

# SST6908 SERIES



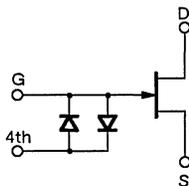
## N-Channel JFET Circuits

The SST6908 Series is much more than a JFET. The addition of back-to-back diodes effectively clamps input "over-voltage" while a high-performance JFET provides an effective amplification stage. With the addition of a source resistor, a complete common-source amplifier is created which provides both low leakage and very low noise. This performance is especially effective as a small signal pre-amplifier as well as impedance matching between low and high impedance sources. Finally, its SOT-143 package provides a cost effective design solution and is available tape and reeled to support automated assembly. (See Section 8.)

For additional design information please see performance curves NBB, which are located in Section 7.

### SIMILAR PRODUCTS

- TO-72, See 2N6908 Series
- Chips, Order 2N69XXCHP

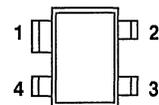


PART NUMBER	$V_{GS(OFF)}$ MAX (V)	$V_{(BR)GSS}$ MIN (V)	$g_{fs}$ MIN ( $\mu S$ )	$I_{DSS}$ MAX (mA)
SST6908	-1.8	-30	100	2
SST6909	-2.3	-30	400	3.5
SST6910	-3.5	-30	1200	5

SOT-143



TOP VIEW



- 1 GATE
- 2 DRAIN
- 3 SOURCE
- 4 DIODES (4TH)

PRODUCT MARKING	
SST6908	B08
SST6909	B09
SST6910	B10

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ unless otherwise noted)

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMIT	UNITS
Gate-Drain Voltage	$V_{GD}$	-30	V
Gate-Source Voltage	$V_{GS}$	-30	
Forward Gate Current	$I_G$	10	mA
Power Dissipation	$P_D$	350	mW
Power Derating		2.8	mW/ $^\circ C$
Operating Junction Temperature	$T_J$	-55 to 150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 to 150	
Lead Temperature (1/16" from case for 10 seconds)	$T_L$	300	

ELECTRICAL CHARACTERISTICS <sup>1</sup>				LIMITS						
PARAMETER	SYMBOL	TEST CONDITIONS	TYP <sup>2</sup>	SST6908		SST6909		SST6910		UNIT
				MIN	MAX	MIN	MAX	MIN	MAX	
<b>STATIC</b>										
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = -1\mu A, V_{DS} = 0 V$ $V_{G4} = 0 V$	-50	-30		-30		-30		V
Gate-Source Cutoff Voltage	$V_{GS(OFF)}$	$V_{DS} = 10 V, I_D = 1 nA$ $V_{G4} = 0 V$		-0.3	-1.8	-0.6	-2.3	-0.9	-3.5	V
Saturation Drain Current <sup>3</sup>	$I_{DSS}$	$V_{DS} = 10 V, V_{GS} = 0 V$ $V_{G4} = 0 V$		0.05	2	0.2	3.5	0.6	5	mA
Gate Reverse Current	$I_{GSS}$	$V_{GS} = -15 V$ $V_{DS} = 0 V$ $V_{G4} = 0 V$ $T_A = 125^\circ C$	-2		-25		-25		-25	pA
			-1							nA
Gate Operating Current	$I_G$	$V_{DG} = 15 V, I_D = 50 \mu A$	-2							pA
Forward Gate Diode Current <sup>4</sup>	$I_{G4}$	$V_{G4} = \pm 100 mV$	$\pm 1$		$\pm 10$		$\pm 10$		$\pm 10$	pA
Gate-Source Forward Voltage	$V_{GS(F)}$	$I_G = \pm 0.5 mA, V_{DS} = 0 V$ $V_{G4} = 0 V$	$\pm 0.7$		$\pm 1.2$		$\pm 1.2$		$\pm 1.2$	V
<b>DYNAMIC</b>										
Common-Source Forward Transconductance	$g_{fs}$	$V_{DS} = 15 V, V_{GS} = 0 V$ $V_{G4} = 0 V, f = 1 kHz$		0.1	3	0.4	3.5	1.2	4	mS
Common-Source Output Conductance	$g_{os}$				50		75		100	$\mu S$
Common-Source Input Capacitance	$C_{iss}$	$V_{DS} = 10 V, V_{GS} = 0 V$ $V_{G4} = 0 V, f = 1 MHz$	3.2		5		5		5	pF
Common-Source Reverse Transfer Capacitance	$C_{rss}$		1.5		2		2		2	
Equivalent Input Noise Voltage	$\bar{e}_n$	$V_{DS} = 10 V, V_{GS} = 0 V$ $f = 10 Hz$	12		25		25		25	$nV/\sqrt{Hz}$
Noise Figure	NF	$V_{DS} = 15 V, V_{GS} = 0 V, f = 1 kHz$ $R_G = 1 M\Omega$	0.1		1		1		1	dB

- NOTES: 1.  $T_A = 25^\circ C$  unless otherwise noted.  
 2. For design aid only, not subject to production testing.  
 3. Pulse test;  $PW = 300 \mu s$ , duty cycle  $\leq 3\%$ .  
 4. Forward diode current when a voltage is applied between gate and fourth lead.