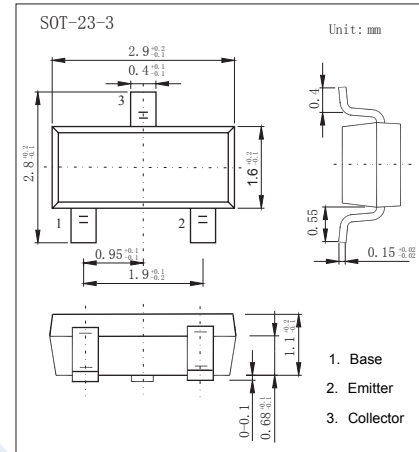


NPN Transistors

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 $T_a = 25^\circ\text{C}$

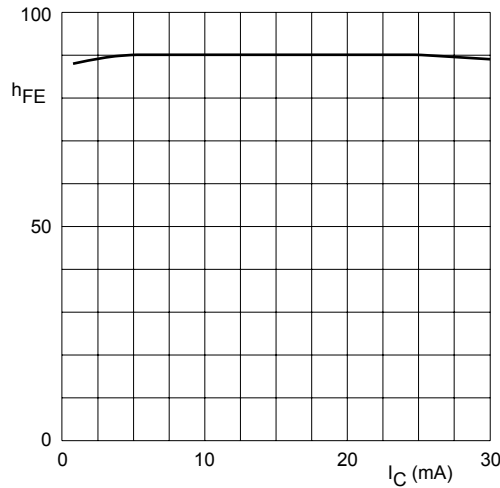
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|-----|------|-----|------|
| Collector- base breakdown voltage | V_{CBO} | $I_C = 100 \mu\text{A}, I_E = 0$ | 25 | | | V |
| Collector- emitter breakdown voltage | V_{CEO} | $I_C = 1 \text{mA}, I_B = 0$ | 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 |
|---------|-------|

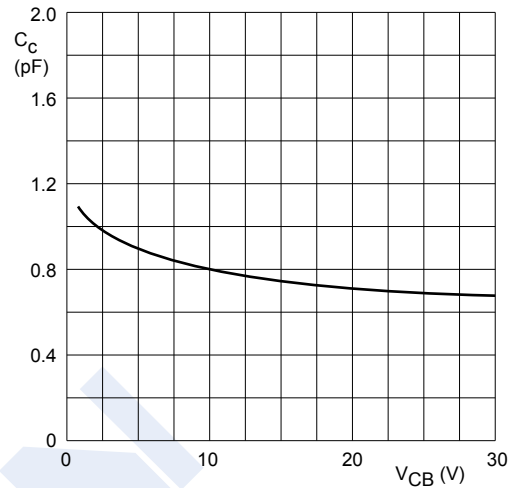
NPN Transistors BFS17-HF (KFS17-HF)

■ Typical Characteristics



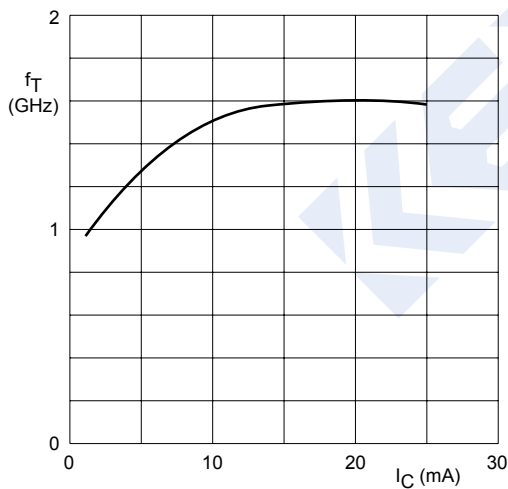
$V_{CE} = 1\text{ V}; T_j = 25\text{ }^\circ\text{C}.$

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



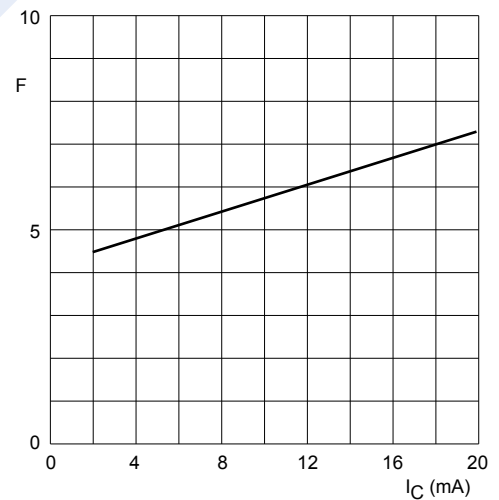
$I_E = I_B = 0; f = 1\text{ MHz}; T_j = 25\text{ }^\circ\text{C}.$

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.



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

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