



**VPO104, VPO106
VPO109**

P-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

ORDERING INFORMATION

TO-226AA (TO-92) Plastic Package	VP0104N3	VP0106N3	VP0109N3
Sorted Chips in Wafer Pack	VP0104ND	VP0106ND	VP0109ND
Description	-40V, 8.0 ohm	-60V, 8.0 ohm	-90V, 8.0 ohm

FEATURES

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

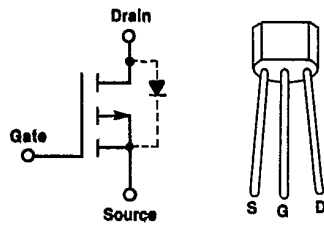
APPLICATIONS

- 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			Continuous Device Dissipation		
VP0104	-40V		TO-92(N3)pkg.	$T_A = +25^\circ C$ 0.30W	$T_C = +25^\circ C$ 1.0W
VP0106	-60V		Linear Derating Factor		
VP0109	-90V		TO-92(N3)pkg.	$T_A = +25^\circ C$ 3.0mW/ $^\circ C$	$T_C = +25^\circ C$ 10mW/ $^\circ C$
Drain-Gate Voltage ($V_{GS} = 0$)			Operating Junction and Storage Temperature		
VP0104	-40V		Range	-55 $^\circ C$ to +150 $^\circ C$	
VP0106	-60V		Lead Temperature (1/16" from mounting surface		
VP0109	-90V		for 30 sec.)	+260 $^\circ C$	
Gate-Source Voltage	$\pm 40V$				
Continuous Drain Current					
	$T_A = +25^\circ C$	$T_C = +25^\circ C$			
TO-92(N3)pkg.	-14A	-26A			
Peak Pulsed Drain Current	-0.5A				

PIN CONFIGURATION

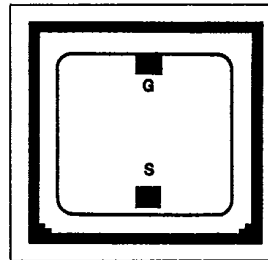


PACKAGE DIMENSIONS (TO-92) TO-226A

(See Package 5)

All dimensions in inches and (millimeters)

CHIP CONFIGURATION



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

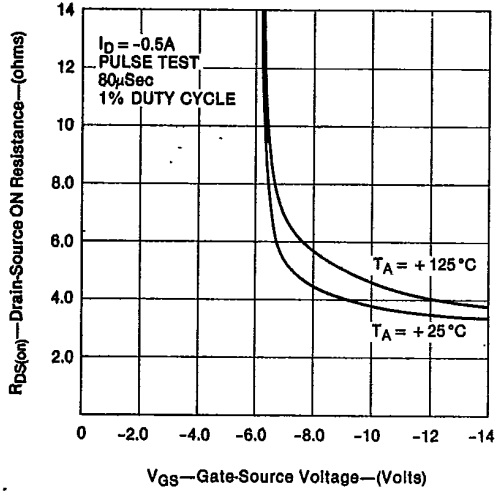
ELECTRICAL CHARACTERISTICS (T_A = +25°C unless otherwise specified)

#	PARAMETER	VP0104			VP0106			VP0109			UNIT	CONDITIONS		
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX				
1	B _{VDS} 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			-1.0							mA	V _{DS} = -32V	T _A = +125°C	
3												V _{DS} = -48V		
4														V _{DS} = -72V
5														V _{DS} = -40V
6	I _{DSS} Drain-Source Off Leakage Current		-0.1	-10							μA	V _{DS} = -60V	V _{GS} = 0	
7												V _{DS} = -90V		
8	I _{GB} Gate-Body Leakage Current			±1.0						±1.0	μA	V _{GB} = ±40V	V _{DS} = 0	
9	I _{GB} Gate-Body Leakage Current			±10						±10	nA	V _{GB} = ±20V	V _{DS} = 0	
10	V _{GS(th)} Gate-Source Threshold Voltage	-1.5		-3.5	-1.5		-3.5	-1.5		-3.5	V	V _{DS} = V _{GS} , I _D = -1.0mA		
11	r _{DS(on)} Drain-Source On Resistance		10	15		10	15		10	15	ohms	V _{GS} = -5V, I _D = -0.1A	(Note 1)	
12	r _{DS(on)} Drain-Source On Resistance		4.0	8.0		4.0	8.0		4.0	8.0	ohms	V _{GS} = -10V, I _D = -0.5A		
13	I _{D(on)} On Drain Current	-0.1	-0.2		-0.1	-0.2		-0.1	-0.2		A	V _{GS} = -5V		V _{DS} = -25V
14			-0.5	-1.2		-0.5	-1.2		-0.5	-1.2				
15	g _{fs} Common-Source Forward Transcond.	150	275		150	275		150	275		mmhos	V _{DS} = -25V, I _D = -0.5A f = 1KHz		
16	V _{SD} Source-Drain Forward Voltage			-2.0						-2.0	V	I _{SD} = -1.0A, V _{GS} = 0		
17	C _{iss} Common-Source Input Capacitance			60						60	pF	V _{DS} = -25V V _{GS} = 0 f = 1MHz		
18	C _{oss} Common-Source Output Capacitance		11	30		11	30		11	30				
19	C _{rss} Common-Source Reverse Transfer Capacitance		1.5	8.0		1.5	8.0		1.5	8.0				
20	t _{on} Turn ON Time		8.0	16		8.0	16		8.0	16	nS	V _{DD} = -25V, V _{G(on)} = -10V		
21	t _{off} Turn OFF Time		8.0	15		8.0	15		8.0	15	nS	R _G = 51Ω, R _L = 51Ω		

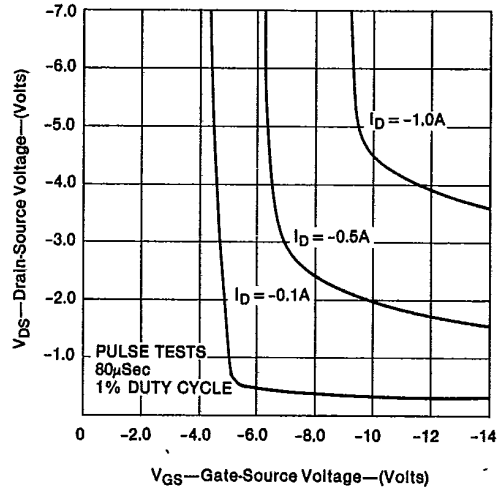
NOTE 1: Pulse Test, 80μSec, 1% Duty Cycle

TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = +25^\circ\text{C}$ unless otherwise specified)

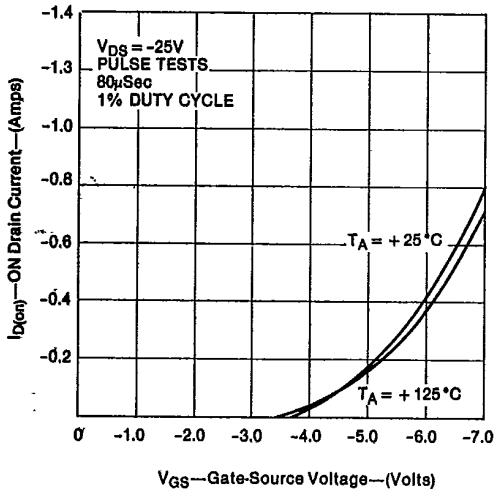
DRAIN-SOURCE ON RESISTANCE
—VS—
GATE-SOURCE VOLTAGE



ON VOLTAGE CHARACTERISTICS



ON DRAIN CURRENT
—VS—
GATE SOURCE VOLTAGE



FORWARD TRANSCONDUCTANCE
—VS—
ON DRAIN CURRENT

