

# enhancement-type n-channel MOSFET designed for . . .

- General Purpose Amplifiers
- Analog Switches
- Digital Switching

**Performance Curves  
MBN See Section 4**

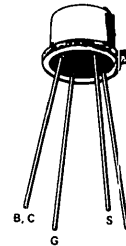
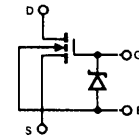
**BENEFITS**

- Low Insertion Loss  
 $R_{DS(on)} = 100 \Omega$  Maximum
- Rugged  
Zener Diode Input Protection

**ABSOLUTE MAXIMUM RATINGS (25°C)**

Drain-to-Source Voltage	30 V
Gate-to-Source Voltage	30 V
Gate-to-Drain Voltage	30 V
Drain Current	50 mA
Gate Zener Current	±0.1 mA
Storage Temperature	-65 to 150°C
Operating Junction Temperature	-55 to +125°C
Total Device Dissipation (Derate 2.25 mW/°C to 125°C)	225 mW

TO-72  
See Section 6

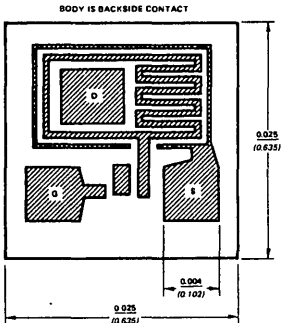


M116

**ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)**

	Characteristic	M116		Unit	Test Condition
		Min	Max		
1	I <sub>GSS</sub> Gate-Body Leakage		100	pA	V <sub>GS</sub> = 20 V, V <sub>DS</sub> = V <sub>BS</sub> = 0
2	V <sub>GS(th)</sub> Gate Threshold Voltage	1	5	V	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = 10 μA, V <sub>BS</sub> = 0
3	BV <sub>DSS</sub> Drain-Source Breakdown Voltage	30			I <sub>D</sub> = 1 μA, V <sub>GS</sub> = V <sub>BS</sub> = 0
4	BV <sub>SDS</sub> Source-Drain Breakdown Voltage	30			I <sub>S</sub> = 1 μA, V <sub>GD</sub> = V <sub>BD</sub> = 0
5	BV <sub>GBS</sub> Gate-Body Breakdown Voltage	30	60	nA	I <sub>G</sub> = 10 μA, V <sub>SB</sub> = V <sub>DB</sub> = 0
6	I <sub>D(off)</sub> Drain Cutoff Current		10		V <sub>DS</sub> = 20 V, V <sub>GS</sub> = V <sub>BS</sub> = 0
7	I <sub>S(off)</sub> Source Cutoff Current		10		V <sub>SD</sub> = 20 V, V <sub>GD</sub> = V <sub>BD</sub> = 0
8	r <sub>DS(on)</sub> Drain Source ON Resistance		100	Ω	V <sub>GS</sub> = 20 V, I <sub>D</sub> = 100 μA, V <sub>BS</sub> = 0
9			200		V <sub>GS</sub> = 10 V, I <sub>D</sub> = 100 μA, V <sub>BS</sub> = 0
10	C <sub>iss</sub> Input Capacitance		10	pF	V <sub>GB</sub> = 0, V <sub>DB</sub> = 10 V, V <sub>BS</sub> = 0
11	C <sub>gs</sub> Gate-Source Capacitance		2.5		V <sub>GB</sub> = V <sub>DB</sub> = 0
12	C <sub>gd</sub> Gate-Drain Capacitance		2.5		Body Guarded
13	C <sub>db</sub> Drain-Body Capacitance		7		V <sub>GB</sub> = 0, V <sub>DB</sub> = 10 V

MBN



ALL DIMENSIONS IN INCHES.  
(ALL DIMENSIONS IN MILLIMETERS.)

## enhancement-type n-channel MOSFET designed for...

- Audio Amplifiers
- Analog Circuits
- Digital Switching Circuits
- Commutating Circuits

<b>TYPE</b>	<b>PACKAGE</b>
Single	TO-72
Single	Chip

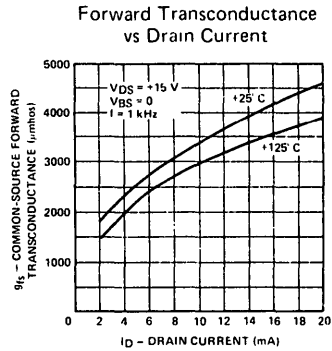
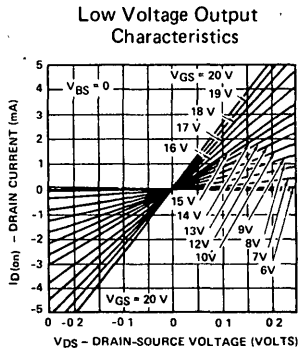
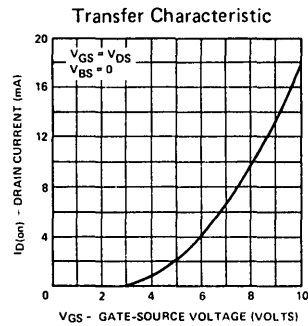
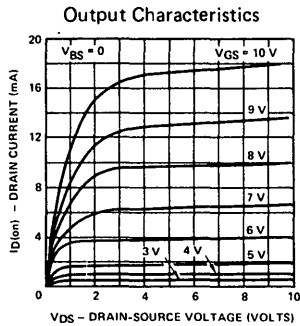


**BENEFITS:**

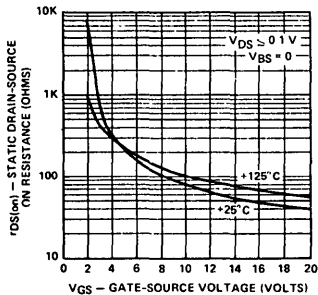
- Integrated Zener Clamp Protects the Gate
- Normally OFF

<b>PRINCIPAL DEVICES</b>
M116
M116CHP

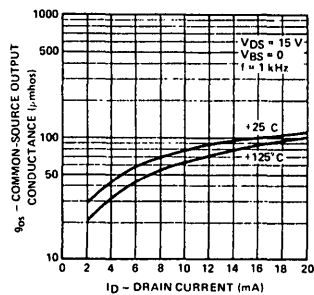
### PERFORMANCE CURVES (25°C unless otherwise noted)



Drain-Source ON State Resistance vs Gate-Source Bias

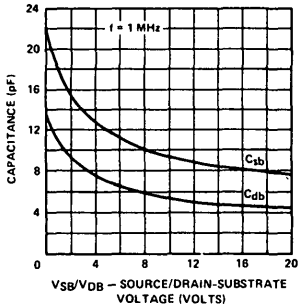


Output Conductance vs Drain Current

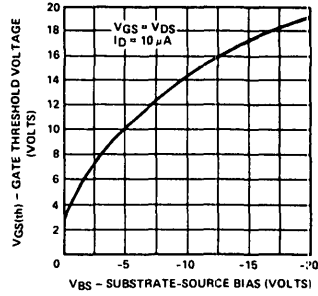


PERFORMANCE CURVES (Cont'd) (25°C unless otherwise noted)

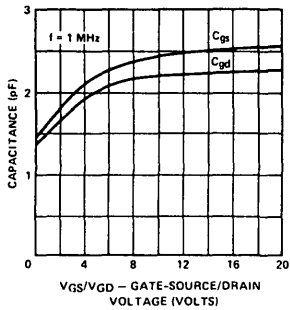
Substrate Capacitance vs Voltage



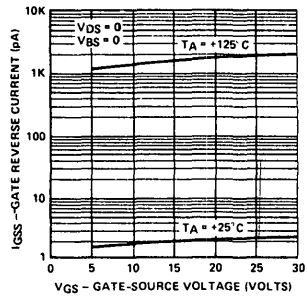
Gate Threshold Voltage vs Substrate Bias



Gate Capacitance vs Voltage



Gate Leakage Current vs Gate-Source Bias



Source-Drain Leakage Currents vs Voltage

