T-29-25

TOPAZ SEMICONDUCTOR

VN10KN

N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

ORDERING INFORMATION

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

FEATURES

- High Gate Oxide Breakdown, ±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°C unless otherwise noted)

Drain-Source Voltage ..... +60V

Drain-Gate Voltage (V_{GS}= 0) ..... +60V

Gate-Source Voltage ..... ±30V

Continuous Drain Current

T_A = 25°C	T_C = 25°C
.24A	.32A

Peak Pulsed Drain Current 1.0A

Continuous Device Dissipation

T_A = +25°C	T_C = +25°C	
0.30	1.0	W

Linear Derating Factor

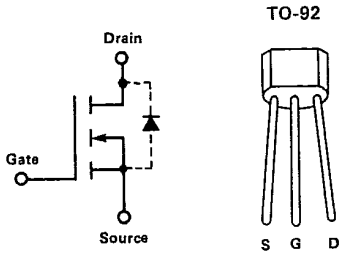
T_A = +25°C	T_C = +25°C	
2.4	8.0	mW/°C

Operating Junction Temperature Range ..... -55 to +150°C

Storage Temperature Range ..... -55 to +150°C

Lead Temperature (1/16" from mounting surface for 30 Sec) ..... +260°C

SCHEMATIC DIAGRAM/PACKAGE



PACKAGE DIMENSIONS (TO-92) TO-226AA

(See Package 5)

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ELECTRICAL CHARACTERISTICS (T_A = +25°C unless otherwise noted)

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

Note 1: Pulse Test 80μ Sec, 1% Duty Cycle