

FEATURES

- High speed, high current switching
- Current sharing capability when paralleled
- Directly interface to CMOS, DTL, TTL logic
- Simple DC biasing
- Extended safe operating area
- Inherently temperature stable
- Typical t_{on} and $t_{off} < 5ns$

APPLICATIONS

- Switching power supplies
- DC to DC inverters
- CMOS and TTL to high current interface
- Line drivers
- Logic buffers
- Pulse amplifiers
- High frequency linear amplifiers

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Datasheet.Directory

ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ C$ unless otherwise noted)

Drain-source Voltage		
IVN6660	60V	
IVN6661	90V	
Drain-gate Voltage		
IVN6660	60V	
IVN6661	90V	
Continuous Drain Current (see note 1)		2.0A
Peak Drain Current (see note 2)		3.0A
Continuous Forward Gate Current		2.0mA
Peak-gate Forward Current		100mA
Peak-gate Reverse Current		100mA
Gate-source Forward (Zener) Voltage		+15V
Gate-source Reverse (Zener) Voltage		-0.3V
Continuous Device Dissipation at (or below)		
25°C Case Temperature	8.33W	
Linear Derating Factor	67mW/°C	
Operating Junction		
Temperature Range	-55 to +150°C	
Storage Temperature Range	-55 to +150°C	
Lead Temperature		
(1/16 in. from case for 10 sec)	+300°C	

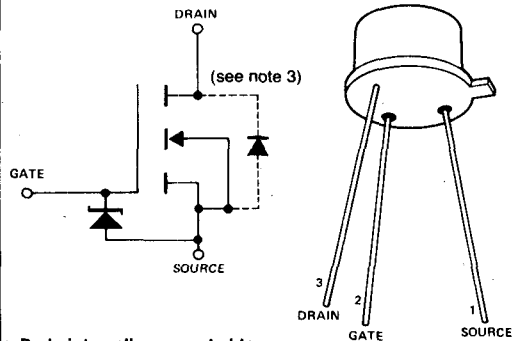
Note 1. $T_c = 25^\circ C$; controlled by typical $r_{DS(on)}$ and maximum power dissipation.

Note 2. Pulse width 80µsec, duty cycle 1.0%.

Note 3. The Drain-source diode is an integral part of the MOSFET structure.

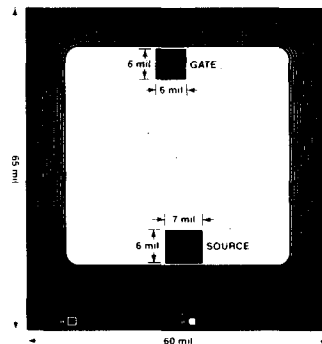
SCHEMATIC DIAGRAM

(OUTLINE DWG. TO-39)



Body internally connected to source.
Drain common to case.

CHIP TOPOGRAPHY



ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

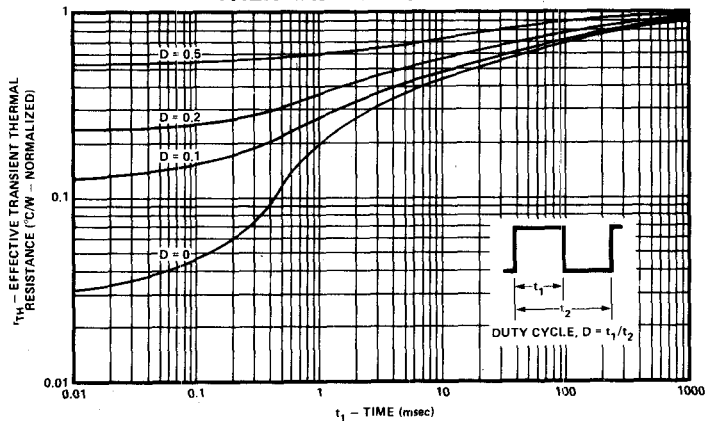
CHARACTERISTIC			IVN6660			IVN6661			UNIT	TEST CONDITIONS
			MIN	TYP	MAX	MIN	TYP	MAX		
1	BVDSS	Drain Source Breakdown	60			90			V	V _{GS} = 0, I _D = 10μA
2			60			90				V _{GS} = 0, I _D = 2.5mA
3	VGS(th)	Gate Threshold Voltage	0.8			0.8		2.0	nA	V _{GS} = V _{GS} , I _D = 1mA
4	I _{LOSS}	Gate-Body Leakage		0.5	100		0.5	100		V _{GS} = 15V, V _{DS} = 0
5	I _{SS}	Zero Gate Voltage Drain Current			500			500	μA	V _{GS} = 15V, V _{DS} = 0, T _A = 125°C (Note 2)
6					10			10		V _{DS} = Max. Rating, V _{GS} = 0
7	I _{ON}	ON-State Drain Current	1.0			1.0			A	V _{DS} = 0.80 Max. Rating, V _{GS} = 0, T _A = 125°C (Note 2)
8				100			100			
9	VDS(on)	Drain-Source Saturation Voltage		0.3			0.4		V	V _{DS} = 25V, V _{GS} = 10V
10				1.0	1.5		1.1	1.6		V _{GS} = 5V, I _D = 0.1 A
11	rDS(on)	Static Drain-Source ON-State Resistance		0.9			1.3		Ω	V _{GS} = 5V, I _D = 0.3 A
12				2.2	3.0		2.2	4.0		V _{GS} = 10V, I _D = 0.5 A
13	rDS(on)	Small-Signal Drain-Source ON-State Resistance		2.2	3.0		2.2	4.0	Ω	V _{GS} = 10V, I _D = 1.0 A
14										V _{GS} = 10V, I _D = 1.0 A
15	gfs	Forward Transconductance	170	250		170	250	mΩ	pF	V _{DS} = 24V, I _D = 0.5 A
16	Ciss	Input Capacitance			50		50			V _{GS} = 0, V _{DS} = 25V, f = 1.0MHz
17	Cds	Drain-Source Capacitance			40		40		ns	V _{GS} = 0, V _{DS} = 24V, f = 1.0MHz
18	Crss	Reverse Transfer Capacitance			10		10			V _{GS} = 0, V _{DS} = 0, f = 1.0MHz
19	t _{d(on)}	Turn-ON Delay Time		2	5		2	5	ns	(Note 2)
20	t _r	Rise Time		2	5		2	5		
21	t _{d(off)}	Turn-OFF Delay Time		2	5		2	5		
22	t _f	Fall Time		2	5		2	5		

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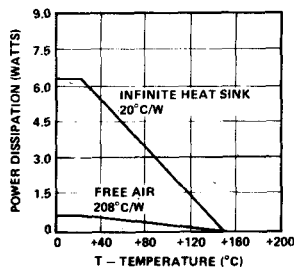
Note 1. Pulse test — 80μsec pulse, 1% duty cycle.

Note 2. Sample test.

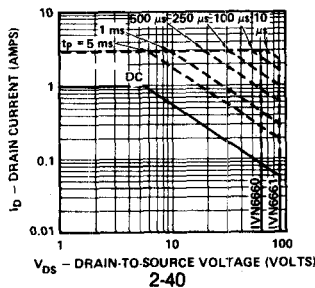
THERMAL RESPONSE



POWER DISSIPATION vs CASE OR AMBIENT TEMPERATURE



DC SAFE OPERATING REGION Tc = 25°C



BREAKDOWN VOLTAGE VARIATION WITH TEMPERATURE

