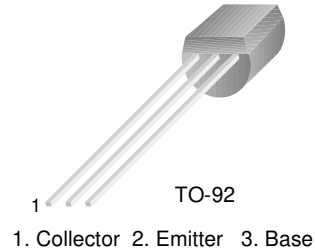


# BF199

## NPN RF Transistor



### Absolute Maximum Ratings\* $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Collector Current - Continuous	50	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	- 55 ~ 150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
<b>Off Characteristics</b>					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	$I_C = 1.0\text{mA}, I_B = 0$	25		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}, I_C = 0$	4.0		V
$I_{CES}$	Collector Cut-off Current	$V_{CE} = 30\text{V}, I_E = 0$		50	nA
<b>On Characteristics</b>					
$h_{FE}$	DC Current Gain	$I_C = 7.0\text{mA}, V_{CE} = 10\text{V}$	38		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 5.0\text{mA}$		0.2	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 5.0\text{mA}$		0.92	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 7.0\text{mA}, V_{CE} = 10\text{V}$		0.925	V
<b>Small Signal Characteristics</b>					
$f_T$	Current gain Bandwidth Product	$I_C = 7.0\text{mA}, V_{CE} = 10\text{V}, f = 100\text{MHz}$		1100	MHz
$C_{re}$	Common-Emitter Ruerse Transfer Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$		0.4	pF

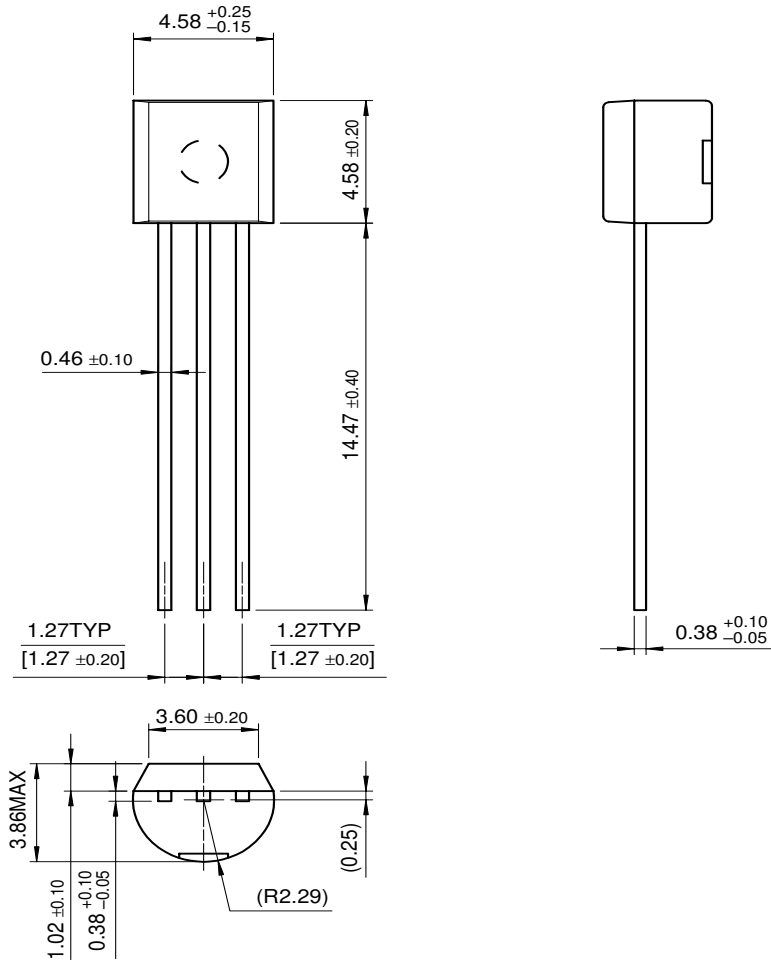
\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation	350	mW
	Derate above $25^\circ\text{C}$	2.8	mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

# Package Dimensions

## TO-92



Dimensions in Millimeters

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CoolFET™	FAST <sub>r</sub> ™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
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## PRODUCT STATUS DEFINITIONS

### Definition of Terms

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