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## 2N3819 N-Channel RF Amplifier TO-92 Type Package

**Description:**

The 2N3819 is a N-Channel RF Amplifier transistor designed for RF amplifier and mixer applications operating up to 450Mhz, and for analog switching requiring low capacitance.

**Absolute Maximum Ratings:** ( $T_C = +25^{\circ}\text{C}$ , Note 1 unless otherwise specified)

Drain-Gate Voltage, $V_{DG}$ .....	25V
Gate-Source Voltage, $V_{GS}$ .....	-25V
Drain Current, $I_D$ .....	50mA
Forward Gate Current, $I_{GF}$ .....	10 mA
Total Device Dissipation ( $T_A = +25^{\circ}\text{C}$ ), $P_D$ .....	350mW
Derate Above $+25^{\circ}\text{C}$ .....	2.8mW/ $^{\circ}\text{C}$
Storage Temperature Range, $T_{STG}$ .....	-55 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	125 $^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient, $R_{thJA}$ .....	35 $^{\circ}\text{C}/\text{W}$

Note 1. These ratings are limiting values above which the serviceability of the device may be impaired and are based on maximum temperature of  $+150^{\circ}\text{C}$ .

**Electrical Characteristics:** ( $T_A = +25^{\circ}\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = -1.0\mu\text{A}$ , $V_{DS} = 0$	25	-	-	V
Gate Reverse Current	$I_{GSS}$	$V_{GS} = -15\text{V}$ , $V_{DS} = 0$	-	-	2.0	nA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 15\text{V}$ , $I_D = 2.0\text{nA}$	-	-	8.0	V
Gate-Source Voltage	$V_{DS}$	$V_{DS} = 15\text{V}$ , $I_D = 200\mu\text{A}$	-0.5	-	7.5	V
<b>ON Characteristics</b>						
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 15\text{V}$ , $I_D = 0$	2.0	-	20	mA

**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Small-Signal Characteristics</b>						
Forward Transfer Admittance	$y_{fs}$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$	1600	-	-	$\mu\text{mhos}$
Output Admittance	$y_{os}$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$	-	-	50	$\mu\text{mhos}$
Output Conductance	$g_{oss}$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$	-	-	50	$\mu\text{mhos}$
Forward Transfer Conductance	$g_{fs}$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$	2000	-	6500	$\mu\text{mhos}$
Input Capacitance	$C_{iss}$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$	-	-	8.0	pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{MHz}$	-	-	4.0	pF

