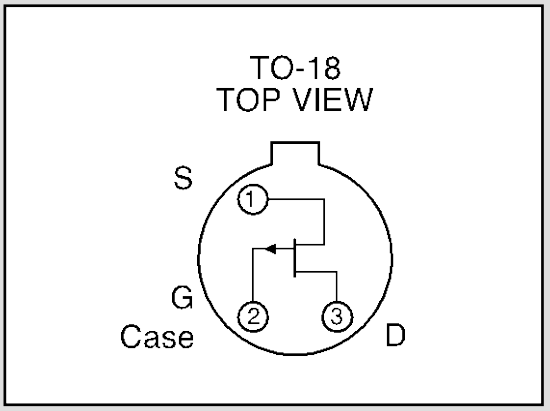
LINEAR SYSTEMS

Improved Standard Products®

2N5114 SERIES

SINGLE P-CHANNEL JFET SWITCH

FEATURES	
REPLACEMENT FOR SILICONIX 2N5114, 2N5115, 2N5116	
LOW ON RESISTANCE	75Ω
LOW CAPACITANCE	6pF
ABSOLUTE MAXIMUM RATINGS[1] @ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-65 to 150°C
Junction Operating Temperature	-55 to 150°C
Maximum Power Dissipation	
Continuous Power Dissipation[3]	500mW
Maximum Currents	
Gate Current	-50mA
Maximum Voltages	
Gate to Drain	30V
Gate to Source	30V



STATIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

SYM.	CHARACTERISTIC	TYP	2N5114		2N5115		2N5116		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
BV_{GSS}	Gate to Source Breakdown Voltage		30		30		30		V	I_G = 1µA, V_{DS} = 0V
$V_{GS(off)}$	Gate to Source Cutoff Voltage		5	10	3	6	1	4		V_{DS} = -15V, I_D = -1nA
$V_{GS(F)}$	Gate to Source Forward Voltage	-0.7		-1		-1		-1		I_G = -1mA, V_{DS} = 0V
$V_{DS(on)}$	Drain to Source On Voltage	-1.0		-1.3						V_{GS} = 0V, I_D = -15mA
		-0.7				-0.8				V_{GS} = 0V, I_D = -7mA
		-0.5						-0.6		V_{GS} = 0V, I_D = -3mA
I_{DSS}	Drain to Source Saturation Current[2]		-30	-195					mA	V_{DS} = -18V, V_{GS} = 0V
					-15	-110	-5	-55		V_{DS} = -15V, V_{GS} = 0V
I_{GSS}	Gate Leakage Current	5		500		500		500	pA	V_{GS} = 20V, V_{DS} = 0V
I_G	Gate Operating Current	-5								V_{DG} = -15V, I_D = -1mA
$I_{D(off)}$	Drain Cutoff Current	-10		-500						V_{DS} = -15V, V_{GS} = 12V
		-10				-500				V_{DS} = -15V, V_{GS} = 7V
		-10						-500		V_{DS} = -15V, V_{GS} = 5V
$r_{DS(on)}$	Drain to Source On Resistance			75		100		150	Ω	V_{GS} = 0V, I_D = -1mA

Note: All Min & Max limits are absolute values. Negative signs indicate electrical polarity only.

DYNAMIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

SYM.	CHARACTERISTIC	TYP	2N5114		2N5115		2N5116		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
g_{fs}	Forward Transconductance	4.5							mS	V_{DS} = -15V, I_D = -1mA
g_{os}	Output Conductance	20							µS	*f* = 1kHz
$r_{ds(on)}$	Drain to Source On Resistance			75		100		150	Ω	V_{GS} = 0V, I_D = -1mA *f* = 1kHz
C_{iss}	Input Capacitance	20		25		25		25	pF	V_{DS} = -15V, V_{GS} = 0V *f* = 1MHz
C_{rss}	Reverse Transfer Capacitance	5		7						V_{DS} = 0V, V_{GS} = 12V *f* = 1MHz
		6				7				V_{DS} = 0V, V_{GS} = 7V *f* = 1MHz
		6						7		V_{DS} = 0V, V_{GS} = 5V *f* = 1MHz
e_n	Equivalent Noise Voltage	20							nV/√Hz	V_{DG} = -10V, I_D = -10mA *f* = 1 kHz

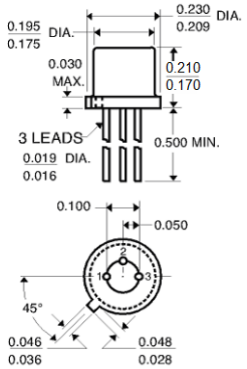
SWITCHING CHARACTERISTICS (max)

SYM.	CHARACTERISTIC	2N5114	2N5115	2N5116	UNITS
$t_{d(on)}$	Turn On Time	6	10	12	ns
t_r		10	20	30	
$t_{d(off)}$	Turn Off Time	6	8	10	
t_f		15	30	50	

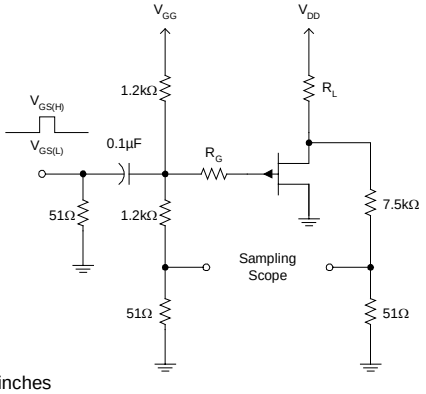
SWITCHING CIRCUIT CHARACTERISTICS

SYM.	2N5114	2N5115	2N5116
V_{DD}	-10V	-6V	-6V
V_{GG}	20V	12V	8V
R_L	430Ω	910Ω	2kΩ
R_G	100Ω	220Ω	390Ω
$I_{D(on)}$	-15mA	-7mA	-3mA
$V_{GS(H)}$	0V	0V	0V
$V_{GS(L)}$	-11V	-7V	-5V

TO-18
Three Lead



SWITCHING TEST CIRCUIT



Note: All Dimensions are in inches

NOTES

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse test: PW ≤ 300µs, Duty Cycle ≤ 3%
3. Derate 3mW/°C above 25°C.

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