

TOPAZ

SEMICONDUCTOR

VN0610LL, VN2222LL

T-29-25

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 ($V_{GS} = 0$) +60VGate-Source Voltage $\pm 40V$

Continuous Drain Current

 $T_A = 25^\circ C$ $T_C = 25^\circ C$

VN0610LL .18A .32A

VN2222LL .15A .26A

Peak Pulsed Drain Current 1.0A

Continuous Device Dissipation

 $T_A = +25^\circ C$ $T_C = +25^\circ C$

0.30 1.0 W

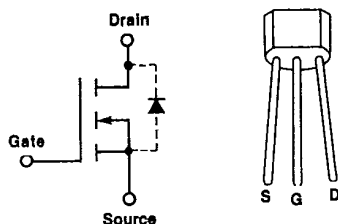
Linear Derating Factor

 $T_A = +25^\circ C$ $T_C = +25^\circ C$
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 mountingsurface 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_{GSS} 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		$r_{DS(on)}$ 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)
10				3.0	5.0		3.0	7.5		$V_{GS} = 10\text{V}$, $I_D = 0.5\text{A}$ (Note 1)
11				4.7	9.0		4.7	13.5		$T_A = +125^\circ\text{C}$
12	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_{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 $80\mu\text{Sec}$, 1% Duty Cycle