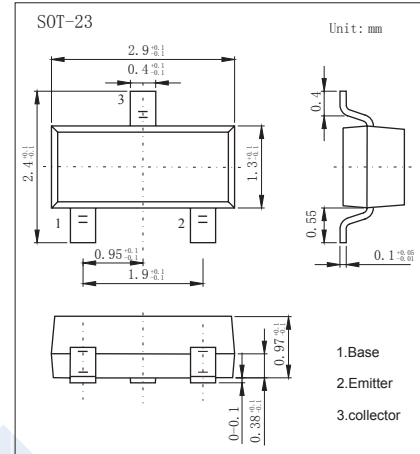


NPN Transistors

BFS17-HF (KFS17-HF)

■ Features

- Collector Current Capability $I_C=25\text{mA}$
- Collector Emitter Voltage $V_{CEO}=15\text{V}$
- 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		

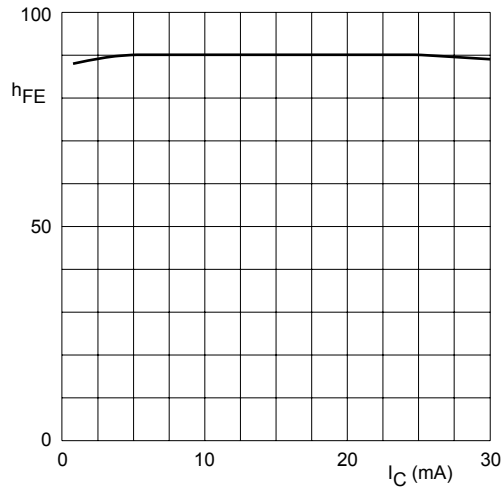
■ Marking

Marking	E1* F
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NPN Transistors

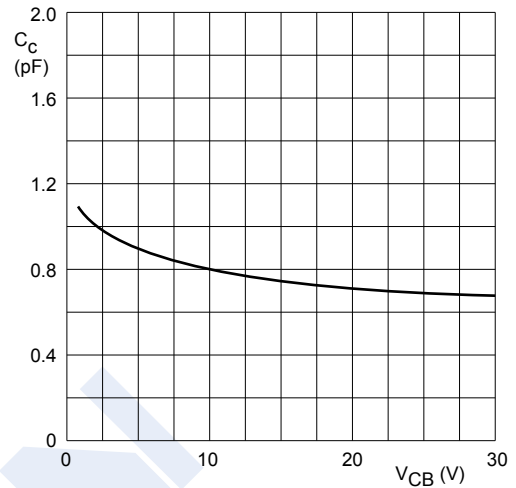
BFS17-HF (KFS17-HF)

■ Typical Characteristics



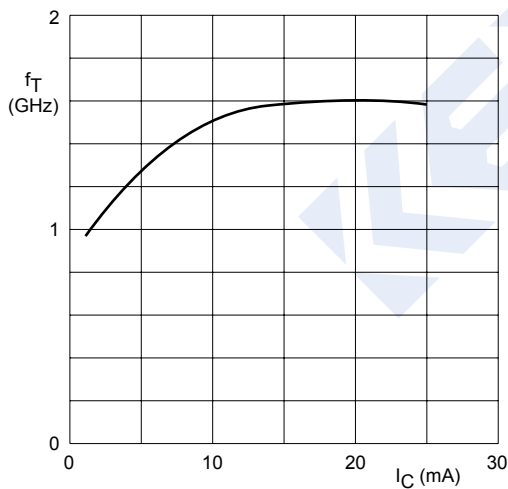
$V_{CE} = 1 \text{ V}$; $T_j = 25 \text{ }^\circ\text{C}$.

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



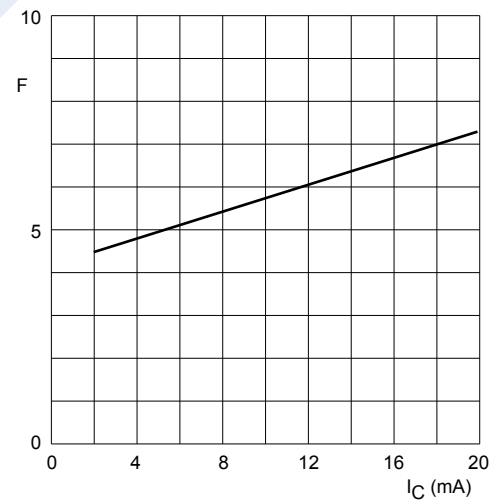
$I_E = I_B = 0$; $f = 1 \text{ MHz}$; $T_j = 25 \text{ }^\circ\text{C}$.

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.