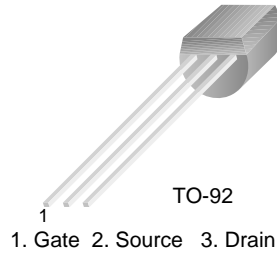


2N5953

N-Channel RF Amplifier

- This device is designed primarily for electronic switching applications such as low on resistance analog switching.
- Sourced from process 50.



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

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	30	V
V_{GS}	Gate-Source Voltage	-30	V
I_{GF}	Forward Gate Current	10	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ 150	$^\circ\text{C}$

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

NOTES:

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

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	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

Electrical Characteristics* $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
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Off Characteristics

$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 1.0\mu\text{A}, V_{DS} = 0$	-30		V
I_{GSS}	Gate Reverse Current	$V_{GS} = 15\text{V}, V_{DS} = 0, T = 25^\circ\text{C}$ $T = 100^\circ\text{C}$		-1.0 -200	nA
$V_{GS(off)}$	Gate-Source Cut-off Voltage	$V_{DS} = 15\text{V}, I_D = 100\text{nA}$	-0.8	-3.0	V
V_{GS}	Gate-Source Forward Voltage	$V_{DS} = 15\text{V}, I_D = 250\mu\text{A}$	-0.5	-2.5	V

On Characteristics

I_{DSS}	Zero-Gate Voltage Drain Current *	$V_{DS} = 15\text{V}, V_{GS} = 0$	2.5	5	mA
$V_{DS(on)}$	Drain-Source On Voltage	$I_D = 267\mu\text{A}$		0.1	V

Small Signal Characteristics


g_{fs}	Forward Transferconductance	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 100\text{MHz}$	1000	6500	$\mu\Omega$
g_{oss}	Common- Source Output Conductance	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{kHz}$		50	$\mu\Omega$
g_{os}	Output Conductance	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 100\text{MHz}$		50	$\mu\Omega$
g_{is}	Input Conductance	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 100\text{MHz}$		250	$\mu\Omega$
C_{iss}	Input Capacitance	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$		6	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$		2	pF
e_n	Equivalent Short-Circuit Input Noise Voltage	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{kHz}$		100	nV
NF	Noise Figure	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V},$ $R_G = 1.0\text{m}\Omega, f = 1.0\text{kHz}$ $R_G = 1.0\text{k}\Omega, f = 100\text{MHz}$		2 5	dB

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle = 2%



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Rev. 130