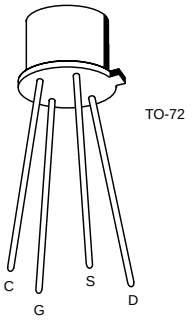
Diode Protected N-Channel Enhancement Mode MOSFET General Purpose Amplifier

M116

FEATURES

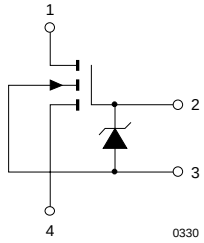
- **Low I_{GSS}**
- **Integrated Zener Clamp for Gate Protection**

PIN CONFIGURATION



1003Z

DEVICE SCHEMATIC



ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise specified)

Drain to Source Voltage 30V
Gate to Drain Voltage 30V
Drain Current 50mA
Gate Zener Current . . . . . ±0.1mA
Storage Temperature Range . . . . . -65°C to +200°C
Operating Temperature Range . . . . . -55°C to +125°C
Lead Temperature (Soldering, 10sec) . . . . . +300°C
Power Dissipation 225mW
Derate above 25°C . . . . . 2.2mW/°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
M116	Hermetic TO-72	-55°C to +125°C
XM116	Sorted Chips in Carriers	-55°C to +125°C

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

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
$r_{DS(on)}$	Drain Source ON Resistance		100	Ω	V_{GS} = 20V, I_D = 100µA
			200		V_{GS} = 10V, I_D = 100µA
$V_{GS(th)}$	Gate Threshold Voltage	1	5	V	V_{GS} = V_{DS}, I_D = 10µA
BV_{DSS}	Drain-Source Breakdown Voltage	30			I_D = 1µA, V_{GS} = 0
BV_{SDS}	Source-Drain Breakdown Voltage	30			I_S = 1µA, V_{GD} = V_{BD} = 0
BV_{GBS}	Gate-Body Breakdown Voltage	30	60		I_G = 10µA, V_{SB} = V_{DB} = 0
$I_{D(OFF)}$	Drain Cuttoff Current		10	nA	V_{DS} = 20V, V_{GS} = 0
$I_{S(OFF)}$	Source Cutoff Current		10		V_{SD} = 20V, V_{GD} = V_{BD} = 0
I_{GSS}	Gate-Body Leakage		100	pA	V_{GS} = 20V, V_{DS} = 0
C_{gs}	Gate-Source (Note 1)		2.5	pF	V_{GB} = V_{DB} = V_{SB} = 0, f = 1MHz Body Guarded
C_{gd}	Gate-Drain Capacitance (Note 1)		2.5		
C_{db}	Drain-Body Capacitance (Note 1)		7		V_{GB} = 0, V_{DB} = 10V, f = 1MHz
C_{iss}	Input Capacitance (Note 1)		10		V_{GB} = 0, V_{DB} = 10V, V_{BS} = 0, f = 1MHz

NOTE 1: For design reference only, not 100% tested.