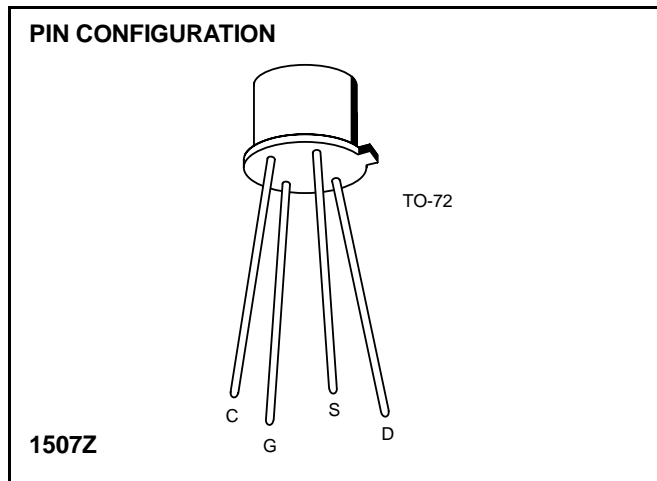


### FEATURES

- Channel Cut Off With Zero Gate Voltage
- Square-Law Transfer Characteristic Reduces Distortion
- Independent Substrate Connection Provides Flexibility In Biasing
- Internally Connected Diode Protects Gate From Damage Due to Overvoltage



### ABSOLUTE MAXIMUM RATINGS

( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Drain-Source or Drain-Gate Voltage	40V
Drain Current	50mA
Gate Forward Current	10 $\mu$ A
Gate Reverse Current	1mA
Storage Temperature	-65 $^\circ\text{C}$ to +200 $^\circ\text{C}$
Operating Temperature	-55 $^\circ\text{C}$ to +150 $^\circ\text{C}$
Lead Temperature (Soldering, 10sec)	+300 $^\circ\text{C}$
Power Dissipation	375mW
Derate above 25 $^\circ\text{C}$	3.0mW/ $^\circ\text{C}$

**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
3N161	Hermetic TO-72	-55 $^\circ\text{C}$ to +150 $^\circ\text{C}$
X3N161	Sorted Chips in Carriers	-55 $^\circ\text{C}$ to +150 $^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ and $V_{BS} = 0$ unless otherwise specified)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
$I_{GSSF}$	Forward Gate-Terminal Current		-100	pA	$V_{GS} = -25V, V_{DS} = 0$ $T_A = +100^\circ\text{C}$
			-10	nA	
$BV_{GSS}$	Forward Gate-Source Breakdown Voltage	-25		V	$I_G = -0.1mA, V_{DS} = 0$
$I_{DSS}$	Zero-Gate-Voltage Drain Current		-10	nA	$V_{DS} = -15V, V_{GS} = 0$
			-10	$\mu$ A	$V_{DS} = -25V, V_{GS} = 0$
$V_{GS(th)}$	Gate-Source Threshold Voltage	-1.5	-5	V	$V_{DS} = -15V, I_D = -10\mu A$
$V_{GS}$	Gate-Source Voltage	-4.5	-8		$V_{DS} = -15V, I_D = -8mA$
$I_{D(on)}$	On-State Drain Current (Note 2)	-40	-120	mA	$V_{DS} = -15V, V_{GS} = -15V$
$ y_{fs} $	Small-Signal Common-Source Forward Transfer Admittance	3500	6500	$\mu$ S	$V_{DS} = -15V, I_D = -8mA$ $f = 1kHz$
$ y_{os} $	Small-Signal Common-Source Output Admittance		250		
$C_{iss}$	Common-Source Short-Circuit Input Capacitance (Note 1)		10	pF	$f = 1MHz$
$C_{rss}$	Common-Source Short-Circuit Reverse Transfer Capacitance (Note 1)		4		

- NOTES:** 1. For design reference only, not 100% tested.  
2. Pulse test duration 300 $\mu$ s; duty cycle  $\leq$ 3%.