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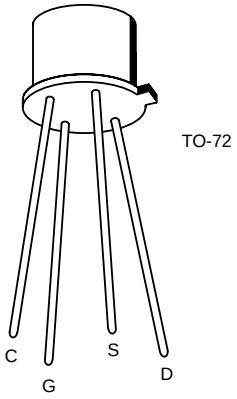
Diode Protected P-Channel Enhancement Mode MOSFET General Purpose Amplifier/Switch

3N161

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**

PIN CONFIGURATION



1507Z

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise specified)

Drain-Source or Drain-Gate Voltage 40V
Drain Current 50mA
Gate Forward Current 10µA
Gate Reverse Current 1mA
Storage Temperature . . . . . -65°C to +200°C
Operating Temperature . . . . . -55°C to +150°C
Lead Temperature (Soldering, 10sec) . . . . . +300°C
Power Dissipation 375mW
Derate above 25°C . . . . . 3.0mW/°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°C to +150°C
X3N161	Sorted Chips in Carriers	-55°C to +150°C

ELECTRICAL CHARACTERISTICS (T_A = 25°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	
			-10	nA		T_A = +100°C
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	µA	V_{DS} = -25V, V_{GS} = 0	
$V_{GS(th)}$	Gate-Source Threshold Voltage	-1.5	-5	V	VDS = -15V, I_D = -10µA	
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	
$\lvert y_{fs} \rvert$	Small-Signal Common-Source Forward Transfer Admittance	3500	6500	µS	V_{DS} = -15V, I_D = -8mA	f = 1kHz
$\lvert y_{os} \rvert$	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 300µs; duty cycle ≤3%.