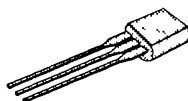


PRODUCT SUMMARY

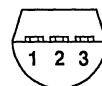
PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VN1706L	170	6	0.22	TO-92
VN1706M	170	6	0.25	TO-237

Performance Curves: VNDB24 (See Section 7)

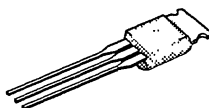
TO-92



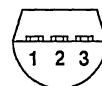
BOTTOM VIEW


 1 SOURCE
 2 GATE
 3 DRAIN

TO-237



BOTTOM VIEW


 1 SOURCE
 2 GATE
 3 DRAIN

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

PARAMETERS/TEST CONDITIONS		SYMBOL	VN1706L	VN1706M	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	0.22	0.25	A
	T _A = 100°C		0.14	0.16	
Pulsed Drain Current ¹		I _{DM}	2.3	2.5	
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		

THERMAL RESISTANCE

THERMAL RESISTANCE	SYMBOL	VN1706L	VN1706M	UNITS
Junction-to-Ambient	R_{thJA}	156	125	$^\circ\text{C/W}$

¹Pulse width limited by maximum junction temperature

VN1706L, VN1706M



ELECTRICAL CHARACTERISTICS ¹				LIMITS			
PARAMETER	SYMBOL	TEST CONDITIONS		VN1706		UNIT	
			TYP ²	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 ±500	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	7.5		10	Ω	
		V _{GS} = 10 V	5		6		
		I _D = 0.5 V T _J = 125°C	10.8		14.8		
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	105		125	pF	
Output Capacitance	C _{oss}		25		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 = 0.1 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		18		
	t _f		9		12		

- 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 $\leq 2\%$.