

Matched N-Channel JFET Pairs

PRODUCT SUMMARY					
Part Number	$V_{GS(off)}$ (V)	$V_{(BR)GSS}$ Min (V)	g_{fs} Min (mS)	I_G Typ (pA)	$ V_{GS1} - V_{GS2} $ Max (mV)
2N5911	-1 to -5	-25	5	-1	10
2N5912	-1 to -5	-25	5	-1	15

FEATURES

- Two-Chip Design
- High Slew Rate
- Low Offset/Drift Voltage
- Low Gate Leakage: 1 pA
- Low Noise
- High CMRR: 85 dB

BENEFITS

- Minimum Parasitics Ensuring Maximum High-Frequency Performance
- Improved Op Amp Speed, Settling Time Accuracy
- Minimum Input Error/Trimming Requirement
- Insignificant Signal Loss/Error Voltage
- High System Sensitivity
- Minimum Error with Large Input Signal

APPLICATIONS

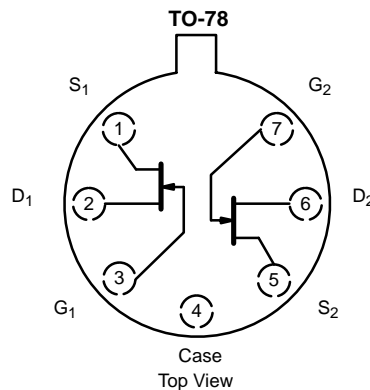
- Wideband Differential Amps
- High-Speed, Temp-Compensated, Single-Ended Input Amps
- High Speed Comparators
- Impedance Converters

DESCRIPTION

The 2N5911/5912 are matched pairs of JFETs mounted in a TO-78 package. This two-chip design reduces parasitics and gives better performance at high frequencies while ensuring extremely tight matching.

For similar products see the SO-8 packaged SST440/SST441, the TO-71 packaged U440/U441, the low-noise SST/U401 series, and the low-leakage U421/423 data sheets.

The hermetically-sealed TO-78 package is available with full military screening per MIL-S-19500 (see Military Information).



ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage	-25 V
Gate-Gate Voltage	±80 V
Gate Current	50 mA
Lead Temperature ($1/16$ " from case for 10 sec.)	300°C
Storage Temperature	-65 to 200°C
Operating Junction Temperature	-55 to 150°C

Power Dissipation :	Per Side ^a	367 mW
	Total ^b	500 mW

Notes

- Derate 3 mW/°C above 25°C
- Derate 4 mW/°C above 25°C

For applications information see AN102.

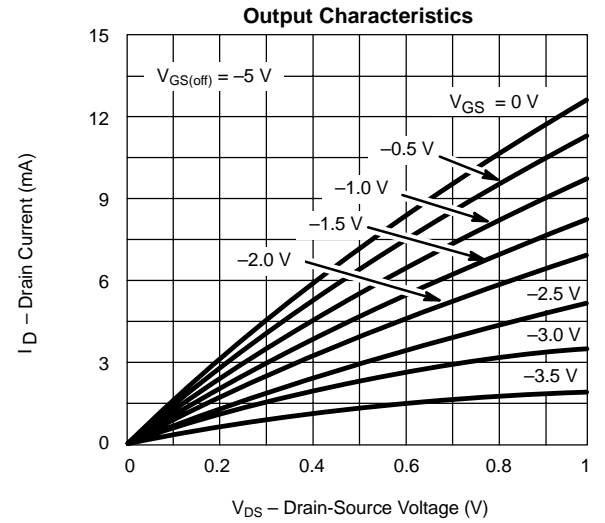
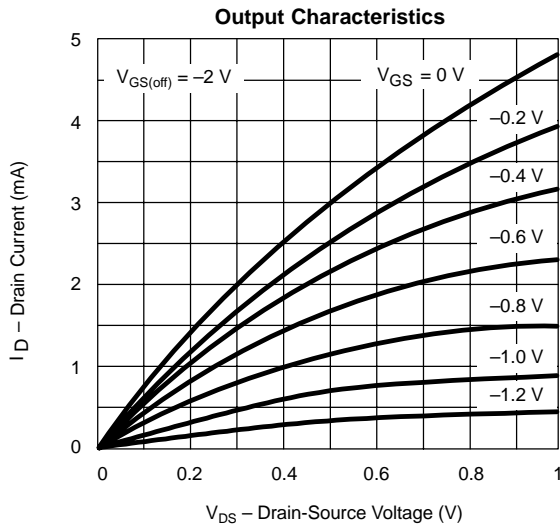
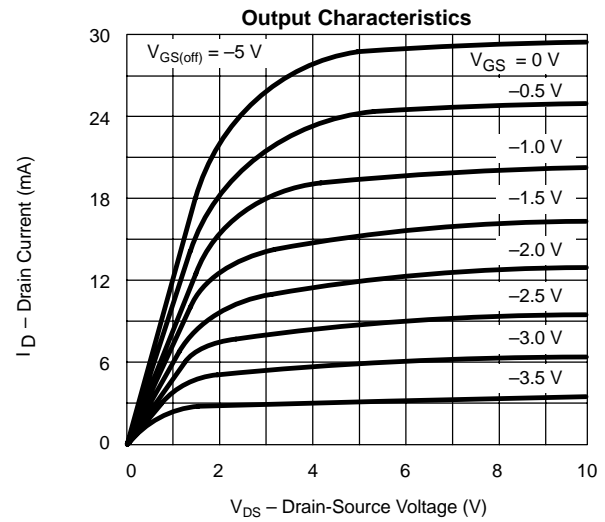
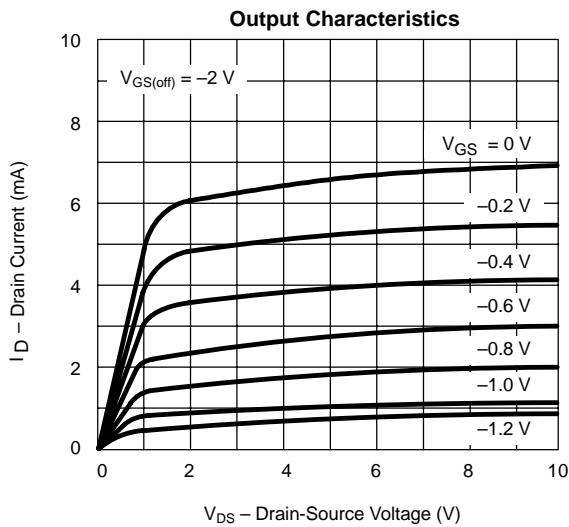
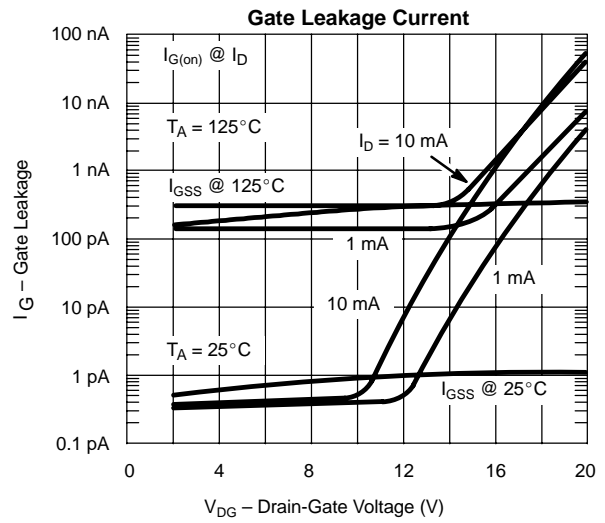
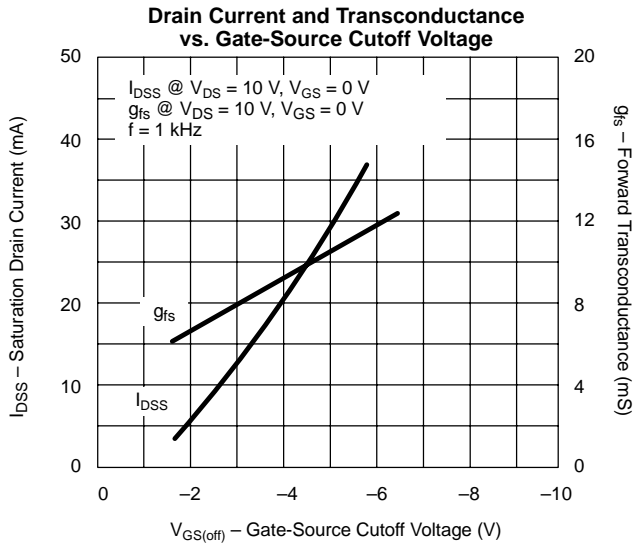
SPECIFICATIONS (T _A = 25 °C UNLESS OTHERWISE NOTED)									
Parameter	Symbol	Test Conditions	Typ ^a	Limits				Unit	
				2N5911		2N5912			
				Min	Max	Min	Max		
Static									
Gate-Source Breakdown Voltage	V _{(BR)GSS}	I _G = -1 μA, V _{DS} = 0 V	-35	-25		-25		V	
Gate-Source Cutoff Voltage	V _{GS(off)}	V _{DS} = 10 V, I _D = 1 nA	-3.5	-1	-5	-1	-5		
Saturation Drain Current ^b	I _{DSS}	V _{DS} = 10 V, V _{GS} = 0 V	15	7	40	7	40	mA	
Gate Reverse Current	I _{GSS}	V _{GS} = -15 V, V _{DS} = 0 V T _A = 150 °C	-1		-100		-100	pA	
			-2		-250		-250	nA	
Gate Operating Current	I _G	V _{DG} = 10 V, I _D = 5 mA T _A = 125 °C	-1		-100		-100	pA	
			-0.3		-100		-100	nA	
Gate-Source Voltage	V _{GS}	V _{DG} = 10 V, I _G = 5 mA	-1.5	-0.3	-4	-0.3	-4	V	
Gate-Source Forward Voltage ^c	V _{GS(F)}	I _G = 1 mA, V _{DS} = 0 V	0.7					V	
Dynamic									
Common-Source Forward Transconductance	g _{fs}	V _{DG} = 10 V, I _D = 5 mA f = 1 kHz	6	5	10	5	10	mS	
Common-Source Output Conductance	g _{os}		70		100		100	μS	
Common-Source Forward Transconductance	g _{fs}	V _{DG} = 10 V, I _D = 5 mA f = 100 MHz	5.8	5	10	5	10	mS	
Common-Source Output Conductance	g _{os}		90		150		150	μS	
Common-Source Input Capacitance	C _{iss}	V _{DG} = 10 V, I _D = 5 mA f = 1 MHz	3		5		5	pF	
Common-Source Reverse Transfer Capacitance	C _{rss}		1		1.2		1.2	pF	
Equivalent Input Noise Voltage	\bar{e}_n	V _{DG} = 10 V, I _D = 5 mA f = 10 kHz	4		20		20	nV/ √Hz	
Noise Figure	NF	R _G = 100 kΩ	0.1		1		1	dB	
Matching									
Differential Gate-Source Voltage	V _{GS1} - V _{GS2}	V _{DG} = 10 V, I _D = 5 mA	4		10		15	mV	
Gate-Source Voltage Differential Change with Temperature	$\frac{\Delta V_{GS1} - V_{GS2} }{\Delta T}$	V _{DG} = 10 V, I _D = 5 mA T _A = -55 to 125 °C	15		20		40	μV/°C	
Saturation Drain Current Ratio	$\frac{I_{DSS1}}{I_{DSS2}}$	V _{DS} = 10 V, V _{GS} = 0 V	0.98	0.95	1	0.95	1		
Transconductance Ratio	$\frac{g_{fs1}}{g_{fs2}}$	V _{DS} = 10 V, I _D = 5 mA f = 1 kHz	0.98	0.95	1	0.95	1		
Differential Gate Current	I _{G1} - I _{G2}	V _{DG} = 10 V, I _D = 5 mA, T _A = 125 °C	0.005		20		20	nA	
Common Mode Rejection Ratio ^c	CMRR	V _{DG} = 5 to 10 V, I _D = 5 mA	85					dB	

Notes

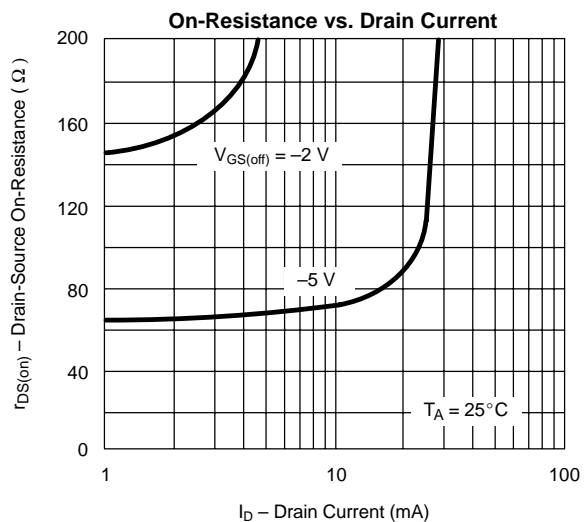
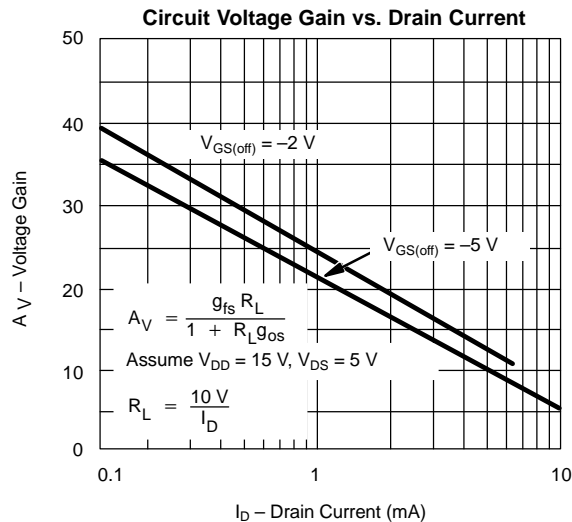
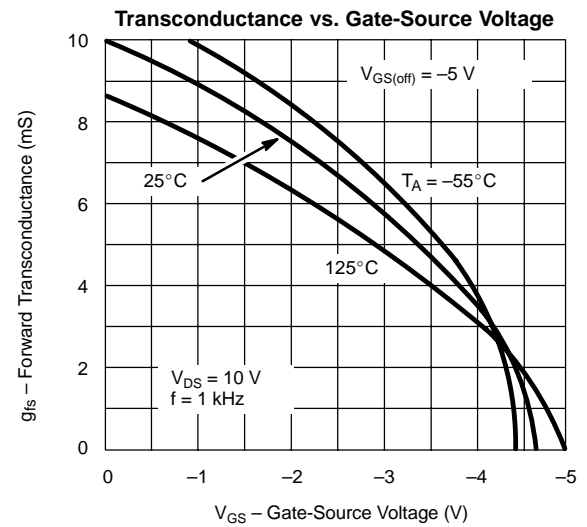
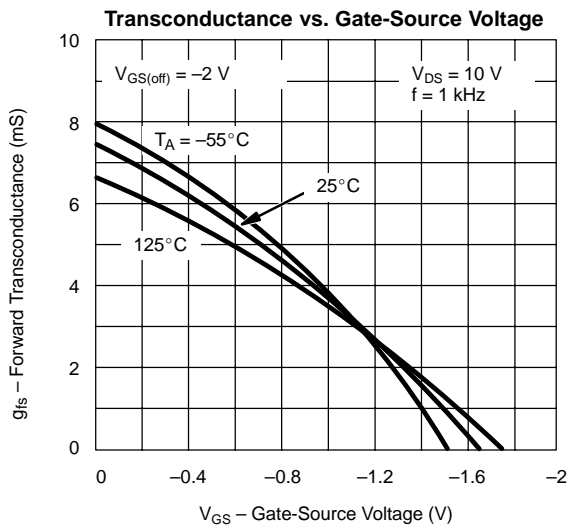
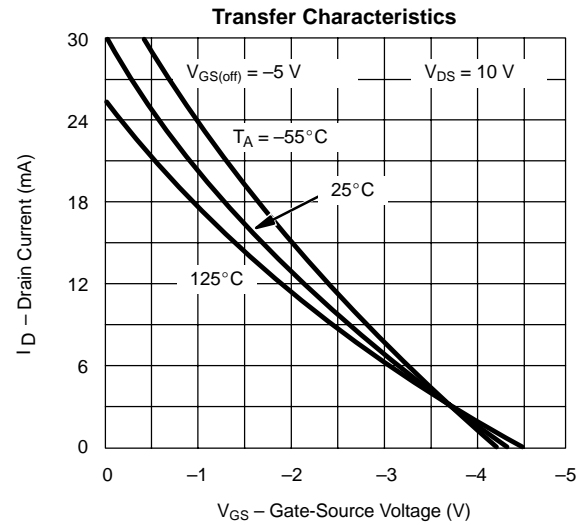
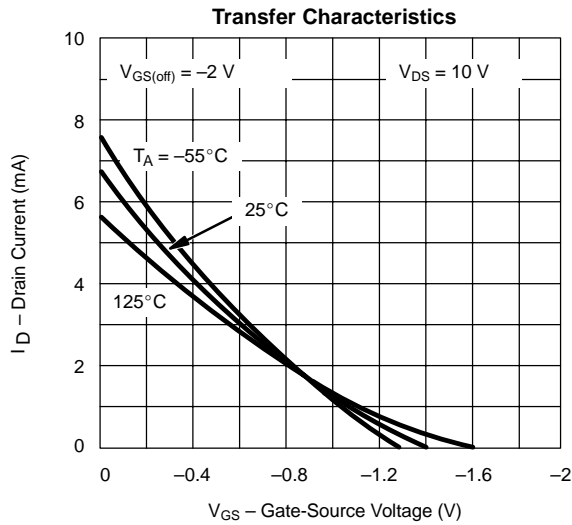
- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.
- c. This parameter not registered with JEDEC.

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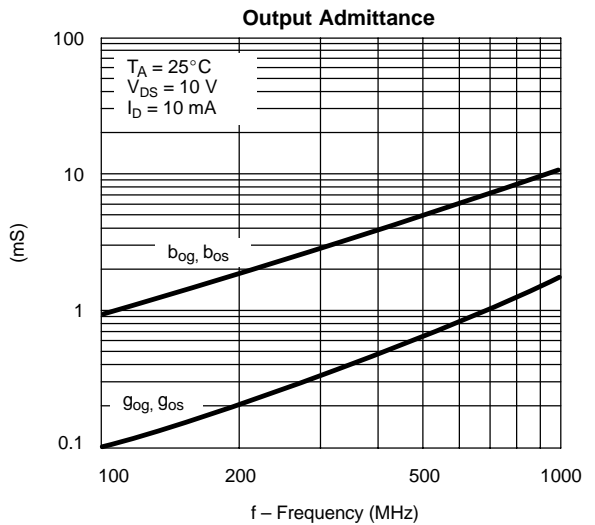
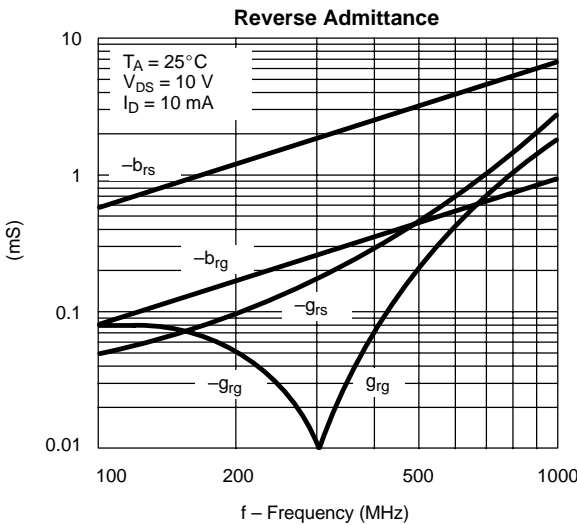
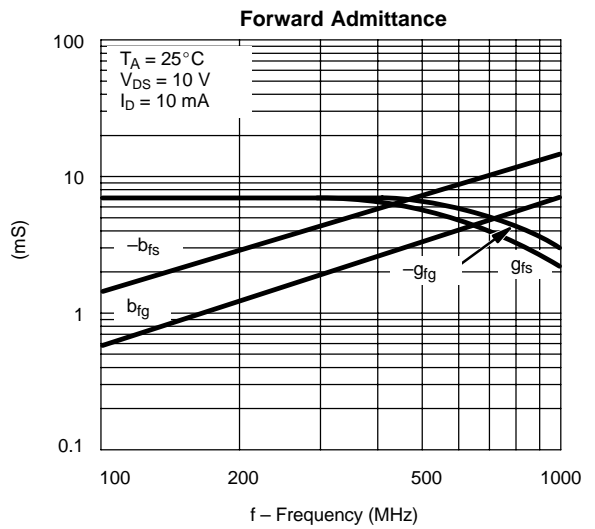
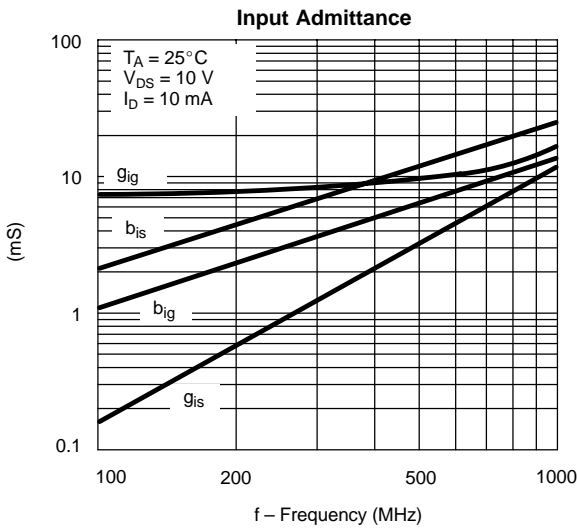
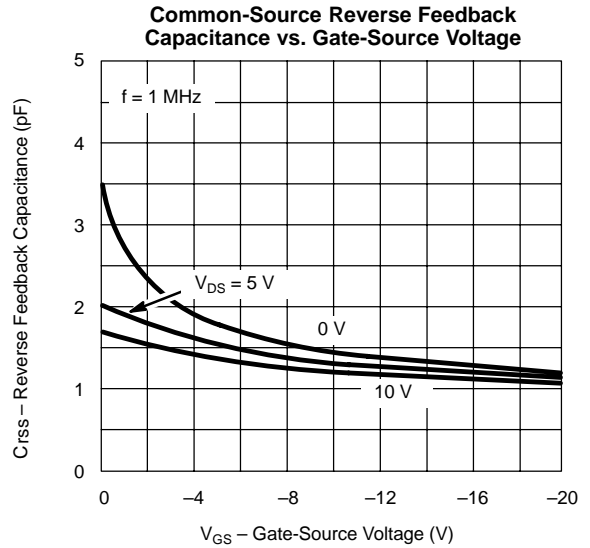
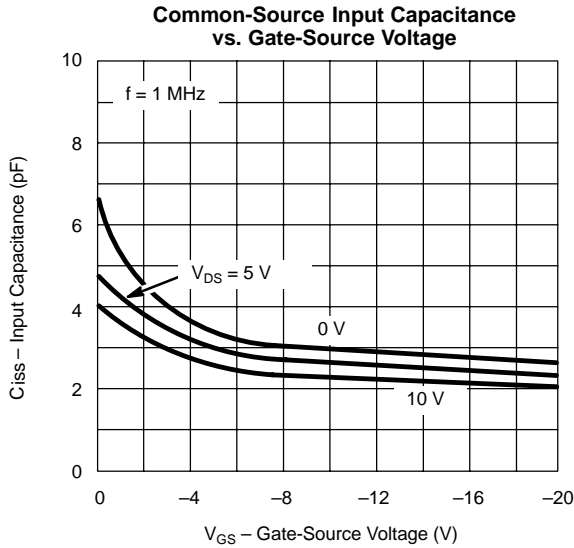
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)



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