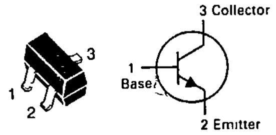
T-31-15

BFS17

CASE 318-02/03, STYLE 6
SOT-23 (TO-236AA/AB)



RF TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Collector-Base Voltage	V_{CBO}	25	Vdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	°C/mW
Total Device Dissipation Alumina Substrate,** T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/mW
Junction and Storage Temperature	T_J, T_{stg}	150	°C

*FR-5 = 1.0 x 0.75 x 0.62 in.
**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

BFS17 = E1

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = 10 mA)	$V_{(BR)CEO}$	15	—	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μA)	$V_{(BR)CBO}$	25	—	Vdc
Collector Cutoff Current (V_{CE} = 10 V)	I_{CEO}	—	25	nA
Collector Cutoff Current (V_{CB} = 10 V)	I_{CBO}	—	25	nA
Emitter Cutoff Current (V_{EB} = 4.0 V)	I_{EBO}	—	100	μA
ON CHARACTERISTICS				
DC Current Gain (I_C = 2.0 mA, V_{CE} = 1.0 V) (I_C = 25 mA, V_{CE} = 1.0 V)	h_{FE}	20 20	150 —	—
Collector-Emitter Saturation Voltage (I_C = 10 mA, I_B = 1.0 mA)	$V_{CE(sat)}$	—	0.4	V
Base-Emitter Saturation Voltage (I_C = 10 mA, I_B = 1.0 mA)	$V_{BE(sat)}$	—	1.0	V
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product (I_C = 2.0 mA, V_{CE} = 5.0 V, f = 500 MHz) (I_C = 25 mA, V_{CE} = 5.0 V, f = 500 MHz)	f_T	1.0 1.3*	— —	GHz
Output Capacitance (V_{CB} = 10 V, f = 1.0 MHz)	CCB	—	1.0*	pF
Noise Figure (I_C = 2.0 mA, V_{CE} = 5.0 V, R_S = 50 Ω, f = 30 MHz)	NF	—	5.0*	dB

*Typ