TOPAZ SEMICONDUCTOR

T-29-25

VN2410

N-CHANNEL ENHANCEMENT-MODE D-MOS FET

ORDERING INFORMATION

Sorted Chips in Waffle Pack	VN2410CHP
TO-226AA (TO-92) Plastic Package	VN2410L
TO-237 Plastic Package	VN2410M
Description	240V, 10 ohm

FEATURES

- Gate Stand-off Voltage, ±40V min.

APPLICATIONS

- Motor Controls
- Line Drivers
- Power Supplies

ABSOLUTE MAXIMUM RATINGS (T_C = +25°C unless otherwise noted)

Drain-Source Voltage 240V
Drain-Gate Voltage (R_{GS} = 1MΩ) 240V
Gate-Source Voltage ..... ±40V

Continuous Drain Current

	T_C = +100°C	T_C = +25°C
VN2410L	0.14	0.23
VN2410M	0.16	0.26

Peak Pulsed Drain Current 1.0A

Maximum Power Dissipation

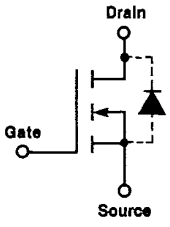
	T_C = +100°C	T_C = +25°C
VN2410L	0.5W	1.35W
VN2410M	0.7W	1.90W

Linear Derating Factor

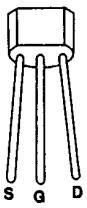
	Junction to Ambient (mW/°C)	Junction to Case (mW/°C)
VN2410L	6.66	10.8
VN2410M	9.33	14.4

Operating Junction and Storage Temperature Range ..... -55 to +150°C
Lead Temperature (1/16" from mounting surface for 10 Sec) ..... +260°C

PIN CONFIGURATION

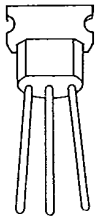


TO-226AA (TO-92)



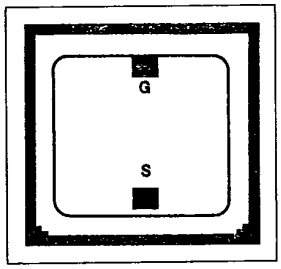
See Package 5

TO-237



See Package 7

CHIP CONFIGURATION



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

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

#		CHARACTERISTIC		VN2410 MIN	VN2410 TYP	VN2410 MAX	UNIT	TEST CONDITIONS	
1	STATIC	BV_{DSS}	Drain-Source Breakdown Voltage	240	290		V	I_D = 250μA, V_{GS} = 0	
2		$V_{GS(th)}$	Gate-Source Threshold Voltage	1.0	1.3	2.0	V	V_{DS} = V_{GS}	
3				0.4				I_D = 1 mA	T_C = +125°C
4		I_{GSS}	Gate-Body Leakage Current			100	nA	V_{GS} = 15V, V_{DS} = 0	
5						500			T_C = +125°C
6						-100		V_{GS} = -15V, V_{DS} = 0	
7		I_{DSS}	Drain-Source OFF Leakage Current			10	μA	V_{DS} = 120V	
8						500		V_{GS} = 0	T_C = +125°C
9		$I_{D(on)}$	ON Drain Current[1]	1.0	1.3		A	V_{DS} = 25V, V_{GS} = 10V	
10		$V_{DS(on)}$	Drain-Source[1] ON Voltage		0.7	1.0	V	V_{GS} = 2.5V, I_D = 0.1A	
11					3.9	5.0		V_{GS} = 10V, I_D = 0.5A	
12		$r_{DS(on)}$	Drain-Source[1] ON Resistance		7.8	10	ohms	V_{GS} = 10V	
13						24.7		I_D = 0.5A	T_C = +125°C
14					7.0	10		V_{GS} = 2.5V, I_D = 0.1A	
15	DYNAMIC	g_{fs}	Common-Source[1] Forward Transcond.	0.3	0.75		S	V_{DS} = 25V, I_D = 0.5A, f = 1KHz	
16		C_{iss}	Common-Source Input Capacitance			125	pF	V_{DS} = 25V, V_{GS} = 0 f = 1MHz	
17		C_{rss}	Common-Source Reverse Transfer Capacitance		6.0	20			
18		C_{oss}	Common-Source Output Capacitance		15	50			
19		$t_{d(on)}$	Turn-ON Delay Time			8.0	nsec	V_{DD} = 60V R_L = 600 ohms R_G = 25 ohms $V_{G(on)}$ = 10V	
20		t_r	Rise Time			8.0			
21		$t_{d(off)}$	Turn-OFF Delay Time			23			
22		t_f	Fall Time			24			
23	DIODE	I_S	Continuous Source Current	.14			A		
24		I_{SM}	Peak Source Current[1]	1.0					
25		V_{SD}	Source-Drain[1] Forward Voltage		-1.2		V	V_{GS} = 0, I_S = -0.14A	

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