New Jersey Semi-Conductor Products, Inc.

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# **N-Channel JFET Switch**

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## 2N4391 - 2N4393 / PN4391 - PN4393 / SST4391 - SST4393

#### FEATURES

- rds(on)<300 Ohms (2N4391)
- ID(OFF)<100pA</li>
- Switches ±10VAC With ±15V Supplies (4392, 4393)



### ABSOLUTE MAXIMUM RATINGS

(T<sub>A</sub> = 25°C unless otherwise noted)

Gate-Source or Gate-Drain Voltage -40V   Gate Current 10mA   Storage Temperature Range -65°C to +200°C   Operating Temperature Range -55°C to +200°C   Lead Temperature (Soldering, 10sec) +300°C							
	TO-18	TO-92	SOT-23				
Power Dissipation Derate above 25°C	1.8W 10mW/°C	360mW 3.3mW/°C	350mW 2.8mW/°C				
Plastic Storage Operating	· · · · · · · · · · · · · · ·		°C to +150°C °C to +135°C				

**NOTE:** Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

#### **ORDERING INFORMATION**

Part	Package	Temperature Range				
2N4391/93	Hermetic TO-18	-55°C to +200°C				
PN4391/93	Plastic TO-92	-55°C to +135°C				
SST4391/93	Plastic SOT-23	-55°C to +135°C				
X2N4391/93	Sorted Chips in Carriers	-55°C to +200°C				



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.

### **Quality Semi-Conductors**

## 2N4391 - 2N4393 / PN4391 - PN4393 SST4391 - SST4393

SYMPOL	DADAMETED	4391		4392		4393					
	PARAWETER		MAX	MiN	MAX	MIN	MAX	UNITŞ	1	TEST CONDITIONS	
Lass Coto Roverno Current		-100		-100		-100	pА	$V_{GS} = -20V, V_{DS} = 0$ $T_A = 150^{\circ}$			
			-200		-200		-200			nA	T <sub>A</sub> = 150°C
BVGSS	Gate-Source Breakdown Voltage	-40		-40		-40		V	I <sub>G</sub> = -1μA, V <sub>DS</sub> = 0		
I <sub>D(off</sub> )	Drain Cutoff Current		100		100		100	pА	V <sub>DS</sub> = 20V	V <sub>GS</sub> = -5V (4393) V <sub>GS</sub> = -7V (4392)	
			200 <sup>°</sup>		200		200	nA		V <sub>GS</sub> = -12V (43	91)
VGS(f)	Gate-Source Forward Voltage		1		1		1	.,	I <sub>G</sub> = 1mA, V <sub>DS</sub> = 0		
VGS(off)	Gate-Source Cutoff Voltage	4	-10	-2	-5	-0.5	-3	V	V <sub>DS</sub> = 20V, I <sub>D</sub> = 1nA		
IDSS	Saturation Drain Current (Note 1)	50	150	25	75	5	30	mA	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0		
VDS(on)	Drain-Source ON Voltage		0.4		0.4		0.4	v	$V_{GS} = 0 \qquad I_D = 3mA (4393) \\ I_D = 6mA (4392) \\ I_D = 12mA (4391) $		
rDS(on)	Static Drain-Source ON Resistance		30		60		100	Ω	V <sub>GS</sub> = 0, I <sub>D</sub> = 1mA		
fds(on)	Drain-Source ON Resistance		30		60		100		V <sub>GS</sub> = 0, I <sub>D</sub> = 0 f = 1kHz		f = 1kHz
Ciss	Common-Source Input Capacitance (Note 2)		14		14		14		V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0		
Crss	Common-Source Reverse Transfer Capacitance (Note 2)						3.5	рF		V <sub>GS</sub> = -5V	f = 1MHz
					3.5				V <sub>DS</sub> = 0	V <sub>GS</sub> = -7V	
			3.5							V <sub>GS</sub> = -12V	
ta	Turn-ON Delay Time (Note 2)		15		15		15		V <sub>DD</sub> = 10V, V <sub>GS(on)</sub> = 0		
tr	Rise Time (Note 2)		5		5		5	ns	ار ار	D(on) VGS(off)	
toff	Turn-OFF Delay Time (Note 2)		20		35		50		4391 12mA -12V 4392 6 -7		
tr	Fall Time (Note 2)		15		20		30		4393	3 -5	

### **ELECTRICAL CHARACTERISTICS** ( $T_A = 25^{\circ}C$ unless otherwise specified)

**NOTES: 1.** Pulse test required, pulse width =  $300\mu$ s, duty cycle  $\leq 3\%$ . **2.** For design reference only, not 100% tested.

