

# The RF Line NPN Silicon High-Frequency Transistor

Designed primarily for use in high-gain, low-noise amplifier, oscillator and mixer applications. Packaged for thick or thin film circuits using surface mount components.

- T1 suffix indicates tape and reel packaging of 3,000 units per reel.

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	15	Vdc
Collector-Base Voltage	$V_{CBO}$	25	Vdc
Maximum Junction Temperature	$T_{Jmax}$	150	°C

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation, $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$ (1)	$P_D$	350 2.8	mW mW/°C
Storage Temperature	$T_{stg}$	-55 to +150	°C
Thermal Resistance Junction to Ambient (1)	$R_{\theta JA}$	357	°C/W

## DEVICE MARKING

BFS17LT1 = E1
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## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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## OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C = 10\text{ mA}$ )	$V_{(BR)CEO}$	15	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100\ \mu\text{A}$ )	$V_{(BR)CBO}$	25	—	—	Vdc
Collector Cutoff Current ( $V_{CE} = 10\text{ V}$ )	$I_{CEO}$	—	—	25	nA
Collector Cutoff Current ( $V_{CB} = 10\text{ V}$ )	$I_{CBO}$	—	—	25	nA
Emitter Cutoff Current ( $V_{EB} = 4\text{ V}$ )	$I_{EBO}$	—	—	100	$\mu\text{A}$

## ON CHARACTERISTICS

DC Current Gain ( $I_C = 2\text{ mA}$ , $V_{CE} = 1\text{ V}$ ) ( $I_C = 25\text{ mA}$ , $V_{CE} = 1\text{ V}$ )	$h_{FE}$	20 20	— —	150 —	—
Collector-Emitter Saturation Voltage ( $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$ )	$V_{CE(sat)}$	—	—	0.4	V
Base-Emitter Saturation Voltage ( $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$ )	$V_{BE(sat)}$	—	—	1	V

## SMALL-SIGNAL CHARACTERISTICS

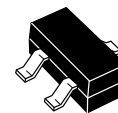
Current-Gain — Bandwidth Product ( $I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $f = 500\text{ MHz}$ ) ( $I_C = 25\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $f = 500\text{ MHz}$ )	$f_T$	— —	1 1.3	— —	GHz
Output Capacitance ( $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$ )	CCB	—	1	—	pF
Noise Figure ( $I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $R_S = 50\ \Omega$ , $f = 30\text{ MHz}$ )	NF	—	5	—	dB

## NOTE:

- Package mounted on 99.5% alumina 10 x 8 x 0.6 mm.

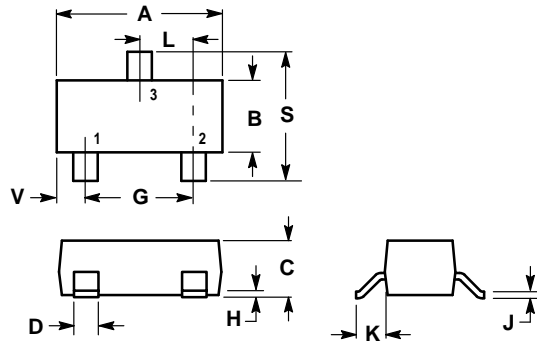
**BFS17LT1**

RF TRANSISTOR  
NPN SILICON



CASE 318-08, STYLE 6  
SOT-23  
LOW PROFILE  
(TO-236AA/AB)

## PACKAGE DIMENSIONS



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

**STYLE 6:**

- PIN 1. BASE
2. EMITTER
3. COLLECTOR

### CASE 318-08 ISSUE AE

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BFS17LT1/D

