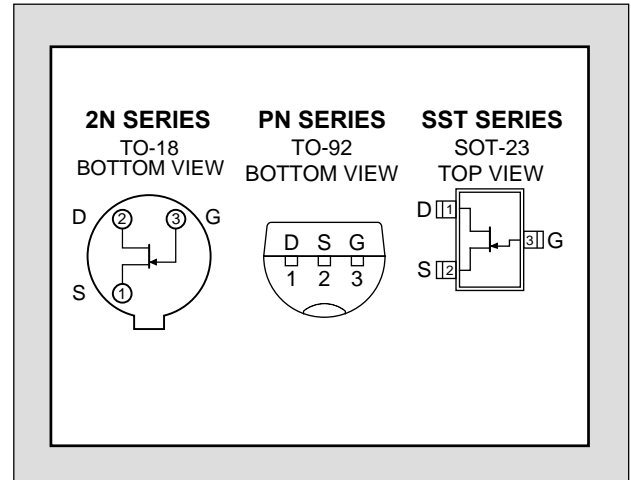


## 2N/PN/SST4391 SERIES

### SINGLE N-CANNEL JFET SWITCH

FEATURES	
Replacement for Siliconix 2N/PN/SST4391, 4292, & 4393	
LOW ON RESISTANCE	$r_{DS(on)} \leq 30\Omega$
FAST SWITCHING	$t_{ON} \leq 15ns$
ABSOLUTE MAXIMUM RATINGS <sup>1</sup>	
@ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature (2N)	-65 to 200°C
Storage Temperature (PN/SST)	-55 to 150°C
Junction Operating Temperature (2N)	-55 to 200°C
Junction Operating Temperature (PN/SST)	-55 to 150°C
Maximum Power Dissipation	
Continuous Power Dissipation (2N)	1800mW
Continuous Power Dissipation (PN/SST)	350mW
Maximum Currents	
Gate Current	50mA
Maximum Voltages	
Gate to Drain or Source (2N/PN)	-40V
Gate to Drain or Source (SST)	-35V



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

SYM.	CHARACTERISTIC	TYP	4391		4392		4393		UNIT	CONDITIONS				
			MIN	MAX	MIN	MAX	MIN	MAX						
BV <sub>GSS</sub>	Gate to Source Breakdown Voltage	2N/PN	-40		-40		-40		V	I <sub>G</sub> = -1μA, V <sub>DS</sub> = 0V				
		SST	-35		-35		-35							
V <sub>GS(off)</sub>	Gate to Source Cutoff Voltage	2N/PN	-4	-10	-2	-5	-0.5	-3			V	V <sub>DS</sub> = 20V, I <sub>D</sub> = 1nA		
		SST	-4	-10	-2	-5	-0.5	-3						
V <sub>GS(F)</sub>	Gate to Source Forward Voltage	0.7		1		1		1					V	I <sub>G</sub> = 1mA, V <sub>DS</sub> = 0V
V <sub>DS(on)</sub>	Drain to Source On Voltage	0.25						0.4						
		0.3				0.4								
		0.35		0.4										
I <sub>DSS</sub>	Drain to Source Saturation Current <sup>2</sup>	2N	50	150	25	75	5	30	mA	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V				
		PN	50	100	25	100	5	60						
		SST	50		25		5							
I <sub>GSS</sub>	Gate Leakage Current	2N/SST	-5	-100		-100		-100			pA	V <sub>GS</sub> = -20V, V <sub>DS</sub> = 0V		
		PN	-5	-1000		-1000		-1000						
I <sub>G</sub>	Gate Operating Current	-5									pA	V <sub>DG</sub> = 15V, I <sub>D</sub> = 10mA		

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

SYM.	CHARACTERISTIC		TYP	4391		4392		4393		UNIT	CONDITIONS	
				MIN	MAX	MIN	MAX	MIN	MAX			
I <sub>D(off)</sub>	Drain Cutoff Current	2N	5						100	pA	V <sub>DS</sub> = 20V, V <sub>GS</sub> = -5V	
			5				100				V <sub>DS</sub> = 20V, V <sub>GS</sub> = -7V	
			5		100						V <sub>DS</sub> = 20V, V <sub>GS</sub> = -12V	
		PN	5						1000			V <sub>DS</sub> = 20V, V <sub>GS</sub> = -5V
			5					1000				V <sub>DS</sub> = 20V, V <sub>GS</sub> = -7V
			5		1000							V <sub>DS</sub> = 20V, V <sub>GS</sub> = -12V
		SST	5		100		100		100			V <sub>DS</sub> = 10V, V <sub>GS</sub> = -10V
r <sub>DS(on)</sub>	Drain to Source On Resistance				30		60		100	Ω	V <sub>GS</sub> = 0V, I <sub>D</sub> = 1mA	

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

SYM.	CHARACTERISTIC		TYP	4391		4392		4393		UNIT	CONDITIONS
				MIN	MAX	MIN	MAX	MIN	MAX		
g <sub>fs</sub>	Forward Transconductance		6							mS	V <sub>DS</sub> = 20V, I <sub>D</sub> = 1mA f = 1kHz
g <sub>os</sub>	Output Conductance		25							μS	
r <sub>ds(on)</sub>	Drain to Source On Resistance				30		60		100	Ω	V <sub>GS</sub> = 0V, I <sub>D</sub> = 0A f = 1kHz
C <sub>iss</sub>	Input Capacitance	2N	12		14		14		14	pF	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V f = 1MHz
		PN	12		16		16		16		
		SST	13								
C <sub>rss</sub>	Reverse Transfer Capacitance	2N	3.3						3.5	pF	V <sub>DS</sub> = 0V, V <sub>GS</sub> = -5V f = 1MHz
		PN	3.5						5		
		SST	3.6								
		2N	3.2				3.5				V <sub>DS</sub> = 0V, V <sub>GS</sub> = -7V f = 1MHz
		PN	3.4				5				
		SST	3.5								
		2N	2.8		3.5						V <sub>DS</sub> = 0V, V <sub>GS</sub> = -12V f = 1MHz
		PN	3.0		5						
SST	3.1										
e <sub>n</sub>	Equivalent Input Noise Voltage		3							nV/√Hz	V <sub>DS</sub> = 10V, I <sub>D</sub> = 10mA f = 1kHz

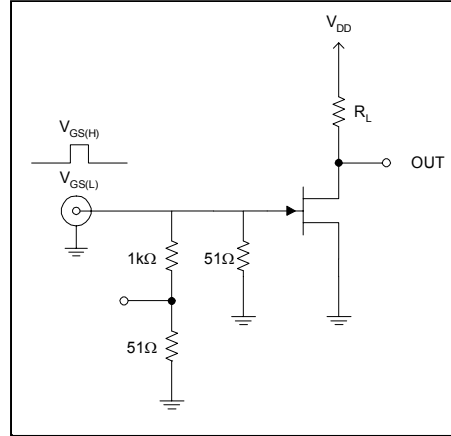
**SWITCHING ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)**

SYM.	CHARACTERISTIC		TYP	4391		4392		4393		UNIT	CONDITIONS
				MIN	MAX	MIN	MAX	MIN	MAX		
t <sub>d(on)</sub>	Turn On Time	2N/PN	2		15		15		15	ns	V <sub>DD</sub> = 10V, V <sub>GS(H)</sub> = 0V
t <sub>r</sub>		SST	2								
		2N/PN	2		5		5		5		
t <sub>d(off)</sub>		SST	2								
	2N/PN	6		20		35		50			
t <sub>f</sub>	SST	6									
	2N/PN	13		15		20		30			
t <sub>f</sub>	SST	13									

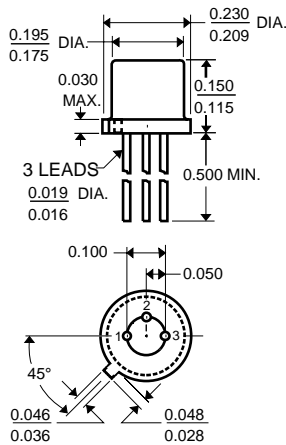
### SWITCHING CIRCUIT CHARACTERISTICS

SYM.	4391	4392	4393
$V_{GS(L)}$	-12V	-7V	-5V
$R_L$	800 $\Omega$	1600 $\Omega$	3200 $\Omega$
$I_{D(on)}$	12mA	6mA	3mA

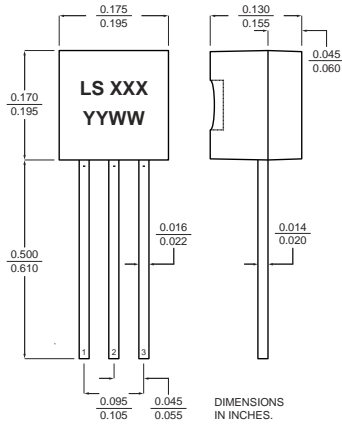
### SWITCHING TEST CIRCUIT



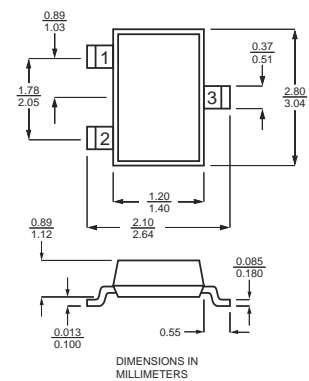
### TO-18 Three Lead



### TO-92



### SOT-23



### NOTES

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse test:  $PW \leq 300\mu s$ , Duty Cycle  $\leq 3\%$

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