

VN66 SERIES

N-Channel Enhancement-Mode MOS Transistors

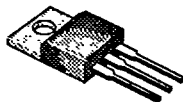
T-39-07

PRODUCT SUMMARY

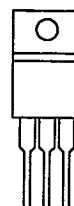
PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VN66AD	60	3	1.7	TO-220
VN66AFD	60	3	1.46	TO-220SD

Performance Curves: VNDQ06 (See Section 7)

TO-220/TO-220SD



TOP VIEW



1 2 3

TO-220

- 1 GATE
- 2 & TAB - DRAIN
- 3 SOURCE

TO-220SD

- 1 SOURCE
- 2 GATE
- 3 & TAB - DRAIN

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)²

PARAMETERS/TEST CONDITIONS	SYMBOL	VN66AD	VN66AFD	UNITS
Drain-Source Voltage	V_{DS}	60	60	V
Gate-Source Voltage	V_{GS}	± 30	± 30	
Continuous Drain Current	I_D	$T_C = 25^\circ\text{C}$	1.7	A
		$T_C = 100^\circ\text{C}$	1	
Pulsed Drain Current ¹	I_{DM}	3	3	
Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	20	W
		$T_C = 100^\circ\text{C}$	8	
Operating Junction and Storage Temperature	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$
Lead Temperature (1/16" from case for 10 seconds)	T_L	300		

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THERMAL RESISTANCE

THERMAL RESISTANCE	SYMBOL	VN66AD	VN66AFD	UNITS
Junction-to-Case	R_{thJC}	6.25	8.3	$^\circ\text{C/W}$

¹Pulse width limited by maximum junction temperature.

²Absolute maximum ratings have been revised.

VN66 SERIES



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ELECTRICAL CHARACTERISTICS ¹				LIMITS		
PARAMETER	SYMBOL	TEST CONDITIONS ⁴	TYP ²	VN66 ⁴		UNIT
				MIN	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0 \text{ V}, I_D = 10 \mu\text{A}$	70	60		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1 \text{ mA}$	1.5	0.8	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}$ $V_{GS} = \pm 30 \text{ V}$ $T_C = 125^\circ\text{C}$	± 1 ± 5		± 100 ± 500	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0 \text{ V}$ $V_{DS} = 48 \text{ V}$ $T_C = 125^\circ\text{C}$	0.05 0.3		1 10	μA
On-State Drain Current ³	$I_{D(ON)}$	$V_{DS} = 10 \text{ V}, V_{GS} = 10 \text{ V}$	1.8	1.5		A
Drain-Source On-Resistance ³	$r_{DS(ON)}$	$V_{GS} = 5 \text{ V}, I_D = 0.3 \text{ A}$	1.8		5	Ω
		$V_{GS} = 10 \text{ V}$ $I_D = 1 \text{ A}$	1.3		3	
		$T_C = 125^\circ\text{C}$	2.6		6	
Forward Transconductance ³	g_{FS}	$V_{DS} = 10 \text{ V}, I_D = 0.5 \text{ A}$	350	170		mS
Common Source Output Conductance ³	g_{OS}	$V_{DS} = 7.5 \text{ V}, I_D = 0.1 \text{ A}$	1100			μS
DYNAMIC						
Input Capacitance	C_{iss}	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$	35		50	pF
Output Capacitance	C_{oss}		25		40	
Reverse Transfer Capacitance	C_{rss}		5		10	
SWITCHING						
Turn-On Time	t_{ON}	$V_{DD} = 25 \text{ V}, R_L = 23 \Omega$ $I_D = 1 \text{ A}, V_{GEN} = 10 \text{ V}$ $R_G = 25 \Omega$ (Switching time is essentially independent of operating temperature)	8		15	ns
Turn-Off Time	t_{OFF}		9.5		15	

- NOTES: 1. $T_C = 25^\circ\text{C}$ unless otherwise noted.
 2. For design aid only, not subject to production testing.
 3. Pulse test; $PW = 300 \mu\text{s}$, duty cycle $\leq 2\%$.
 4. Data sheet limits and/or test conditions have been revised.