Siliconix incorporated 352-779

VN2410 SERIES

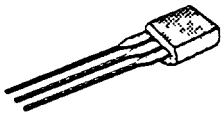
N-Channel Enhancement-Mode MOS Transistors

PRODUCT SUMMARY

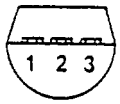
PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VN2410L	240	10	0.17	TO-92
VN2410M	240	10	0.19	TO-237

Performance Curves: VNDB24 (See Section 7)

TO-92

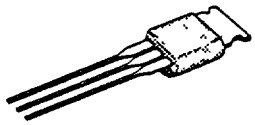


BOTTOM VIEW

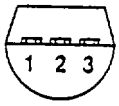


1 SOURCE
2 GATE
3 DRAIN

TO-237



BOTTOM VIEW



1 SOURCE
2 GATE
3 DRAIN

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

PARAMETERS/TEST CONDITIONS		SYMBOL	VN2410L	VN2410M	UNITS
Drain-Source Voltage		V_{DS}	240	240	V
Gate-Source Voltage		V_{GS}	±30	±30	
Continuous Drain Current	T_A = 25°C	I_D	0.17	0.19	A
	T_A = 100°C		0.11	0.12	
Pulsed Drain Current[1]		I_{DM}	1.7	2	
Power Dissipation	T_A = 25°C	P_D	0.8	1	W
	T_A = 100°C		0.32	0.4	
Operating Junction and Storage Temperature		T_j, T_{stg}	-55 to 150		°C
Lead Temperature (1/16" from case for 10 seconds)		T_L	300		

THERMAL RESISTANCE

THERMAL RESISTANCE	SYMBOL	VN2410L	VN2410M	UNITS
Junction-to-Ambient	R_{thJA}	156	125	°C/W

[1]Pulse width limited by maximum junction temperature

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VN2410 SERIES

Siliconix incorporated

ELECTRICAL CHARACTERISTICS[1]				LIMITS		
				VN2410		
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[2]	MIN	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 100 µA	270	240		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1 mA	1.4	0.8	2	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±15 V	±1		±100	nA
		T_J = 125°C	±5			
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 120 V, V_{GS} = 0 V	0.01		10	µA
		T_J = 125°C	1		500	
On-State Drain Current[3]	$I_{D(ON)}$	V_{DS} = 15 V, V_{GS} = 10 V	1.2	1		A
Drain-Source On-Resistance[3]	$r_{DS(ON)}$	V_{GS} = 2.5 V, I_D = 0.1 A	8.5		10	Ω
		V_{GS} = 10 V, I_D = 0.5 A	6.5		10	
		T_J = 125°C	14		24.7	
Forward Transconductance[3]	g_{FS}	V_{DS} = 10 V, I_D = 0.5 A	530	300		mS
Common Source Output Conductance[3]	g_{OS}	V_{DS} = 7.5 V, I_D = 0.5 A	475			µS
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MHz	110		125	pF
Output Capacitance	C_{oss}		30		50	
Reverse Transfer Capacitance	C_{rss}		5		20	
SWITCHING						
Turn-On Time	$t_{d(ON)}$	V_{DD} = 60 V, R_L = 150 Ω, I_D = 0.4 A, V_{GEN} = 10 V, R_G = 25 Ω (Switching time is essentially independent of operating temperature)	3		8	ns
	t_r		2		8	
Turn-Off Time	$t_{d(OFF)}$		13		23	
	t_f		9		34	

NOTES
1. T_A = 25 °C unless otherwise noted
2. For design aid only, not subject to production testing
3. Pulse test: PW = 300 µs, duty cycle ≤ 2%