

## N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

### ORDERING INFORMATION

TO-92 Plastic Package	VN0610LL	VN2222LL
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

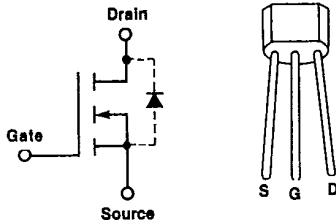
- High-Speed Pulse Amplifiers
- Logic Buffers
- Line Drivers
- Solid-State Relays
- Motor Controls
- Power Supplies

### 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	$\pm 40V$	
Continuous Drain Current	$T_A = 25^\circ C$	$T_C = 25^\circ C$
	VN0610LL	.18A
	VN2222LL	.15A
Peak Pulsed Drain Current	1.0A	

Continuous Device Dissipation	$T_A = +25^\circ C$	$T_C = +25^\circ C$	
	0.30	1.0	W
Linear Derating Factor	$T_A = +25^\circ C$	$T_C = +25^\circ C$	
	2.4	8.0	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-92) TO-226AA

(See Package 5)

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

#	CHARACTERISTICS		VN0610LL			VN2222LL			UNIT	TEST CONDITIONS
			MIN	TYP	MAX	MIN	TYP	MAX		
1	STATIC	$BV_{DSS}$ Drain-Source Breakdown Voltage	60	100		60	100		V	$I_D = 100\mu\text{A}$ , $V_{GS} = 0$
2		$V_{GS(th)}$ Gate-Source Threshold Voltage	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		$\pm 1.0$	$\pm 100$		$\pm 1.0$	$\pm 100$	nA	$V_{GS} = \pm 30\text{V}$ , $V_{DS} = 0$
4		$I_{DSS}$ Drain-Source OFF Leakage Current		0.1	10		0.1	10	$\mu\text{A}$	$V_{DS} = 48\text{V}$ , $V_{GS} = 0$
5				5.0	500		5.0	500		
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		
9		$r_{DS(on)}$ Drain-Source ON Resistance		4.5	7.5		4.5	7.5	ohms	$V_{GS} = 5\text{V}$ , $I_D = 0.2\text{A}$ (Note 1) $V_{GS} = 10\text{V}$ , $I_D = 0.5\text{A}$ (Note 1)
10				3.0	5.0		3.0	7.5		
11				4.7	9.0		4.7	13.5		
12	DYNAMIC	$g_{fs}$ 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		$C_{res}$ 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	$V_{DD} = 15\text{V}$ , $V_{G(on)} = 10\text{V}$
17	$t_{off}$ Turn-Off Time		6.0	10		6.0	10		$R_G = 25\Omega$ , $R_L = 25\Omega$	

 Note 1: Pulse Test  $80\mu\text{Sec}$ , 1% Duty Cycle