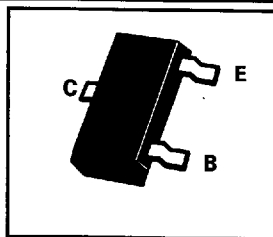


# SOT23 NPN SILICON PLANAR RF TRANSISTORS

ISSUE 3 - JANUARY 1996

**BFS17**  
**BFS17L**  
**BFS17H**

PARTMARKING DETAILS — BFS17 - E1  
BFS17L - E1L  
BFS17H - E1H



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | VALUE       | UNIT        |
|--|----------------|-------------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | 25          | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | 15          | V           |
| Emitter-Base Voltage                       | $V_{EBO}$      | 2.5         | V           |
| Peak Pulse Current                         | $I_{CM}$       | 50          | mA          |
| Continuous Collector Current               | $I_C$          | 25          | mA          |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | $P_{tot}$      | 330         | mW          |
| Operating and Storage Temperature Range    | $T_J; T_{stg}$ | -55 to +150 | $^{\circ}C$ |

## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ ).

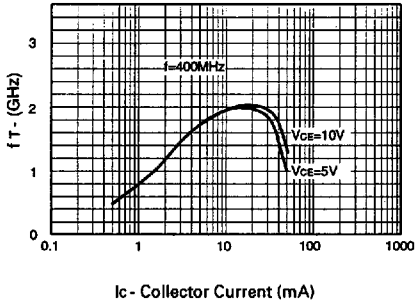
| PARAMETER                             | SYMBOL    | MIN.     | TYP.       | MAX.       | UNIT          | CONDITIONS.   |
|---------------------------------------|-----------|----------|------------|------------|---------------|---|
| Collector Cut-Off Current             | $I_{CBO}$ |          |            | 10<br>10   | nA<br>$\mu A$ | $V_{CB}=10V, I_E=0$<br>$V_{CB}=10V, I_E=0,$<br>$T_{amb} = 100^{\circ}C$   |
| Static Forward Current Transfer Ratio | $h_{FE}$  | 25<br>20 |            | 150<br>125 |               | $I_C=2.0mA, V_{CE}=1.0V$<br>$I_C=25mA, V_{CE}=1.0V$   |
| BFS17L                                |           | 25       |            | 100        |               | $I_C=2.0mA, V_{CE}=1.0V$  |
| BFS17H                                |           | 70       |            | 200        |               | $I_C=2.0mA, V_{CE}=1.0V$  |
| Transition Frequency                  | $f_T$     |          | 1.0<br>1.3 |            | GHz<br>GHz    | $I_C=2.0mA, V_{CE}=5.0V$<br>$f=500MHz$<br>$I_C=25mA, V_{CE}=5.0V$<br>$f=500MHz$   |
| Feedback Capacitance                  | $-C_{re}$ |          | 0.85       |            | pF            | $I_C=2.0mA, V_{CE}=5V, f=1MHz$  |
| Collector Capacitance                 | $C_{Tc}$  |          |            | 1.5        | pF            | $I_E=I_B=0, V_{CB}=10V, f=1MHz$   |
| Emitter Capacitance                   | $C_{Te}$  |          |            | 2.0        | pF            | $I_C=I_C=0, V_{EB}=5.0V, f=1MHz$  |
| Noise Figure                          | N         |          | 4.5        |            | dB            | $I_C=2.0mA, V_{CE}=5.0V$<br>$R_S=50\Omega, f=500MHz$  |
| Intermodulation Distortion            | $d_{im}$  |          | -45        |            | dB            | $I_C=10mA, V_{CE}=6.0V$<br>$R_L=37.5\Omega, T_{amb}=25^{\circ}C$<br>$V_o=100mV$ at $f_p=183MHz$<br>$V_o=100mV$ at $f_q=200MHz$<br>measured at $f_{(2q-p)}=217MHz$ |

\*Measured under pulsed conditions. Pulse width=300 $\mu s$ . Duty cycle  $\leq 2\%$   
Spice parameter data is available upon request for this device

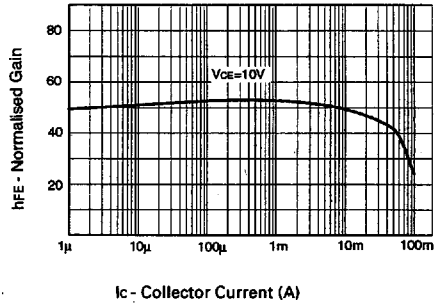
9970578 0009218 184

**BFS17**  
**BFS17L**  
**BFS17H**

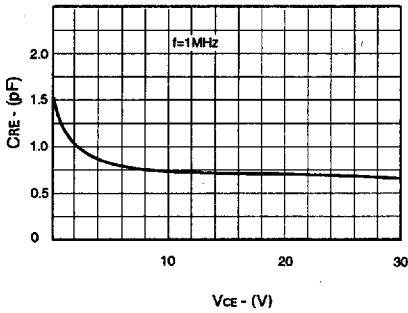
**TYPICAL CHARACTERISTICS**



**$f_T$  v  $I_C$**



**hFE v  $I_C$**



**CRE v VCE**