

TOPAZ SEMICONDUCTOR 05E D 9085226 0001112 0

T-29-25

TOPAZ
SEMICONDUCTOR

VP0808, VP1008

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

ORDERING INFORMATION

Sorted Chips in Waffle Pack	VP0808CHP	VP1008CHP
TO-226AA (TO-92) Plastic Package	VP0808L	VP1008L
TO-237 Plastic Package	VP0808M	VP1008M
Description	-80V, 5.0 ohm	-100V, 5.0 ohm

FEATURES

- Gate Stand-off Voltage, $\pm 40V$ min.
- Low Output and Transfer Capacitances
- N-Channel Complements Available

APPLICATIONS

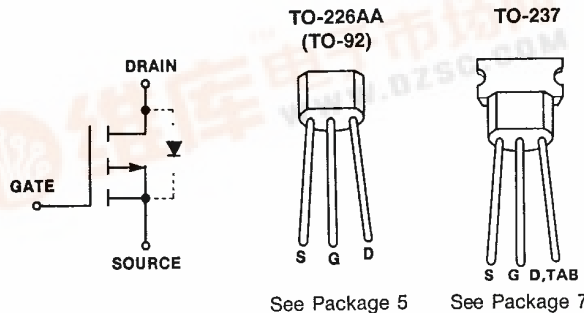
- Motor Controls
- Logic Interfaces
- Pulse Amplifiers

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

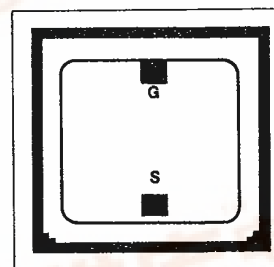
Drain-Source Voltage	VP1008	-100V
	VP0808	-80V
Drain-Gate Voltage ($R_{GS} = 1M\Omega$)	VP1008	-100V
	VP0808	-80V
Gate-Source Voltage		$\pm 40V$
Continuous Drain Current		
	$T_c = +100^\circ C$	$T_c = +25^\circ C$
TO-92 Pkg.	-13A	-21A
TO-237 Pkg.	-21A	-33A
Peak Pulsed Drain Current		-3.0A

Maximum Power Dissipation	$T_c = +100^\circ C$	$T_c = +25^\circ C$
TO-92 Pkg.	0.4W	3.0W
TO-237 Pkg.	0.6W	4.3W
Linear Derating Factor		
	Junction to Ambient	Junction to Case
	(mW/ $^\circ C$)	(mW/ $^\circ C$)
TO-92 Pkg.	5.33	24
TO-237 Pkg.	8.0	34
Operating Junction and Storage Temperature Range		-55 to +150 $^\circ C$
Lead Temperature (1/16" from mounting surface for 10 Sec)		+300 $^\circ C$

PIN CONFIGURATIONS



CHIP CONFIGURATION



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





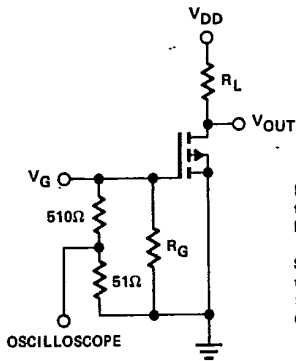
VP0808, VP1008

ELECTRICAL CHARACTERISTICS (T_C = +25°C unless otherwise noted)

#	CHARACTERISTIC	VP0808			VP1008			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
1	BV _{DSS} Drain-Source Breakdown Voltage	-80			-100			V	I _D = -10μA, V _{GS} = 0
2	V _{GS(th)} Gate-Source Threshold Voltage	-2.0		-4.5	-2.0		-4.5	V	V _{DS} = V _{GS} I _D = -1.0mA
3	I _{GBS} Gate-Body Leakage Current			-100			-100	nA	V _{DS} = -30V, V _{GS} = 0
4				100			100		V _{GS} = +30V, V _{DS} = 0
5	I _{DSS} Drain-Source OFF Leakage Current			-10				μA	V _{DS} = -80V
6				-500					V _{GS} = 0
7							-10		V _{DS} = -100V
8							-500		V _{GS} = 0
9	I _{D(on)} ON Drain Current ⁽¹⁾	-1.1			-1.1			A	V _{DS} = -25V, V _{GS} = -10V
10	V _{DS(on)} Drain-Source ⁽¹⁾ ON Voltage		-4.5	-5.0		-4.5	-5.0	V	V _{GS} = -10V, I _D = -1.0A
11	r _{DS(on)} Drain-Source ⁽¹⁾ ON Resistance		4.5	5.0		4.5	5.0	ohms	V _{GS} = -10V
12				8.0			8.0		I _D = -1.0A
13	g _{fs} Common-Source ⁽¹⁾ Forward Transcond.	200	270		200	270		mS	V _{DS} = -25V, I _D = -0.5A, f = 1KHz
14	C _{iss} Common-Source Input Capacitance		60	150		60	150	pF	V _{DS} = -25V, V _{GS} = 0 f = 1MHz
15	C _{rss} Common-Source Reverse Transfer Capacitance		8.0	25		8.0	25		
16	C _{oss} Common-Source Output Capacitance		11	60		11	60		
17	t _{d(on)} Turn-ON Delay Time			10			10	nsec	V _{DD} = -25V R _L = 45 ohms R _G = 25 ohms V _{G(on)} = -10V
18	t _r Rise Time			15			15		
19	t _{d(off)} Turn-OFF Delay Time			10			10		
20	t _f Fall Time			15			15		
21	I _S Continuous Source Current		-0.21			-0.21		A	TO-92 Pkg.
22				-0.33			-0.33		
23	I _{SM} Peak Source Current ⁽¹⁾			-3.0			-3.0		
24	V _{SD} Source-Drain ⁽¹⁾ Forward Voltage		1.2			1.2		V	V _{GS} = 0
25				1.2			1.2		I = .21A, TO-92 Pkg. I = .33A, TO-237 Pkg.

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

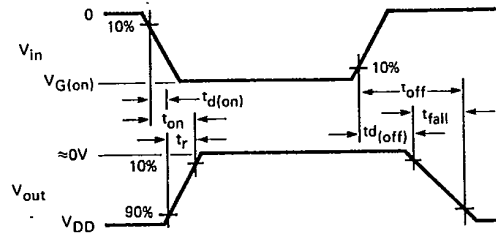
SWITCHING TIME TEST CIRCUIT



INPUT PULSE
 $t_r < 0.5 \text{ nSEC}$
 PULSE WIDTH - 100 nSEC

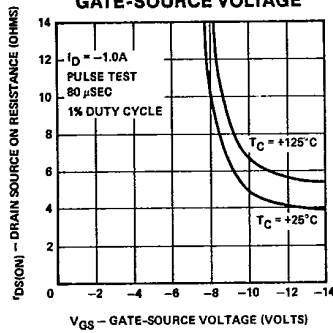
SAMPLING OSCILLOSCOPE
 $t_r < 0.36 \text{ nSEC}$
 $R_{in} > 1 \text{ M}\Omega$
 $C_{in} < 2.0 \text{ pF}$

TEST WAVEFORMS

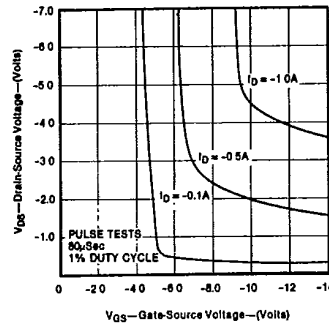


TYPICAL PERFORMANCE CHARACTERISTICS ($T_C = +25^\circ\text{C}$ unless otherwise specified)

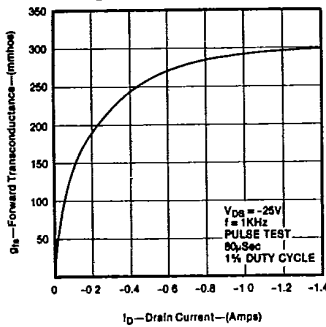
DRAIN-SOURCE ON RESISTANCE
—VS—
GATE-SOURCE VOLTAGE



ON VOLTAGE CHARACTERISTICS



FORWARD TRANSCONDUCTANCE
—VS—
ON DRAIN CURRENT



CAPACITANCES
—VS—
DRAIN-SOURCE VOLTAGE

