

TOPAZ
SEMICONDUCTOR

**VN10LM,
VN222LM**

N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

ORDERING INFORMATION

TO-237 Plastic Package	VN10LM	VN222LM
Description	60V, 5 ohm	60V, 7.5 ohm

FEATURES

- High Gate Oxide Breakdown, $\pm 40V$ min.
- Low Output and Transfer Capacitances
- Extended Safe Operating Area

APPLICATIONS

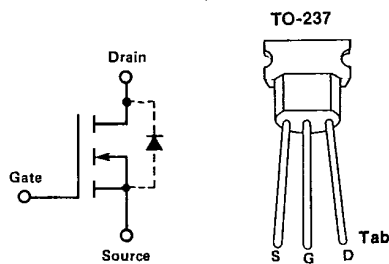
- High-Speed Pulse Amplifiers
- Logic Buffers
- Line Drivers
- Solid-State Relays
- Motor Controls
- Power Supplies

ABSOLUTE MAXIMUM RATINGS ($T_A = +25^\circ C$ unless otherwise noted)

Drain-Source Voltage	+60V	
Drain-Gate Voltage ($V_{GS} = 0$)	+60V	
Gate-Source Voltage	± 40	
Continuous Drain Current		
	$T_A = 25^\circ C$	$T_C = 25^\circ C$
VN10LM	.19A	.44A
VN222LM	.16A	.36A
Peak Pulsed Drain Current	1.0A	

Continuous Device Dissipation		
	$T_A = +25^\circ C$	$T_C = +25^\circ C$
	0.36	1.8 W
Linear Derating Factor		
	$T_A = +25^\circ C$	$T_C = +25^\circ C$
	2.9	14.4 mW/ $^\circ C$
Operating Junction		
Temperature Range	-55 to +150 $^\circ C$	
Storage Temperature Range	-55 to +150 $^\circ C$	
Lead Temperature (1/16" from mounting surface for 30 Sec)	+260 $^\circ C$	

SCHEMATIC DIAGRAM/PACKAGE



PACKAGE DIMENSIONS

TO-237
(See Package 7)

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$ unless otherwise noted)

#	CHARACTERISTIC	VN10LM			VN2222LM			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
1	BV_{DSS} Drain-Source Breakdown Voltage	60	100		60	100		V	$I_D = 100\mu\text{A}$, $V_{GS} = 0$
2	$V_{GS(th)}$ Gate-Source	0.8	1.9	2.5	0.6	1.9	2.5	V	$I_D = 1.0\text{mA}$, $V_{DS} = V_{GS}$
3	I_{GBS} Gate-Body Leakage Current		± 1.0	± 100		± 1.0	± 100	nA	$V_{GS} = \pm 30\text{V}$, $V_{DS} = 0$
4	I_{DSS} Drain-Source OFF Leakage Current		0.1	10		0.1	10	μA	$V_{DS} = 48\text{V}$, $V_{GS} = 0$
5			5.0	500		5.0	500		$T_A = 125^\circ\text{C}$
6	$I_{D(on)}$ ON Drain Current	1.0	2.2		1.0	2.2		A	$V_{DS} = 10\text{V}$, $V_{GS} = 10\text{V}$ (Note 1)
7	$V_{DS(on)}$ Drain-Source ON Voltage		0.9	1.5		0.9	1.5	V	$V_{GS} = 5\text{V}$, $I_D = 0.2\text{A}$ (Note 1)
8			1.5	2.5		1.5	3.75		$V_{GS} = 10\text{V}$, $I_D = 0.5\text{A}$ (Note 1)
9			4.5	7.5		4.5	7.5		$V_{GS} = 5\text{V}$, $I_D = 0.2\text{A}$ (Note 1)
10	$r_{DS(on)}$ Drain-Source ON Resistance		3.0	5.0		3.0	7.5	ohms	$V_{GS} = 10\text{V}$, $I_D = 0.5\text{A}$ (Note 1)
11			4.7	9.0		4.7	13.5		$T_A = +125^\circ\text{C}$
12	g_{fs} Common-Source Forward Transcond.	100	400		100	400		mmhos	$V_{DS} = 10\text{V}$, $I_D = 0.5\text{A}$ $f = 1\text{KHz}$ (Note 1)
13	C_{iss} Common-Source Input Capacitance		80	100		80	100	pF	$V_{DS} = 15\text{V}$, $V_{GS} = 0$ $f = 1\text{MHz}$
14	C_{rss} Common-Source Reverse Transfer Capacitance		1.3	5.0		1.3	5.0		
15	C_{oss} Common-Source Output Capacitance		10.5	25		10.5	25		
16	t_{on} Turn-On Time		5.0	10		5.0	10	nSec	$V_{DD} = 15\text{V}$, $V_{G(on)} = 10\text{V}$ $R_G = 25\Omega$, $R_L = 25\Omega$
17	t_{off} Turn-Off Time		6.0	10		6.0	10		

Note 1: Pulse Test 80 μ Sec, 1% Duty Cycle