



VN0104, VN0106
VN0109

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

T-29-25

ORDERING INFORMATION

TO-226AA (TO-92) Plastic Package	VN0104N3	VN0106N3	VN0109N3
Sorted Chips in Wafer Pack	VN0104ND	VN0106ND	VN0109ND
Description	40V, 3.0 ohm	60V, 3.0 ohm	90V, 3.0 ohm

FEATURES

- Gate Standoff Voltage, $\pm 40V$ min
- Low Output and Transfer Capacitances
- Extended Safe Operating Area
- Complementary P-Channel Devices Available

APPLICATIONS

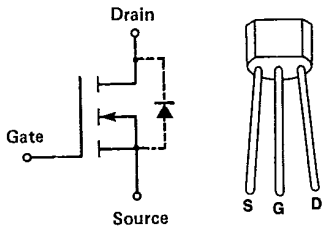
- Complementary Voltage and Current Drivers
- Line Drivers
- Pulse Amplifiers
- Solid-State Relays

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

Drain-Source Voltage		
VN0104	.....	+ 40V
VN0106	.....	+ 60V
VN0109	.....	+ 90V
Drain-Gate Voltage ($V_{GS} = 0$)		
VN0104	.....	+ 40V
VN0106	.....	+ 60V
VN0109	.....	+ 90V
Gate-Source Voltage		$\pm 40V$
Continuous Drain Current		
TO-92(N3)pkg.	$T_A = +25^\circ C$	$T_C = +25^\circ C$
	.23A	.42A
Peak Pulsed Drain Current		+ 2.0A

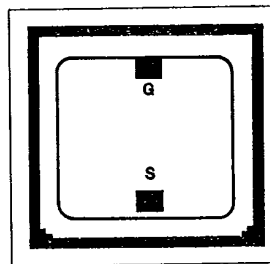
Continuous Device Dissipation		
TO-92(N3)pkg.	$T_A = +25^\circ C$	$T_C = +25^\circ C$
	0.30W	1.0W
Linear Derating Factor		
TO-92(N3)pkg.	$T_A = +25^\circ C$	$T_C = +25^\circ C$
	3.0mW/ $^\circ C$	10mW/ $^\circ C$
Operating Junction and Storage Temperature Range		
	-55 $^\circ C$ to +150 $^\circ C$	
Lead Temperature (1/16" from mounting surface for 30 sec.)		
	+ 260 $^\circ C$	

PIN CONFIGURATION



PACKAGE DIMENSIONS (TO-92) TO-226A
(See Package 5)

CHIP CONFIGURATION



Dimensions: .054 x .051 x .020 in.
Drain is backside contact.



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ELECTRICAL CHARACTERISTICS (T_A = +25°C unless otherwise specified)

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#	PARAMETER	VN0104			VN0106			VN0109			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX		
1	BV _{DSS} Drain-Source Breakdown Voltage	40	60		60	90		90	105		V	I _D = 1.0mA, V _{GS} = 0
2	I _{DSS} Drain-Source Off Leakage Current			100							μA	V _{DS} = 32V T _A = +125°C
3												V _{DS} = 48V
4										100		V _{DS} = 72V
5			.01	1.0								V _{DS} = 40V
6						.01	1.0					V _{DS} = 60V
7								.01	1.0			V _{DS} = 90V
8		I _{GBS} Gate-Body Leakage Current			±1.0		±1.0		±1.0			±1.0
9	V _{GS(th)} Gate-Source Threshold Voltage	0.8		2.4	0.8		2.4	0.8		2.4	V	V _{DS} = V _{GS} , I _D = 1.0mA
11	r _{DS(on)} Drain-Source On Resistance			5.0			5.0			5.0	ohms	V _{GS} = 5V, I _D = .25A
12	I _{D(on)} On Drain Current			3.0			3.0			3.0	A	V _{GS} = 10V, I _D = 1.0A
13	g _{fs} Common-Source Forward Transcond.	.75			.75			.75			mmhos	V _{GS} = 5V V _{DS} = 25V
14		2.0			2.0			2.0				V _{GS} = 10V
15	V _{SD} Source-Drain Forward Voltage			1.8			1.8			1.8	V	I _{SD} = 1.0A, V _{GS} = 0
17	C _{iss} Common-Source Input Capacitance			60			60			60	pF	V _{DS} = 25V V _{GS} = 0 f = 1MHz
18	C _{oss} Common-Source Output Capacitance		11	25		11	25		11	25		
19	C _{rss} Common-Source Reverse Transfer Capacitance		1.5	5.0		1.5	5.0		1.5	5.0		
20	t _{on} Turn ON Time		8.0	13		8.0	13		8.0	13	nS	V _{DD} = 25V, V _{G(on)} = 10V
21	t _{off} Turn OFF Time		8.0	17		8.0	17		8.0	17		R _G = 51Ω, R _L = 25Ω

NOTE 1: Pulse Test, 80μSec, 1% Duty Cycle