

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	12	Vdc
Collector-Base Voltage	V _{CBO}	15	Vdc
Emitter-Base Voltage	V _{EBO}	2.0	Vdc
Collector Current — Continuous	I _C	25	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T _A = 25°C Derate above 25°C	P _D	225	mW
Thermal Resistance Junction to Ambient	R _{θJA}	556	°C/W
Total Device Dissipation Alumina Substrate,** T _A = 25°C Derate above 25°C	P _D	300	mW
Thermal Resistance Junction to Ambient	R _{θJA}	417	°C/W
Junction and Storage Temperature	T _J , T _{stg}	-55 to +150	°C

*FR-5 = 1.0 x 0.75 x 0.062 in.

**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

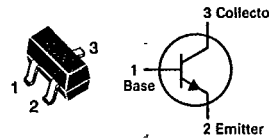
BFR93L = R1

MOTOROLA SC XSTRS/R F

BFR93L

T-31-15

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



RF TRANSISTOR

NPN SILICON

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}	12	—	Vdc
Collector-Base Breakdown Voltage (I _C = 10 μA)	V _{(BR)CBO}	15	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 100 μA)	V _{(BR)EBO}	2.0	—	Vdc
Collector Cutoff Current (V _{CE} = 10 V)	I _{CEO}	—	50	nA
Collector Cutoff Current (V _{CB} = 10 V)	I _{CBO}	—	50	nA
Emitter Cutoff Current (V _{EB} = 1.0 V)	I _{EBO}	—	10	nA
ON CHARACTERISTICS				
DC Current Gain (I _C = 1.0 mA, V _{CE} = 5.0 V) (I _C = 30 mA, V _{CE} = 5.0 V)	h _{FE}	25 25	—	—
Collector-Emitter Saturation Voltage (I _C = 35 mA, I _B = 7.0 mA)	V _{CE(sat)}	—	0.5	Vdc
Base-Emitter Saturation Voltage (I _C = 35 mA, I _B = 7.0 mA)	V _{BE(sat)}	—	1.2	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product (I _C = 30 mA, V _{CE} = 5.0 V, f = 500 MHz)	f _T	4.5	—	GHz
Noise Figure (V _{CE} = 5.0 V, I _C = 2.0 mA, R _S = 50 Ω, f = 30 MHz)	NF	—	3.0	dB