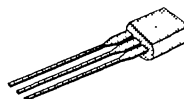


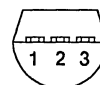
PRODUCT SUMMARY

PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VN1710L	170	10	0.17	TO-92
VN1710M	170	10	0.19	TO-237

TO-92



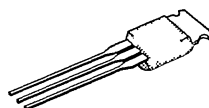
BOTTOM VIEW



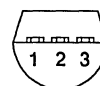
1 SOURCE
2 GATE
3 DRAIN

Performance Curves: VNDB24 (See Section 7)

TO-237



BOTTOM VIEW



1 SOURCE
2 GATE
3 DRAIN

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	VN1710L	VN1710M	UNITS
Drain-Source Voltage		V _{DS}	170	170	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}	0.47	0.54	
Power Dissipation	T _A = 25°C	P _D	0.8	1.0	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		

6

THERMAL RESISTANCE

THERMAL RESISTANCE	SYMBOL	VN1710L	VN1710M	UNITS
Junction-to-Ambient	R_{thJA}	156	125	$^\circ\text{C/W}$

¹Pulse width limited by maximum junction temperature

VN1710 SERIES



ELECTRICAL CHARACTERISTICS ¹				LIMITS		
PARAMETER	SYMBOL	TEST CONDITIONS	TYP ²	VN1710		UNIT
				MIN	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 100 μA	230	170		V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 mA	1.4	0.8	2.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V V _{GS} = ±15 V T _J = 125°C	±1 ±5		±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 120 V V _{GS} = 0 V T _J = 125°C	0.01 1		10 500	μA
On-State Drain Current ³	I _{D(ON)}	V _{DS} = 10 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	6.5		10	
		I _D = 0.5 A 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	3		8	ns
	t _r		2		8	
Turn-Off Time	t _{d(OFF)}	(Switching time is essentially independent of operating temperature)	13		23	
	t _f		9		34	

- NOTES: 1. $T_A = 25^\circ\text{C}$ unless otherwise noted.
2. For design aid only, not subject to production testing.
3. Pulse test; $PW = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.