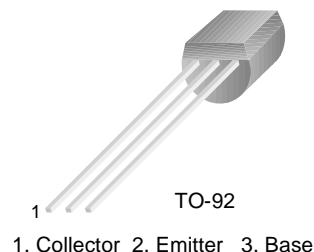


BF199

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
Off Characteristics					
$V_{(BR)CEO}$	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
On Characteristics					
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
Small Signal Characteristics					
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 Reverse 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°C	2.8	mW/ $^{\circ}\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^{\circ}\text{C/W}$

Package Dimensions

TO-92



Dimensions in Millimeters

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