2N3821, 2N3822

N-Channel Silicon Junction Field-Effect Transistor

- VHF Amplifiers
- Small Signal Amplifiers

Absolute maximum ratings at T_A = 25°C

Reverse Gate Source & Reverse Gate Drain Voltage	– 50 V
Continuous Forward Gate Current	10 mA
Continuous Device Power Dissipation	300 mW
Power Derating	2mW/°C

At 25°C free air temperature:		2N3821		2N3822		Process NJ32		
Static Electrical Characteristics		**Min**	**Max**	**Min**	**Max**	**Unit**	**Test Conditions**	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	– 50		– 50		V	I_G = – 1 µA, V_{DS} = ØV	
Gate Reverse Current	I_{GSS}		– 0.1		– 0.1	nA	V_{GS} = – 30V, V_{DS} = ØV	
			– 0.1		– 0.1	µA	V_{GS} = – 30V, V_{DS} = ØV	T_A = 150°C
Gate Source Voltage	V_{GS}	– 0.5	– 2			V	V_{DS} = 15V, I_D = 50 µA	
				– 1	– 4	V	V_{DS} = 15V, I_D = 200 µA	
						V	V_{DS} = 15V, I_D = 400 µA	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$		– 4		– 6	V	V_{DS} = 15V, I_D = 0.5 nA	
Drain Saturation Current (Pulsed)	I_{DSS}	0.5	2.5	2	10	mA	V_{DS} = 15V, V_{GS} = ØV	
Drain Cutoff Current	$I_{D(OFF)}$					nA	V_{DS} = 15V, V_{GS} = – 8V	
						µA	V_{DS} = 15V, V_{GS} = – 8V	T_A = 150°C
Dynamic Electrical Characteristics								
Drain Source ON Resistance	$r_{ds(on)}$					Ω	V_{GS} = ØV, I_D = ØV	f = 1 kHz
Common Source Forward Transconductance	g_{fs}	1500	4500	3000	6500	µS	V_{DS} = 15V, V_{GS} = ØV	f = 1 kHz
Common Source Forward Transmittance	$\lvert Y_{fs} \rvert$	1500		3000		µS	V_{DS} = 15V, V_{GS} = ØV	f = 100 MHz
Common Source Output Conductance	g_{os}		10		20	µS	V_{DS} = 15V, V_{GS} = ØV	f = 1 kHz
Common Source Input Capacitance	C_{iss}		6		6	pF	V_{DS} = 15V, V_{GS} = ØV	f = 1 MHz
Common Source Reverse Transfer Capacitance	C_{rss}		2		2	pF	V_{DS} = 15V, V_{GS} = ØV	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		200		200	nV/√Hz	V_{DS} = 15V, V_{GS} = ØV	f = 10 Hz
Noise Figure	NF		5		5	dB	V_{DS} = 15V, V_{GS} = ØV R_G = 1MΩ	f = 10 Hz

TO-72 Package
Dimensions in Inches (mm)

Pin Configuration
1 Source, 2 Drain, 3 Gate, 4 Case

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