T-37-25

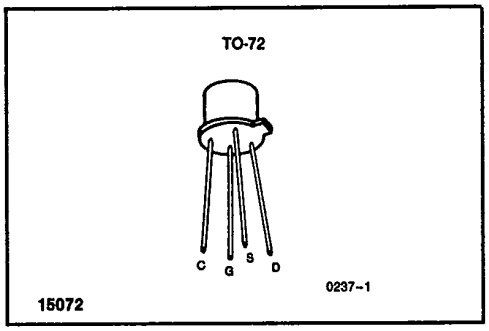
3N161

3N161
Diode Protected P-Channel Enhancement Mode MOSFET General Purpose Amplifier/Switch

INTERSIL

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



ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise noted)

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

TO-72
3N161

ELECTRICAL CHARACTERISTICS (T_A = 25°C and V_{BS} = 0 unless otherwise specified)

Symbol	Parameter	Test Conditions		Min	Max	Units
I_{GSSF}	Forward Gate-Terminal Current	V_{GS} = −25V, V_{DS} = 0			−100	pA
			T_A = +100°C		−10	nA
BV_{GSS}	Forward Gate-Source Breakdown Voltage	I_G = −0.1mA, V_{DS} = 0		−25		V
I_{DSS}	Zero-Gate-Voltage Drain Current	V_{DS} = −15V, V_{GS} = 0			−10	nA
		V_{DS} = −25V, V_{GS} = 0			−10	μA
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{DS} = −15V, I_D = −10μA		−1.5	−5	V
V_{GS}	Gate-Source Voltage	V_{DS} = −15V, I_D = −8mA		−4.5	−8	
$I_{D(on)}$	On-State Drain Current (Note 2)	V_{DS} = −15V, V_{GS} = −15V		−40	−120	mA
$\|y_{fs}\|$	Small-Signal Common-Source Forward Transfer Admittance	V_{DS} = −15V, I_D = −8mA	f = 1kHz	3500	6500	μs
$\|y_{os}\|$	Small-Signal Common-Source Output Admittance				250	
C_{iss}	Common-Source Short-Circuit Input Capacitance (Note 1)		f = 1MHz		10	pF
C_{rss}	Common-Source Short Circuit Reverse Transfer Capacitance (Note 1)				4	

NOTE 1: For design reference only, not 100% tested.
2: Pulse test duration 300 μs; duty cycle ≤ 3%

NOTE: All typical values have been characterized but are not tested.