

# J/SST108 SERIES

## LOW NOISE SINGLE N-CHANNEL JFET SWITCH

### FEATURES

Direct Replacement for Siliconix J/SST: 108, 109, 110, & 110A

LOW ON RESISTANCE  $r_{DS(on)} \leq 8\Omega$

FAST SWITCHING  $t_{ON} \leq 4ns$

### ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

@ 25 °C (unless otherwise stated)

#### Maximum Temperatures

Storage Temperature -55 to 150°C

Junction Operating Temperature -55 to 150°C

#### Maximum Power Dissipation

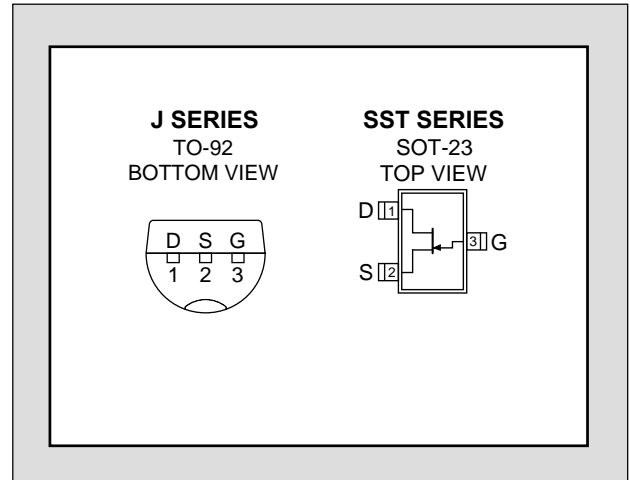
Continuous Power Dissipation 350mW

#### Maximum Currents

Gate Current 50mA

#### Maximum Voltages

Gate to Drain or Source -25V



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

SYM.	CHARACTERISTIC	TYP	J/SST108		J/SST109		J/SST110		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
BV <sub>GSS</sub>	Gate to Source Breakdown Voltage		-25		-25		-25		V	I <sub>G</sub> = -1μA, V <sub>DS</sub> = 0V
V <sub>GS(off)</sub>	Gate to Source Cutoff Voltage		-3	-10	-2	-6	-0.5	-4		V <sub>DS</sub> = 5V, I <sub>D</sub> = 1μA
V <sub>GS(F)</sub>	Gate to Source Forward Voltage	0.7								I <sub>G</sub> = 1mA, V <sub>DS</sub> = 0V
I <sub>DSS</sub>	Drain to Source Saturation Current <sup>2</sup>		80		40		10		mA	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V
I <sub>GSS</sub>	Gate Leakage Current	-0.01		-3		-3		-3	nA	V <sub>GS</sub> = -15V, V <sub>DS</sub> = 0V
I <sub>G</sub>	Gate Operating Current	-0.01								V <sub>DG</sub> = 10V, I <sub>D</sub> = 10mA
I <sub>D(off)</sub>	Drain Cutoff Current	0.02		3		3		3		V <sub>DS</sub> = 5V, V <sub>GS</sub> = -10V
r <sub>DS(on)</sub>	Drain to Source On Resistance	108, 109, 110		8		12		18	Ω	V <sub>GS</sub> = 0V, V <sub>DS</sub> ≤ 0.1V
		110A					25			

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

SYM.	CHARACTERISTIC	TYP	J/SST108		J/SST109		J/SST110		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
g <sub>fs</sub>	Forward Transconductance	17							mS	V <sub>DS</sub> = 5V, I <sub>D</sub> = 10mA f = 1kHz
g <sub>os</sub>	Output Conductance	0.6								
r <sub>ds(on)</sub>	Drain to Source On Resistance			8		12		18	Ω	V <sub>GS</sub> = 0V, I <sub>D</sub> = 0A f = 1kHz
C <sub>iss</sub>	Input Capacitance	SST	60						pF	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V f = 1MHz
		J	60	85		85		85		
C <sub>rss</sub>	Reverse Transfer Capacitance	SST	11							V <sub>DS</sub> = 0V, V <sub>GS</sub> = -10V f = 1MHz
		J	11	15		15		15		
e <sub>n</sub>	Equivalent Input Noise Voltage	3.5							nV/√Hz	V <sub>DS</sub> = 5V, I <sub>D</sub> = 10mA f = 1kHz

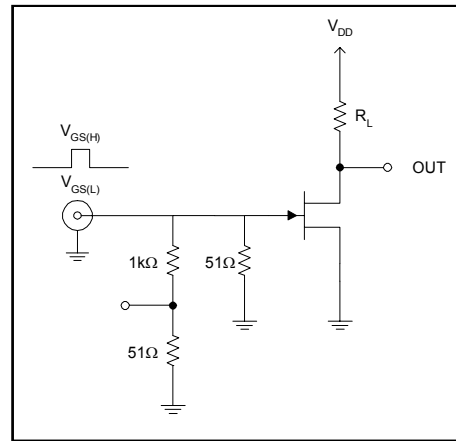
### SWITCHING CHARACTERISTICS

SYM.	CHARACTERISTIC	TYP	UNIT	CONDITIONS
$t_{d(on)}$	Turn On Time	3	ns	$V_{DD} = 1.5V$ $V_{GS(H)} = 0V$
$t_r$		1		
$t_{d(off)}$	Turn Off Time	4		
$t_f$		18		

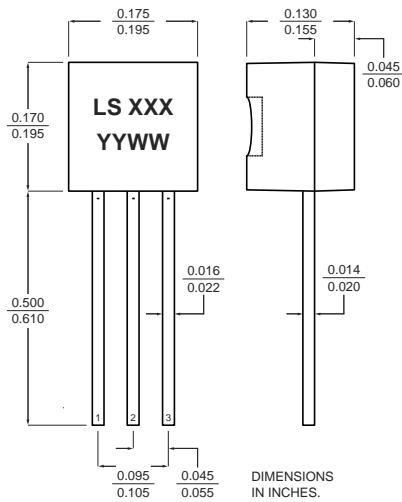
### SWITCHING CIRCUIT CHARACTERISTICS

SYM.	J/SST108	J/SST109	J/SST110
$V_{GS(L)}$	-12V	-7V	-5V
$R_L$	150Ω	150Ω	150Ω
$I_{D(on)}$	10mA	10mA	10mA

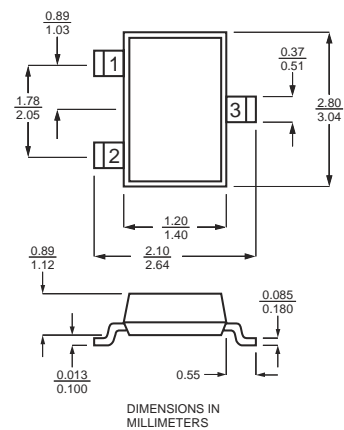
### SWITCHING TEST CIRCUIT



### 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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