



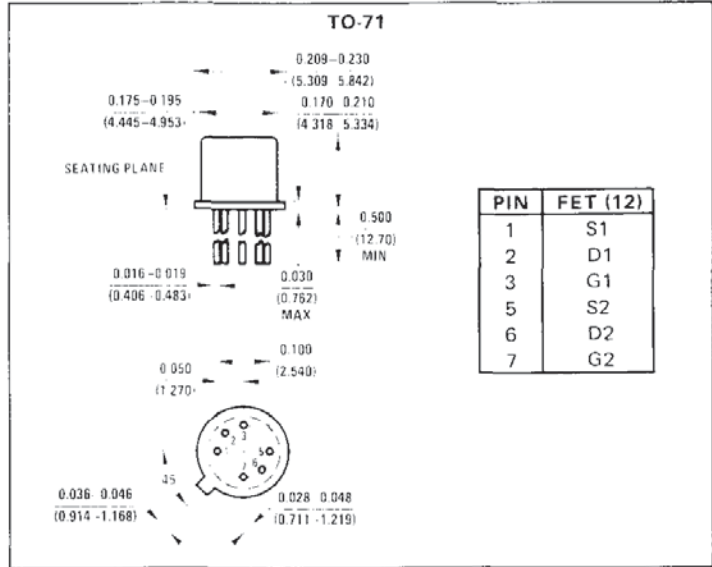
2N3956-58 N-Channel Monolithic Dual JFETs

General Description

The 2N3956 thru 2N3958 series of N-channel monolithic dual JFETs is designed for low to medium frequency differential amplifier applications requiring tight match, low noise and high common-mode rejection.

Absolute Maximum Ratings (25°C)

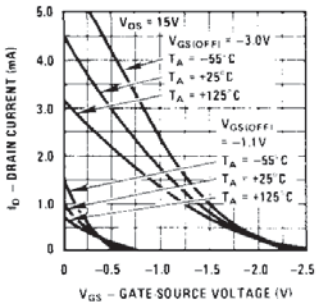
Gate-Drain or Gate-Source Voltage	-50V
Gate-to-Gate Voltage	±50V
Gate Current	50 mA
Total Device Dissipation 85°C (Each Side)	250 mW
Case Temperature (Both Sides)	500 mW
Power Derating (Each Side)	2.86 mW/°C
(Both Sides)	4.3 mW/°C
Storage Temperature Range	-65°C to +200°C
Lead Temperature (1/16" from case for 10 seconds)	300°C



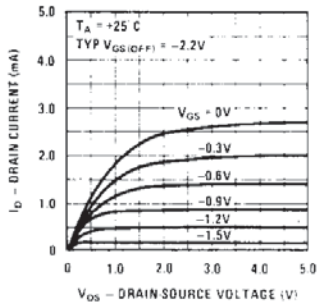
Electrical Characteristics (25°C unless otherwise noted)

PARAMETER	CONDITIONS	2N3956		2N3957		2N3958		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I _{GSS}	Gate Reverse Current V _{GS} = -30V, V _{DS} = 0			-100		-100		µA
				-500		-500		nA
BV _{GSS}	Gate-Source Breakdown Voltage V _{DS} = 0V, I _G = -1 µA	50		-50		-50		V
V _{GS(off)}	Gate-Source Cutoff Voltage V _{DS} = 20V, I _D = 1 nA	1.0	-4.5	-1.0	-4.5	-1.0	-4.5	V
V _{GS(f)}	Gate-Source Forward Voltage V _{DS} = 0V, I _G = 1 mA		2.0		2.0		2.0	V
V _{GS}	Gate-Source Voltage V _{DS} = 20V, I _D = 50 µA			-4.2		-4.2		-4.2
				-0.5		-4.0		-0.5
I _G	Gate Operating Current V _{DS} = 20V, I _D = 200 µA			50		50		µA
				-250		-250		nA
I _{DSS}	Saturation Drain Current V _{DS} = 20V, V _{GS} = 0	0.5	5.0	0.5	5.0	0.5	5.0	mA
y _{fs}	Common-Source Forward Transconductance f = 1 kHz			1000		1000		3000
				1000		1000		
g _{os}	Common-Source Output Conductance V _{DS} = 20V, V _{GS} = 0			35		35		µmho
C _{iss}	Common-Source Input Capacitance f ~ 1 MHz			4.0		4.0		pF
C _{rss}	Common-Source Reverse Transfer Capacitance			1.2		1.2		pF
C _{dgo}	Drain-Gate Capacitance V _{DG} = 10V, I _S = 0			1.5		1.5		1.5
NF	Common-Source Spot Noise Figure V _{DS} = 20V, V _{GS} = 0, R _G = 10 MΩ, f = 100 Hz			0.5		0.5		0.5
I _{G1} - I _{G2}	Differential Gate Reverse Current V _{DS} = 20V, I _D = 200 µA, T = 125°C			10		10		10
I _{DSS1} /I _{DSS2}	Saturation Drain Current Ratio V _{DS} = 20V, V _{GS} = 0	0.95	1.0	0.90	1.0	0.85	1.0	
V _{GS1} - V _{GS2}	Differential Gate-Source Voltage V _{DS} = 20V, I _D = 200 µA			15		20		25
Δ(V _{GS1} - V _{GS2})	Gate-Source Voltage Differential Change With Temperature			4.0		6.0		8.0
				5.0		7.5		10.0
g _{fs1} /g _{fs2}	Transconductance Ratio f = 1 kHz	0.95	1.0	0.90	1.0	0.85	1.0	

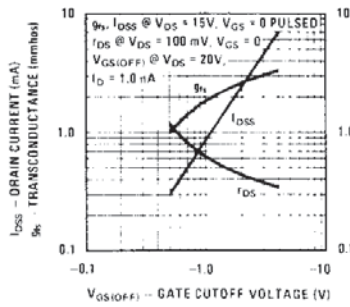
Transfer Characteristics



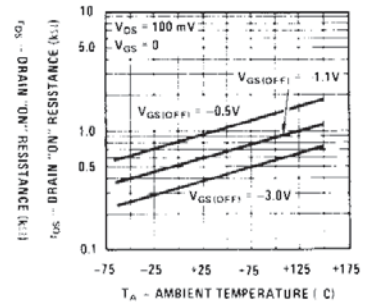
Common Drain-Source Characteristics



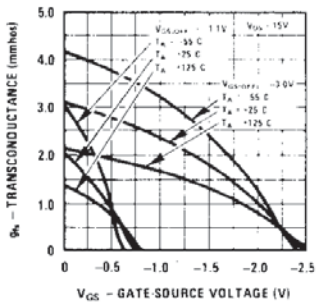
Parameter Interactions



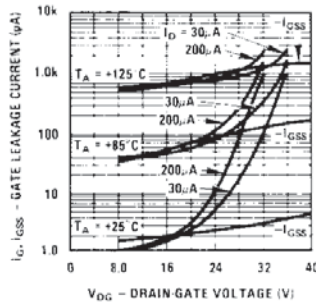
Channel Resistance vs Temperature



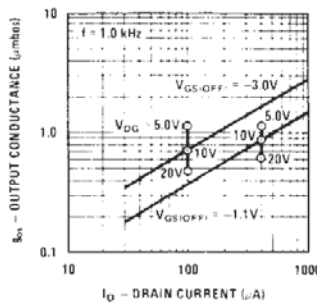
Transfer Characteristics



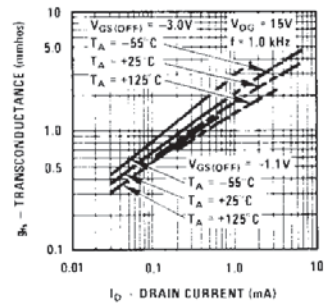
Leakage Current vs Voltage



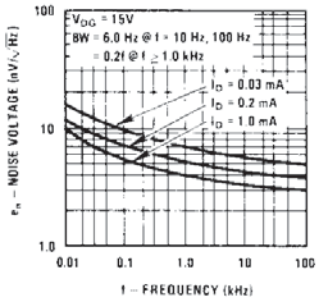
Output Conductance vs Drain Current



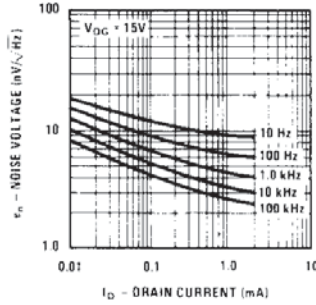
Transconductance vs Drain Current



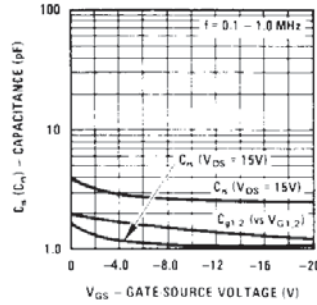
Noise Voltage vs Frequency



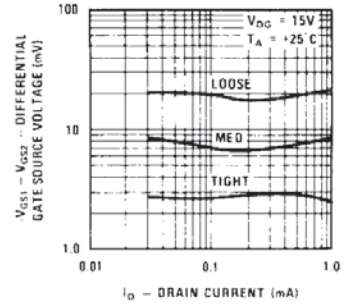
Noise Voltage vs Current



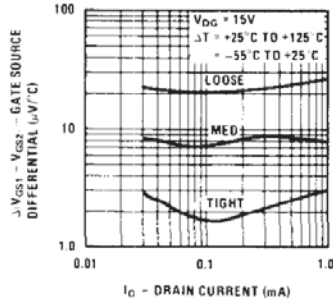
Capacitance vs Voltage



Differential Offset



Differential Drift



CMRR vs Drain Current

