

VN0610LL, VN10LM

N-Channel Enhancement-Mode MOS Transistors

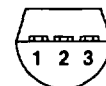
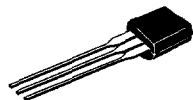


PRODUCT SUMMARY

PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VN0610LL	60	5	0.28	TO-92
VN10LM	60	5	0.32	TO-237

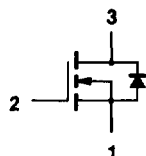
TO-92 (TO-226AA)

BOTTOM VIEW



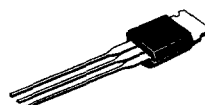
1 SOURCE
2 GATE
3 DRAIN

Performance Curves: VNDS06



TO-237

BOTTOM VIEW



1 SOURCE
2 GATE
3 & TAB-DRAIN

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS		UNITS
		VN0610LL	VN10LM	
Drain-Source Voltage	V_{DS}	60	60	V
Gate-Source Voltage	V_{GS}	± 30	± 30	
Continuous Drain Current	I_D	$T_A = 25^\circ\text{C}$	0.28	A
		$T_A = 100^\circ\text{C}$	0.17	
Pulsed Drain Current ¹	I_{DM}	1.3	1.4	
Power Dissipation	P_D	$T_A = 25^\circ\text{C}$	0.8	W
		$T_A = 100^\circ\text{C}$	0.32	
Operating Junction & Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$
Lead Temperature ($1/16"$ from case for 10 sec.)	T_L	300		

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	LIMITS		UNITS
		VN0610LL	VN10LM	
Junction-to-Ambient	R_{thJA}	156	125	K/W

¹Pulse width limited by maximum junction temperature

SPECIFICATIONS ^a			LIMITS			
PARAMETER	SYMBOL	TEST CONDITIONS	TYP ^b	MIN	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 100 \mu A, V_{GS} = 0 V$	70	60		V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1 mA$	2.3	0.8	2.5	
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 30 V, V_{DS} = 0 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 50 V, V_{GS} = 0 V$			10	μA
		$T_J = 125^\circ C$			500	
On-State Drain Current ^d	$I_{D(ON)}$	$V_{DS} = 10 V, V_{GS} = 10 V$	1000	750		mA
Drain-Source On-Resistance ^c	$r_{DS(ON)}$	$V_{GS} = 5 V, I_D = 0.2 A$	5		7.5	Ω
		$V_{GS} = 10 V, I_D = 0.5 A$	2.5		5	
		$T_J = 125^\circ C$	4.4		9	
Forward Transconductance ^c	g_{FS}	$V_{DS} = 10 V, I_D = 0.5 A$	230	100		mS
Common Source Output Conductance ^c	g_{OS}	$V_{DS} = 5 V, I_D = 50 mA$	500			μS
DYNAMIC						
Input Capacitance	C_{iss}	$V_{DS} = 25 V, V_{GS} = 0 V$ $f = 1 MHz$	16		60	pF
Output Capacitance	C_{oss}		11		25	
Reverse Transfer Capacitance	C_{rss}		2		5	
SWITCHING						
Turn-On Time	t_{ON}	$V_{DD} = 15 V, R_L = 23 \Omega, I_D = 0.6 A$ $V_{GEN} = 10 V, R_G = 25 \Omega$	7		10	ns
Turn-Off Time	t_{OFF}	(Switching time is essentially independent of operating temperature)	7		10	

NOTES:

- a. $T_A = 25^\circ C$ unless otherwise noted.
- b. For design aid only, not subject to production testing.
- c. Pulse test; $PW = \leq 300 \mu S$, duty cycle $\leq 2\%$.
- d. Pulse width limited by maximum junction temperature.