

## Linear Systems replaces discontinued Siliconix 2N4391

The 2N4391 features many of the superior characteristics of JFETs which make it a good choice for demanding analog switching applications and for specialized amplifier circuits.

### 2N4391 Benefits:

- Low Error Voltage
- High-Speed Analog Circuit Performance
- Negligible "Off-Error," Excellent Accuracy
- Good Frequency Response, Low Glitches
- Eliminates Additional Buffering

### 2N4391 Applications:

- Analog Switches
- Choppers, Sample-and-Hold
- Normally "On" Switches, Current Limiters

### FEATURES

DIRECT REPLACEMENT FOR SILICONIX 2N4391	
LOW ON RESISTANCE	$r_{DS(on)} \leq 30\Omega$
LOW GATE OPERATING CURRENT	$I_{D(off)} = 5\mu A$
FAST SWITCHING	$t_{(ON)} \leq 15ns$
<b>ABSOLUTE MAXIMUM RATINGS<sup>1</sup> @ 25°C (unless otherwise noted)</b>	
<b>Maximum Temperatures</b>	
Storage Temperature	-65°C to +200°C
Operating Junction Temperature	-55°C to +200°C
<b>Maximum Power Dissipation</b>	
Continuous Power Dissipation	1800mW
<b>MAXIMUM CURRENT</b>	
Gate Current (Note 1)	$I_G = 50mA$
<b>MAXIMUM VOLTAGES</b>	
Gate to Drain Voltage / Gate to Source Voltage	-40V

### 2N4391 ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	MIN	TYP.	MAX	UNITS	CONDITIONS
$BV_{GSS}$	Gate to Source Breakdown Voltage	-40	--	--	V	$I_G = -1\mu A, V_{DS} = 0V$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-4	--	-10		$V_{DS} = 20V, I_D = 1mA$
$V_{GS(F)}$	Gate to Source Forward Voltage	--	0.7	1		$I_G = 1mA, V_{DS} = 0V$
$V_{DS(on)}$	Drain to Source On Voltage	--	0.25	--		$V_{GS} = 0V, I_D = 3mA$
$V_{DS(on)}$	Drain to Source On Voltage	--	0.3	--	mA	$V_{GS} = 0V, I_D = 6mA$
$V_{DS(on)}$	Drain to Source On Voltage	--	0.35	0.4		$V_{GS} = 0V, I_D = 12mA$
$I_{DSS}$	Drain to Source Saturation Current <sup>2</sup>	50	--	150	pA	$V_{DS} = 20V, V_{GS} = 0V$
$I_{GSS}$	Gate Reverse Current	--	-5	-100		$V_{DG} = 15V, I_D = 10mA$
$I_G$	Gate Operating Current	--	-5	--		$V_{DS} = 20V, V_{GS} = -5V$
$I_{D(off)}$	Drain Cutoff Current	--	5	--		$V_{DS} = 20V, V_{GS} = -7V$
		--	5	100	Ω	$V_{DS} = 20V, V_{GS} = -12V$
$r_{DS(on)}$	Drain to Source On Resistance	--	--	30		$V_{GS} = 0V, I_D = 1mA$

### 2N4391 DYNAMIC ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	TYP	MIN	MAX	UNITS	CONDITIONS
$g_{fs}$	Forward Transconductance	6	--	--	mS	$V_{DS} = 20V, I_D = 1mA, f = 1kHz$
$g_{os}$	Output Conductance	25	--	--	μS	$V_{DS} = 20V, I_D = 1mA, f = 1kHz$
$r_{ds(on)}$	Drain to Source On Resistance	--	--	30	Ω	$V_{GS} = 0V, I_D = 0A, f = 1kHz$
$C_{iss}$	Input Capacitance	12	--	14	pF	$V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$
$C_{rss}$	Reverse Transfer Capacitance	3.3	--	--		$V_{DS} = 0V, V_{GS} = -5V, f = 1MHz$
$C_{rss}$		3.2	--	--		$V_{DS} = 0V, V_{GS} = -7V, f = 1MHz$
$C_{rss}$		2.8	--	3.5		$V_{DS} = 0V, V_{GS} = -12V, f = 1MHz$
$e_n$	Equivalent Input Noise Voltage	3	--	--	nV/√Hz	$V_{DS} = 10V, I_D = 10mA, f = 1kHz$

### 2N4391 SWITCHING ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	TYP	MIN	MAX	UNITS	CONDITIONS
$t_{d(on)}$	Turn On Time	2	--	15	ns	$V_{DD} = 10V, V_{GS(H)} = 0V$
$t_r$		2	--	5		
$t_{d(off)}$	Turn Off Time	6	--	20		
$t_f$		13	--	15		

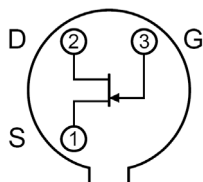
Notes: 1. Absolute ratings are limiting values above which serviceability may be impaired

2. Pulse test:  $PW \leq 300\mu s$ , Duty Cycle  $\leq 3\%$

### 2N4391 SWITCHING CIRCUIT PARAMETERS

$V_{GS(L)}$	-12V
$R_L$	800Ω
$I_{D(on)}$	12mA

TO-18 (Bottom View)



Micross Components Europe

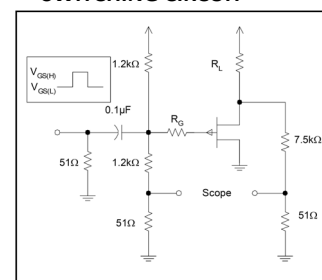


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### SWITCHING CIRCUIT



Available Packages:

2N4391 in TO-18

2N4391 in bare die.

Contact Micross for full package and die dimensions