

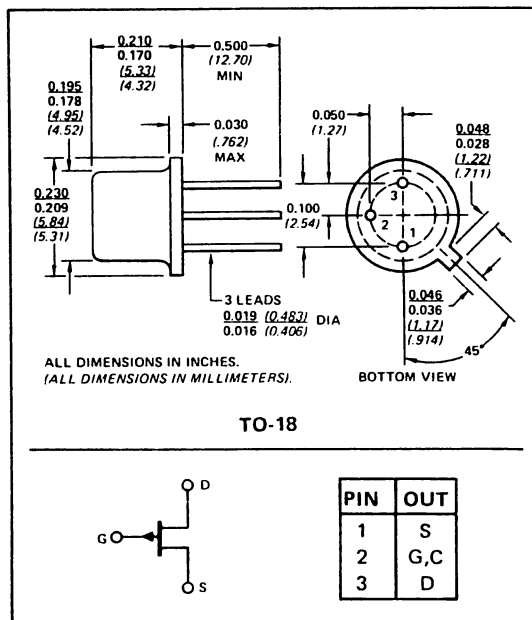
P-CHANNEL SILICON JUNCTION FIELD-EFFECT TRANSISTORS

FOR ANALOG SWITCHES, COMMUTATORS,
 AND CHOPPERS

- ON Resistance < 75 ohms on 2N5114
- $I_{D(off)} < 500 \mu A$

***ABSOLUTE MAXIMUM RATINGS (25°C)**

Reverse Gate-Drain or Gate-Source Voltage (Note 1)	30 V
Gate Current	50 mA
Total Device Dissipation, Free-Air (Derate 3 mW/°C)	500 mW
Storage Temperature Range	-65 to +200°C
Lead Temperature (1/16" from case for 60 seconds)	300°C



PIN	OUT
1	S
2	G,C
3	D

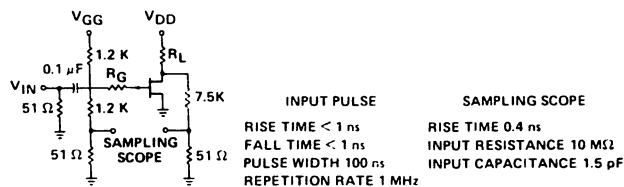
***ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)**

Characteristic	2N5114		2N5115		2N5116		Unit	Test Conditions
	Min	Max	Min	Max	Min	Max		
1 BV _{GSS} Gate-Source Breakdown Voltage	30		30		30		V	$I_G = 1 \mu A, V_{DS} = 0$
2 I_{GSS} Gate Reverse Current		500		500		500	μA	$V_{GS} = 20 V, V_{DS} = 0$
3 $I_{D(off)}$ Drain Cutoff Current		1.0		1.0		1.0	μA	150°C
4 $I_{D(off)}$ Drain Cutoff Current		-500		-500		-500	μA	$V_{DS} = -15 V, V_{GS} = 2N5114 = 12 V$
5 $V_{GS(off)}$ Gate-Source Cutoff Voltage	5	10	3	6	1	4	V	$V_{DS} = -15 V, I_D = -1 nA$
6 I_{DSS} Saturation Drain Current	-30	-90	-15	-60	-5	-25	mA	$V_{GS} = 0, V_{DS} = 2N5114 = -18 V$ $2N5115 = -15 V$
7 $V_{GS(f)}$ Forward Gate-Source Voltage		-1		-1		-1	V	$I_G = -1 mA, V_{DS} = 0$
8 $V_{DS(on)}$ Drain-Source ON Voltage		-1.3		-0.8		-0.6	V	$V_{GS} = 0, I_D = 2N5114 = -15 mA$ $2N5115 = -7 mA$ $2N5116 = -3 mA$
9 $r_{DS(on)}$ Static Drain-Source ON Resistance		75		100		150	Ω	$V_{GS} = 0, I_D = -1 mA$
10 $r_{ds(on)}$ Drain-Source ON Resistance		75		100		150	Ω	$V_{GS} = 0, I_D = 0$
11 C_{iss} Common-Source Input Capacitance		25		25		25	pF	$V_{DS} = -15 V, V_{GS} = 0$
12 C_{rss} Common-Source Reverse Transfer Capacitance		7		7		7	pF	$V_{DS} = 0, V_{GS} = 2N5114 = 12 V$ $2N5115 = 5 V$ $2N5116 = 7 V$
13 t_d Turn-ON Delay Time		6		10		12	ns	$V_{DD} = -10 V$ $V_{GG} = 20 V$ $R_L = 430 \Omega$ $R_G = 100 \Omega$ $I_{D(on)} = -15 mA$
14 t_r Rise Time		10		20		30	ns	$V_{DD} = -6 V$ $V_{GG} = 12 V$ $R_L = 910 \Omega$ $R_G = 220 \Omega$ $I_{D(on)} = -7 mA$
15 t_{off} Turn-OFF Time		6		8		10	ns	$V_{DD} = -8 V$ $V_{GG} = 8 V$ $R_L = 2000 \Omega$ $R_G = 390 \Omega$ $I_{D(on)} = -3 mA$
16 t_f Fall Time		15		30		50	ns	$V_{DD} = -6 V$ $V_{GG} = 12 V$ $R_L = 910 \Omega$ $R_G = 220 \Omega$ $I_{D(on)} = -7 mA$

*JEDEC registered data.

NOTE:

1. Due to symmetrical geometry these units may be operated with source and drain leads interchanged.



P-CHANNEL DEPLETION MODE SILICON JUNCTION FIELD-EFFECT TRANSISTOR

APPLICATIONS

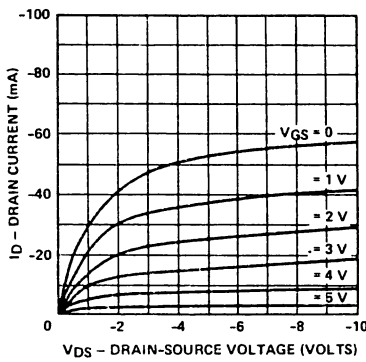
- High g_{fs} and Low Noise (10 to 40 nV at 1 kHz) Suitable for General Purpose Amplifiers
- High g_{fs} , Low ON Resistance and Capacitance and Low Switching Aperture Times Allows Operation in Analog Switching Applications

PACKAGE TYPE

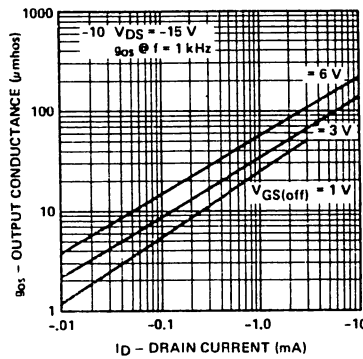
TO-18,

PERFORMANCE CURVES (25°C unless otherwise noted)

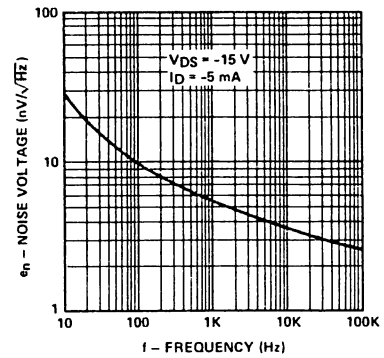
Output Characteristic



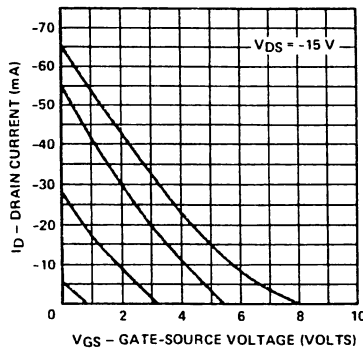
Common-Source Output Conductance vs Drain Current



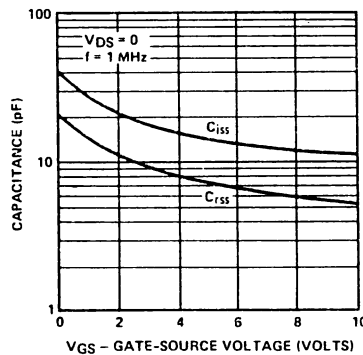
Equivalent Input Noise Voltage vs Frequency



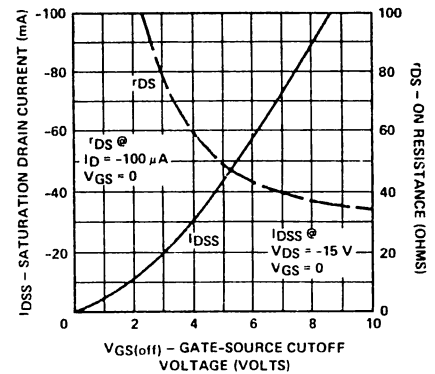
Transfer Characteristics



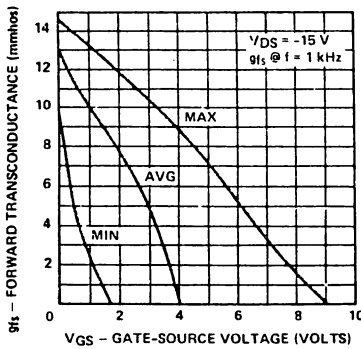
Common-Source Capacitance vs Gate-Source Voltage



Saturation Drain Current and Drain-Source ON Resistance vs. Gate-Source Cutoff Voltage



Transconductance Characteristics



Gate Operating Current vs Drain-Gate Voltage

