \text{mA}, R_s = 50 \Omega, f = 500 \text{MHz}$		4.5		dB
Transition frequency	$f_t$	$V_{CE} = 5 \text{V}, I_C = 2 \text{mA}, f = 500 \text{MHz}$		1		GHz
		$V_{CE} = 5 \text{V}, I_C = 25 \text{mA}, f = 500 \text{MHz}$		1.6		

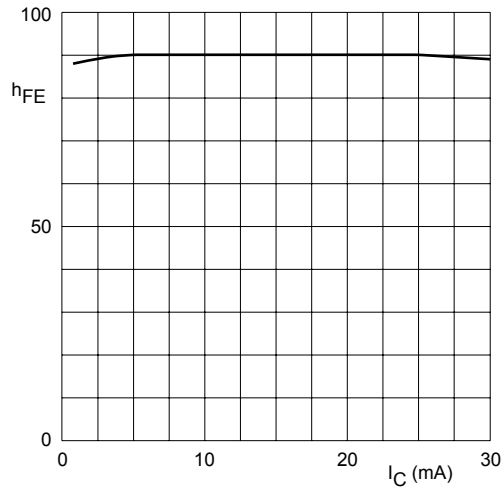
#### ■ Marking

Marking	E1* F
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## NPN Transistors

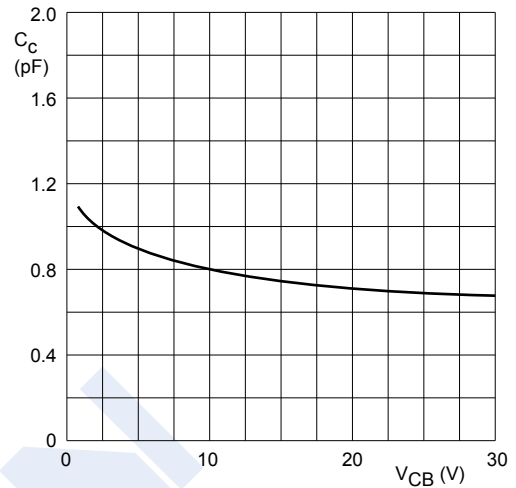
### BFS17-HF (KFS17-HF)

#### ■ Typical Characteristics



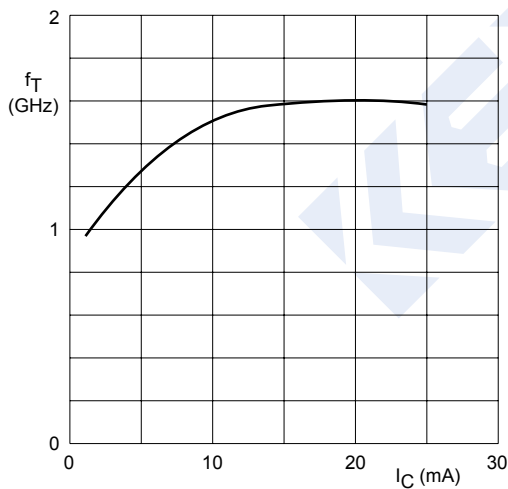
$V_{CE} = 1 \text{ V}$ ;  $T_j = 25 \text{ }^\circ\text{C}$ .

Fig.2 DC current gain as a function of collector current.



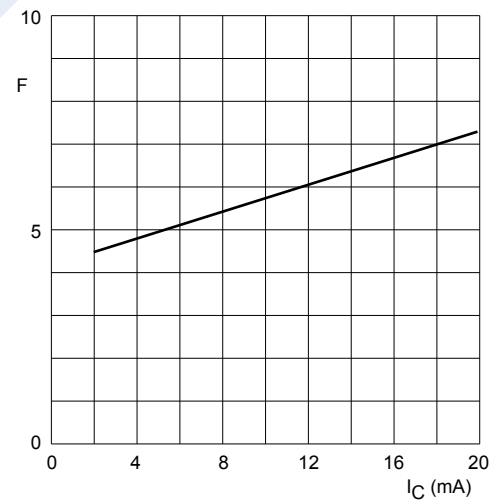
$I_E = I_B = 0$ ;  $f = 1 \text{ MHz}$ ;  $T_j = 25 \text{ }^\circ\text{C}$ .

Fig.3 Collector capacitance as a function of collector-base voltage.



$V_{CE} = 5 \text{ V}$ ;  $f = 500 \text{ MHz}$ ;  $T_j = 25 \text{ }^\circ\text{C}$ .

Fig.4 Transition frequency as a function of collector current.



$V_{CE} = 5 \text{ V}$ ;  $R_S = 50 \text{ } \Omega$ ;  $f = 500 \text{ MHz}$ ;  $T_j = 25 \text{ }^\circ\text{C}$ .

Fig.5 Minimum noise figure as a function of collector current.