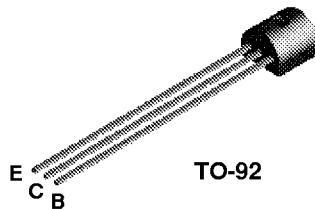


## 2N3663



### NPN RF Transistor

This device is designed for use as RF amplifiers, oscillators and multipliers with collector currents in the 1.0 mA to 30 mA range. Sourced from Process 43. See PN918 for characteristics.

#### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CEO</sub>	Collector-Emitter Voltage	12	V
V <sub>CBO</sub>	Collector-Base Voltage	30	V
V <sub>EBO</sub>	Emitter-Base Voltage	3.0	V
I <sub>C</sub>	Collector Current - Continuous	50	mA
T <sub>J</sub> , T <sub>stg</sub>	Operating and Storage Junction Temperature Range	-55 to +150	°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.

#### Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		2N3663	
P <sub>D</sub>	Total Device Dissipation	350	mW
	Derate above 25°C	2.8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	125	°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	357	°C/W

# NPN RF Transistor

(continued)

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## Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	12		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	30		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}, I_C = 0$	3.0		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 15 \text{ V}, I_E = 0$		0.5	$\mu\text{A}$
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = 2.0 \text{ V}, I_C = 0$		0.5	$\mu\text{A}$

### ON CHARACTERISTICS\*

$h_{FE}$	DC Current Gain	$V_{CE} = 10 \text{ V}, I_C = 8.0 \text{ mA}$	20		
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### SMALL SIGNAL CHARACTERISTICS

$f_T$	Current Gain - Bandwidth Product	$I_C = 5.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$	700	2100	MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$	0.8	1.7	pF
$rb'C_C$	Collector Base Time Constant	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 79.8 \text{ MHz}$		80	pS

### FUNCTIONAL TEST

NF	Noise Figure	$I_C = 1.0 \text{ mA}, V_{CE} = 6.0 \text{ V}, f = 60 \text{ MHz}, R_g = 400 \Omega$		6.5	dB
$G_{pe}$	Amplifier Power Gain	$I_C = 6.0 \text{ mA}, V_{CE} = 12 \text{ V}, f = 200 \text{ MHz}$	1.5		dB

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