



POWER-MOS FET

FIELD EFFECT POWER TRANSISTOR

IVN5000,1
AN Series

.7 AMPERES
40-100 VOLTS
R_{DS(ON)} = 2.5 Ω

This series of N-Channel Enhancement-mode Power MOSFETs utilizes GE's advanced Power DMOS technology to achieve low on-resistance with excellent device ruggedness and reliability.

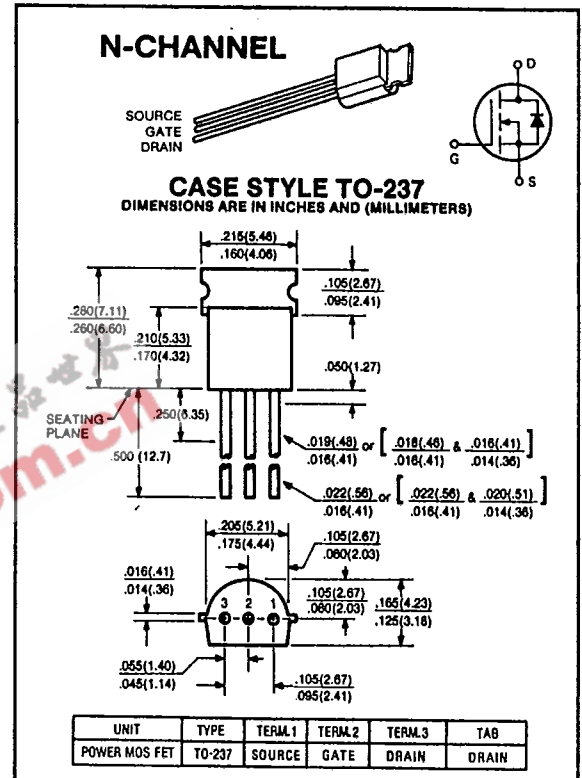
This design has been optimized to give superior performance in most switching applications including: switching power supplies, inverters, converters and solenoid/relay drivers. Also, the extended safe operating area with good linear transfer characteristics makes it well suited for many linear applications such as audio amplifiers and servo motors.

Applications

- LED and lamp drivers
- High gain, wide-band amplifiers
- High speed switches
- Line drivers
- Logic buffers
- Pulse amplifiers

Features

- High speed, high peak current switching
- Inherent current sharing capability when paralleled
- Directly interface to CMOS, DTL, TTL logic
- Simple, straight-forward DC biasing
- Inherent protection from thermal runaway
- Reliable, low cost plastic package



maximum ratings ($T_A = 25^\circ C$) (unless otherwise specified)

RATING	SYMBOL	D	E	F	H	UNITS
Drain-Source Voltage	V_{DSS}	40	60	80	100	Volts
Drain-Gate Voltage, $R_{GS} = 1M\Omega$	V_{DGR}	40	60	80	100	Volts
Continuous Drain Current @ $T_A = 25^\circ C$	I_D	0.7	0.7	0.7	0.7	A
Peak Drain Current ⁽¹⁾	I_{DM}	2.0	2.0	2.0	2.0	A
Gate-Source Voltage	V_{GS}	± 30	± 30	± 30	± 30	Volts
Total Power Dissipation @ $T_A = 25^\circ C$ Derate Above $25^\circ C$	P_D	2.0 16	2.0 16	2.0 16	2.0 16	Watts mW/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to 150	-55 to 150	-55 to 150	-55 to 150	$^\circ C$

(1) Repetitive Rating: Pulse width limited by max. junction temperature.

thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	62.5	62.5	62.5	$^\circ C/W$
Maximum Lead Temperature for Soldering Purposes: 1/16" from Case for 10 Seconds	T_L	300	300	300	300	$^\circ C$

(1) Repetitive Rating: Pulse width limited by max. junction temperature.

electrical characteristics ($T_A = 25^\circ\text{C}$) (unless otherwise specified)

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
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off characteristics

Drain-Source Breakdown Voltage ($V_{GS} = 0V, I_D = 10 \mu A$)	IVN5000,1AND IVN5000,1ANE IVN5000,1ANF IVN5000,1ANH	BV_{DSS}	40 60 80 100	— — — —	— — — —	Volts
Zero Gate Voltage Drain Current ($V_{DS} = \text{Max Rating}, V_{GS} = 0V$) ($V_{DS} = \text{Max Rating}, \times 0.8, V_{GS} = 0V, T_A = 125^\circ\text{C}$)		I_{DSS}	— —	— —	10 500	μA
Gate-Source Leakage Current ($V_{GS} = 15V, V_{DS} = 0V$) ($V_{GS} = 15V, V_{DS} = 0V - T_A = 125^\circ\text{C}$)		I_{GSS}	— —	— —	10 50	nA nA

on characteristics*

Gate Threshold Voltage ($V_{DS} = V_{GS}, I_D = 1 \text{ mA}$)	IVN5000 IVN5001	$V_{GS(TH)}$.8 .8	— —	2.0 3.6	Volts Volts
Drain-Source Saturation Voltage ($V_{GS} = 10V, I_D = 1.0A$) ($V_{GS} = 12V, I_D = 1.0A$)	IVN5000 IVN5001	$V_{DS(ON)}$	— —	2.0 1.9	2.5 2.5	Volts
Static Drain-Source On-State Resistance ($V_{GS} = 10V, I_D = 1.0A$) ($V_{GS} = 12V, I_D = 1.0A$)	IVN5000 IVN5001	$R_{DS(ON)}$	— —	2.0 1.9	2.5 2.5	Ohms Ohms
On-State Drain Current ($V_{DS} = 24V, V_{GS} = 10V$) ($V_{DS} = 24V, V_{GS} = 12V$)	IVN5000 IVN5001	$I_{D(ON)}$	1.0 1.0	— —	— —	Amp Amp
Forward Transconductance ($V_{DS} = 24V, I_D = 0.5A, f = 1 \text{ KHz}$)		g_{fs}	.17	.28	—	mhos

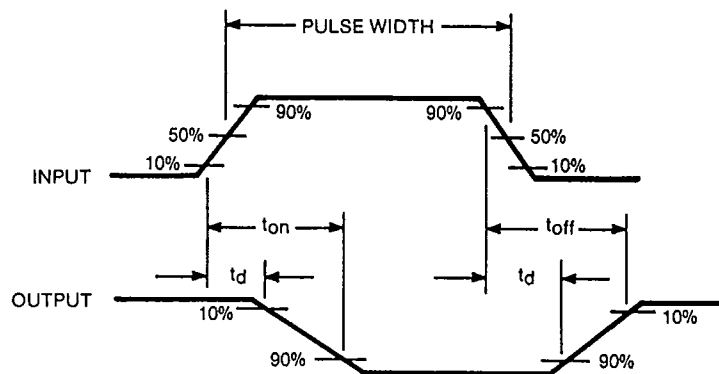
dynamic characteristics

Input Capacitance	$V_{GS} = 0V$	C_{iss}	—	40	50	pF
Output Capacitance	$V_{DS} = 24V$	C_{oss}	—	27	40	pF
Reverse Transfer Capacitance	$f = 1 \text{ MHz}$	C_{rss}	—	6	10	pF

switching characteristics*

Turn-on Delay Time	See switching times waveform below	$t_{d(on)}$	—	2	5	ns
Rise Time		t_r	—	2	5	ns
Turn-off Delay Time		$t_{d(off)}$	—	2	5	ns
Fall Time		t_f	—	2	5	ns

*Pulse Test: Pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$



SWITCHING TIME TEST WAVEFORMS