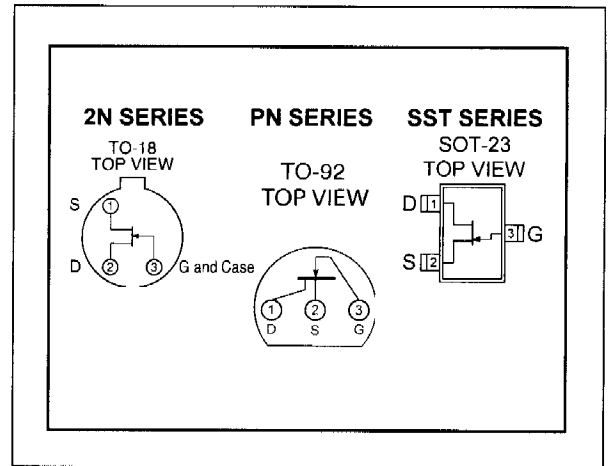


20 STERN AVE.  
 SPRINGFIELD, NEW JERSEY 07081  
 U.S.A.

**2N/PN/SST4391**  
**SERIES**  
 SINGLE N-CHANNEL JFET SWITCH

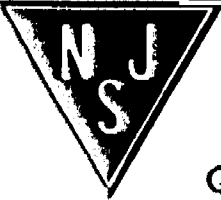
FEATURES	
Replacement for Siliconix 2N/PN/SST4391, 4292, & 4393	
LOW ON RESISTANCE	$r_{DS(on)} \leq 30\Omega$
FAST SWITCHING	$t_{ON} \leq 15ns$
<b>ABSOLUTE MAXIMUM RATINGS<sup>1</sup></b> @ 25 °C (unless otherwise stated)	
<b>Maximum Temperatures</b>	
Storage Temperature (2N)	-65 to 200°C
Storage Temperature (PN/SST)	-55 to 150°C
Junction Operating Temperature (2N)	-55 to 200°C
Junction Operating Temperature (PN/SST)	-55 to 150°C
<b>Maximum Power Dissipation</b>	
Continuous Power Dissipation (2N)@Tc=25°C	1800mW <sup>3</sup>
Continuous Power Dissipation (PN/SST)	350mW <sup>4</sup>
<b>Maximum Currents</b>	
Gate Current	50mA
<b>Maximum Voltages</b>	
Gate to Drain or Source (2N/PN)	-40V



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

SYM.	CHARACTERISTIC	TYP	4391		4392		4393		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
$BV_{GSS}$	Gate to Source Breakdown Voltage		-40		-40		-40		V	$I_G = -1\mu A, V_{DS} = 0V$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	2N/PN	-4	-10	-2	-5	-0.5	-3		$V_{DS} = 20V, I_D = 1nA$
		SST	-4	-10	-2	-5	-0.5	-3		$V_{DS} = 15V, I_D = 10nA$
$V_{GS(F)}$	Gate to Source Forward Voltage	0.7		1		1		1		$I_G = 1mA, V_{DS} = 0V$
$V_{DS(on)}$	Drain to Source On Voltage	0.25						0.4		$V_{GS} = 0V, I_D = 3mA$
		0.3				0.4				$V_{GS} = 0V, I_D = 6mA$
		0.35		0.4					$V_{GS} = 0V, I_D = 12mA$	
$I_{DSS}$	Drain to Source Saturation Current <sup>2</sup>	2N	50	165	25	150	5	125	mA	$V_{DS} = 20V, V_{GS} = 0V$
		PN	50	165	25	150	5	125		
		SST	50		25		5			
$I_{GSS}$	Gate Leakage Current	2N/SST	-5			-100		-100	pA	$V_{GS} = -20V, V_{DS} = 0V$
		PN	-5		-1000		-1000			
$I_G$	Gate Operating Current	-5								$V_{DG} = 15V, I_D = 10mA$

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



**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> = -12V
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
g <sub>os</sub>	Output Conductance	25							μS	f = 1kHz
r <sub>ds(on)</sub>	Drain to Source On Resistance			30	60		100		Ω	V <sub>GS</sub> = 0V, I <sub>D</sub> = 1mA
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						
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

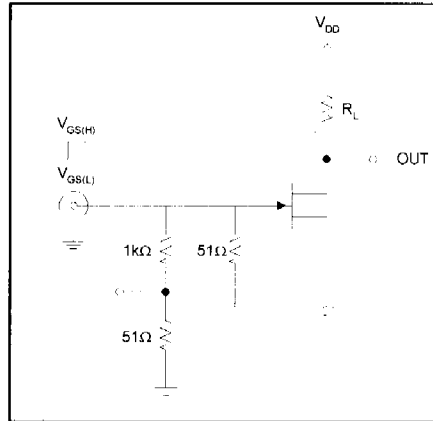
**SWITCHING ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)**

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
		SST	2							
t <sub>r</sub>		2N/PN	2	5	5		5			
		SST	2							
t <sub>d(off)</sub>	Turn Off Time	2N/PN	6	20	35		50			
		SST	6							
t <sub>f</sub>		2N/PN	13	15	20		30			
		SST	13							

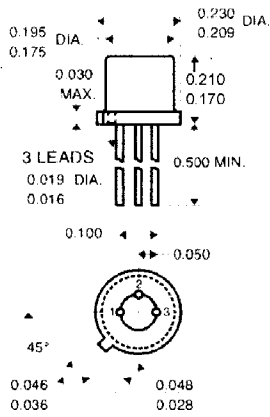
**SWITCHING CIRCUIT CHARACTERISTICS**

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

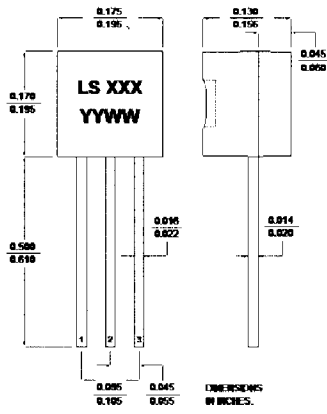
**SWITCHING TEST CIRCUIT**



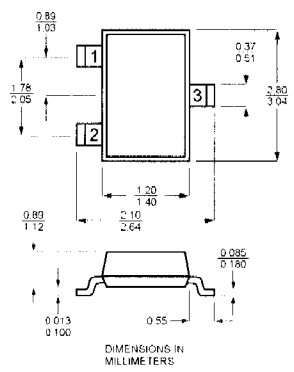
**TO-18 \*  
Three Lead**



**TO-92 \***



**SOT-23**



\*Dimensions in inches