

N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

ORDERING INFORMATION

TO-92 Plastic Package	VN10KN3
Description	60V, 5 ohm

FEATURES

- High Gate Oxide Breakdown, $\pm 40V$ min.
- Low Output and Transfer Capacitances
- Extended Safe Operating Area

APPLICATIONS

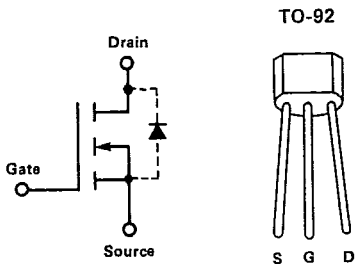
- High-Speed Pulse Amplifiers
- Logic Buffers
- Line Drivers
- Solid-State Relays
- Motor Controls
- Power Supplies

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

Drain-Source Voltage	+60V	
Drain-Gate Voltage ($V_{GS} = 0$)	+60V	
Gate-Source Voltage	$\pm 30V$	
Continuous Drain Current	$T_A = 25^\circ C$	$T_C = 25^\circ C$
	.24A	.32A
Peak Pulsed Drain Current	1.0A	

Continuous Device Dissipation	$T_A = +25^\circ C$	$T_C = +25^\circ C$	
	0.30	1.0	W
Linear Derating Factor	$T_A = +25^\circ C$	$T_C = +25^\circ C$	
	2.4	8.0	mW/ $^\circ C$
Operating Junction Temperature Range	-55 to +150 $^\circ C$		
Storage Temperature Range	-55 to +150 $^\circ C$		
Lead Temperature (1/16" from mounting surface for 30 Sec)	+260 $^\circ C$		

SCHEMATIC DIAGRAM/PACKAGE



PACKAGE DIMENSIONS (TO-92) TO-226AA

(See Package 5)

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$ unless otherwise noted)

#	CHARACTERISTIC		VN10KN			UNIT	TEST CONDITIONS
			MIN	TYP	MAX		
1	STATIC	BV_{DSS} Drain-Source Breakdown Voltage	60	100		V	$I_D = 100\mu\text{A}, V_{GS} = 0$
2		$V_{GS(th)}$ Gate-Source Threshold Voltage	0.8	1.9	2.5	V	$I_D = 1.0\text{mA}, V_{DS} = V_{GS}$
3		I_{GBS} Gate-Body Leakage Current		± 1.0	± 100	nA	$V_{GS} = \pm 15\text{V}, V_{DS} = 0$
4		I_{DSS} Drain-Source OFF Leakage Current		0.1	10	μA	$V_{DS} = 40\text{V}, V_{GS} = 0$
5				5.0	500		$T_A = 125^\circ\text{C}$
6		$I_{D(on)}$ ON Drain Current	0.25			A	$V_{GS} = 5\text{V}, V_{DS} = 10\text{V}$
7			0.75				$V_{GS} = 10\text{V}$ (Note 1)
8		$V_{DS(on)}$ Drain-Source ON Voltage		1.5	2.5	V	$V_{GS} = 10\text{V}, I_D = 0.5\text{A}$ (Note 1)
9				3.0	5.0	ohms	$V_{GS} = 10\text{V}, I_D = 0.5\text{A}$ (Note 1)
10		$r_{DS(on)}$ Drain-Source ON Resistance		4.7	9.0		$T_A = +125^\circ\text{C}$
11	DYNAMIC	g_{fs} Common-Source Forward Transcond.	100	400		mmhos	$V_{DS} = 10\text{V}, I_D = 0.5\text{A}$ $f = 1\text{KHz}$ (Note 1)
12		C_{iss} Common-Source Input Capacitance		80	100	pF	$V_{DS} = 15\text{V}, V_{GS} = 0$ $f = 1\text{MHz}$
13		C_{rss} Common-Source Reverse Transfer Capacitance		1.3	5.0		
14		C_{oss} Common-Source Output Capacitance		10.5	25		
15		t_{on} Turn-On Time		5.0	10		
16		t_{off} Turn-Off Time		6.0	10		

Note 1: Pulse Test $80\mu\text{Sec}$, 1% Duty Cycle