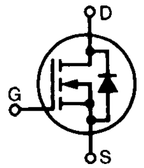
IXYS

IXFH 67N10 IXFM 67N10
IXFH 75N10 IXFM 75N10

	V_{DSS}	I_{D25}	$R_{DS(on)}$	t_{rr}
IXFH/FM 67N10	100 V	67 A	25 mΩ	200 ns
IXFH/FM 75N10	100 V	75 A	20 mΩ	200 ns

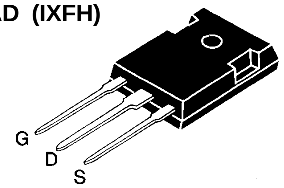
HiPerFET™ Power MOSFET

N-Channel Enhancement Mode
High dv/dt, Low t_{rr}, HDMOS™ Family

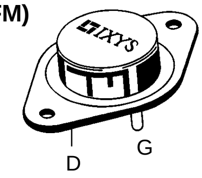


Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		100	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ		100	V
V_{GS}	Continuous		±20	V
V_{GSM}	Transient		±30	V
I_{D25}	T_C = 25°C	67N10	67	A
		75N10	75	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	67N10	268	A
		75N10	300	A
I_{AR}	T_C = 25°C	67N10	67	A
		75N10	75	A
E_{AR}	T_C = 25°C		30	mJ
dv/dt	$I_S \le I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \le V_{DSS}$, $T_J \le$ 150°C, R_G = 2 Ω		5	V/ns
P_D	T_C = 25°C		300	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
M_d	Mounting torque		1.13/10	Nm/lb.in.
Weight			TO-204 = 18 g, TO-247 = 6 g	
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s			300	°C

TO-247 AD (IXFH)



TO-204 AE (IXFM)



G = Gate D = Drain
S = Source TAB = Drain

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) Min.	Typ.	Max.	
V_{DSS}	V_{GS} = 0 V, I_D = 250 µA		100			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 4 mA		2.0		4	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0				±100	nA
I_{DSS}	V_{DS} = 0.8 V_{DSS}, V_{GS} = 0 V	T_J = 25°C			250	µA
		T_J = 125°C			1	mA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 0.5 I_{D25}	67N10			0.025	Ω
		75N10			0.020	Ω
	Pulse test, t ≤ 300 µs, duty cycle δ ≤ 2 %					

Features
- International standard packages
- Low $R_{DS\ (on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
  - easy to drive and to protect
- Fast intrinsic Rectifier

Applications
- DC-DC converters
- Synchronous rectification
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control
- Temperature and lighting controls
- Low voltage relays

Advantages
- Easy to mount with 1 screw (TO-247) (isolated mounting screw hole)
- Space savings
- High power density

 91521F (10/95)

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IXYS

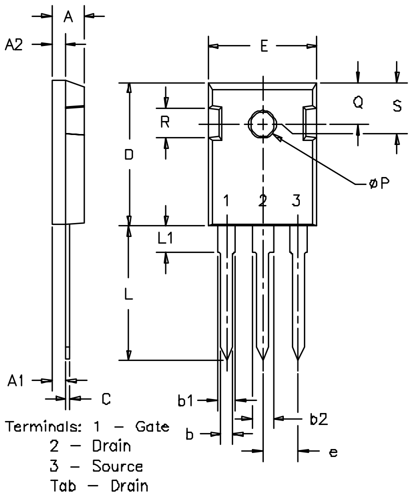
IXFH 67N10 IXFM 67N10
IXFH 75N10 IXFM 75N10

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) Min.	Typ.	Max.	
g_{fs}	V_{DS} = 10 V; I_D = 0.5 I_{D25}, pulse test	25	30		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		4500		pF
C_{oss}			1600		pF
C_{rss}			800		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}		20	30	ns
t_r	R_G = 2 Ω, (External)		60	110	ns
$t_{d(off)}$			80	110	ns
t_f			60	90	ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}		180	260	nC
Q_{gs}			36	70	nC
Q_{gd}			85	160	nC
R_{thJC}				0.42	K/W
R_{thCK}			0.25		K/W

Source-Drain Diode

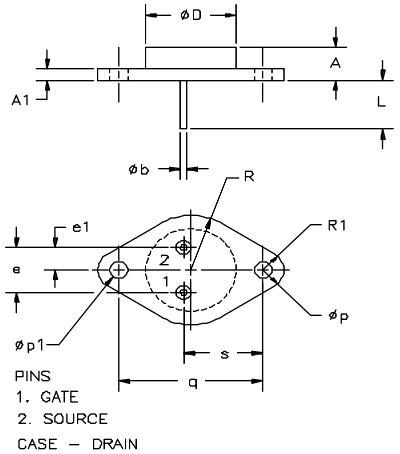
Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) Min.	Typ.	Max.	
I_S	V_{GS} = 0	67N10		67	A
		75N10		75	A
I_{SM}	Repetitive;	67N10		268	A
	pulse width limited by T_{JM}	75N10		300	A
V_{SD}	I_F = I_S, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle δ ≤ 2 %			1.75	V
t_{rr}	I_F = 25 A, -di/dt = 100 A/µs, T_J = 25°C			200	ns
	V_R = 25 V, T_J =125°C			300	ns

TO-247 AD (IXFH) Outline



SYM	INCHES MIN	MAX	MILLIMETERS MIN	MAX
A	.185	.209	4.7	5.3
A1	.087	.102	2.2	2.54
A2	.059	.098	2.2	2.6
b	.040	.055	1.0	1.4
b1	.065	.084	1.65	2.13
b2	.113	.123	2.87	3.12
C	.016	.031	.4	.8
D	.819	.845	20.80	21.46
E	.610	.640	15.75	16.26
e	.215 BSC		5.45 BSC	
L	.780	.800	19.81	20.32
L1		.177		4.50
øP	.140	.144	3.55	3.65
Q	.212	.244	5.4	6.2
R	.170	.216	4.32	5.49
S	.242 BSC		6.15 BSC	

TO-204AE(IXFM) Outline



SYM	INCHES MIN	MAX	MILLIMETERS MIN	MAX
A	.250	.450	6.4	11.4
A1	.060	.135	1.53	3.42
øb	.057	.063	1.45	1.60
øD		.875		22.22
e	.420	.440	10.67	11.17
e1	.205	.225	5.21	5.71
L	.440	.480	11.18	12.19
øp	.151	.165	3.84	4.19
øp1	.151	.165	3.84	4.19
q	1.187 BSC		30.15 BSC	
R	.495	.525	12.58	13.33
R1	.131	.188	3.33	4.77
s	.655	.675	16.64	17.14

IXYS MOSFETS and IGBTs are covered by one or more of the following U.S. patents:
4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025

Fig.1. Output Characteristics

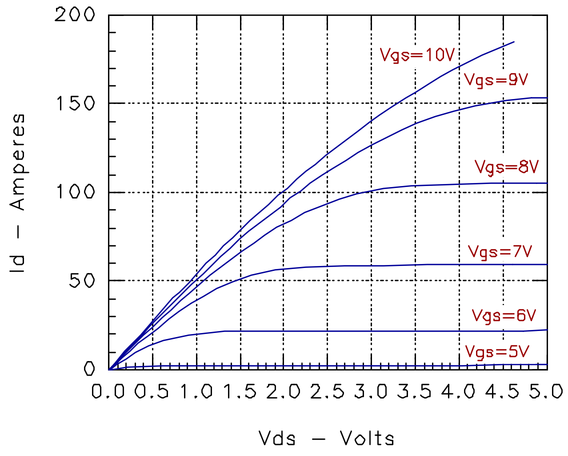


Fig. 2. Input Admittance

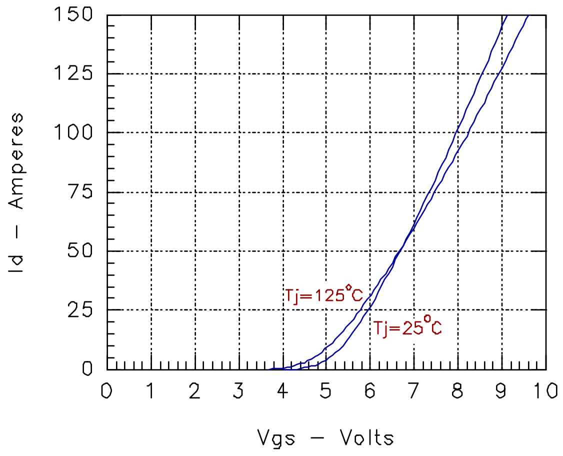


Fig. 3. Rds(on) vs. Drain Current

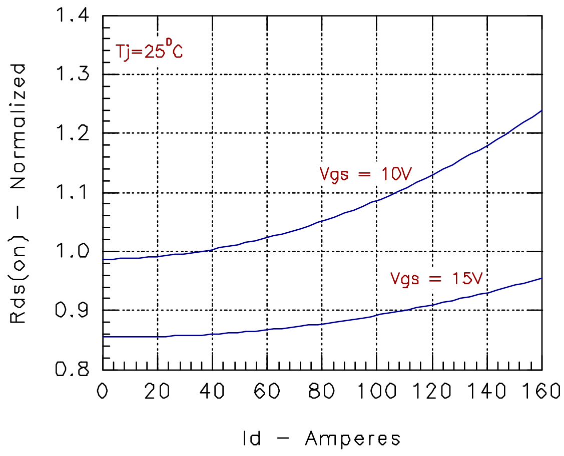


Fig. 4. Temperature Dependence of Drain to Source Resistance

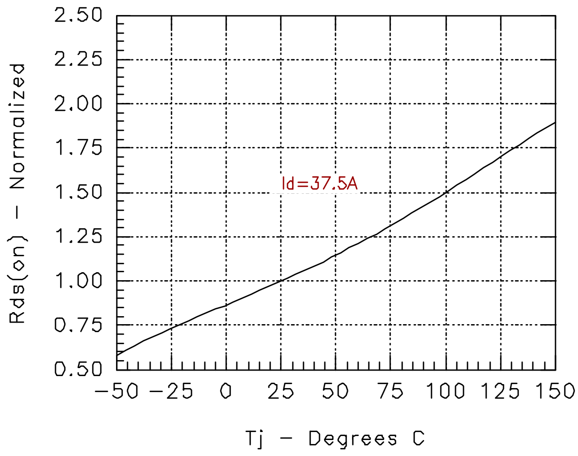


Fig. 5. Drain Current vs. Case Temperature

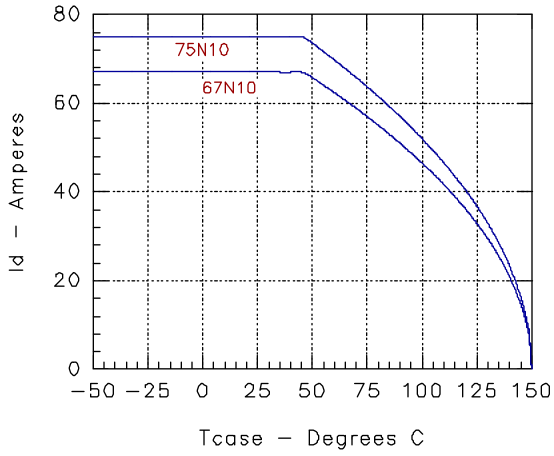


Fig. 6. Temperature Dependence of Breakdown Voltage and Threshold Voltage

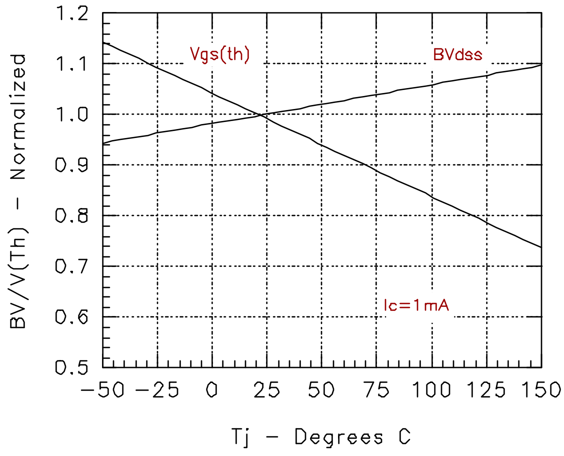


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Fig. 7. Gate Charge

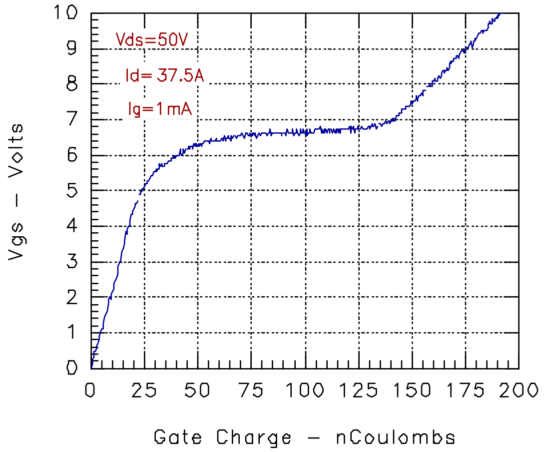


Fig. 8. Forward Bias Safe Operating Area

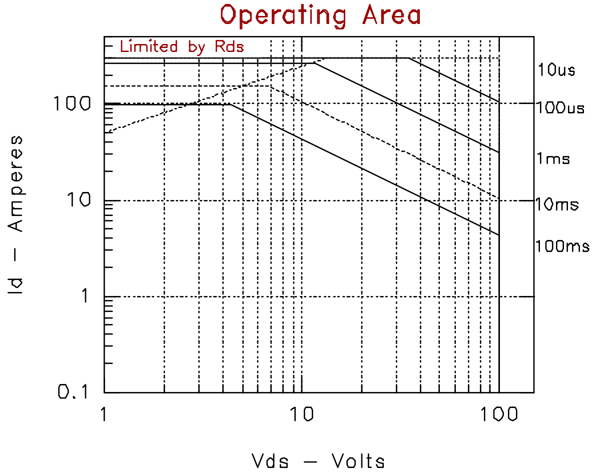


Fig. 9. Capacitance Curves

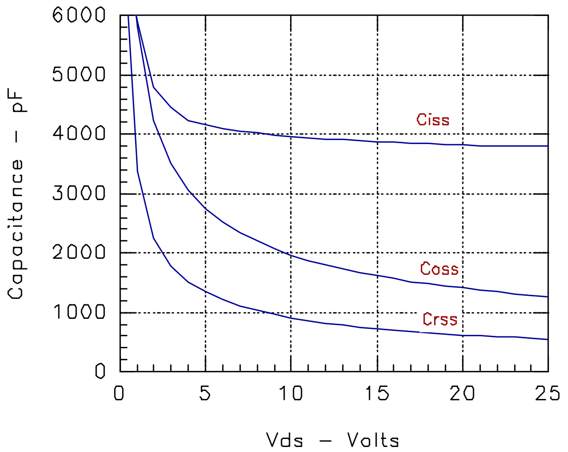


Fig. 10. Source Current vs. Source to Drain Voltage

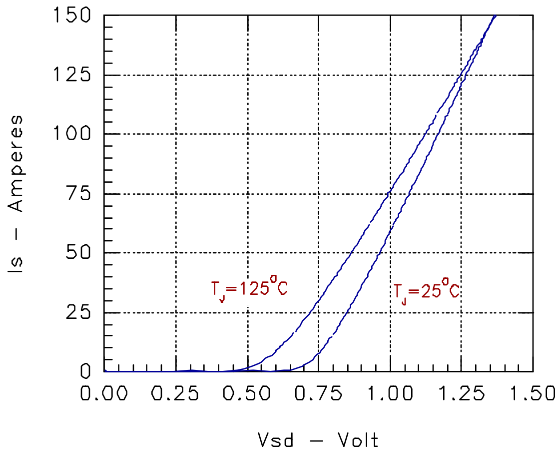
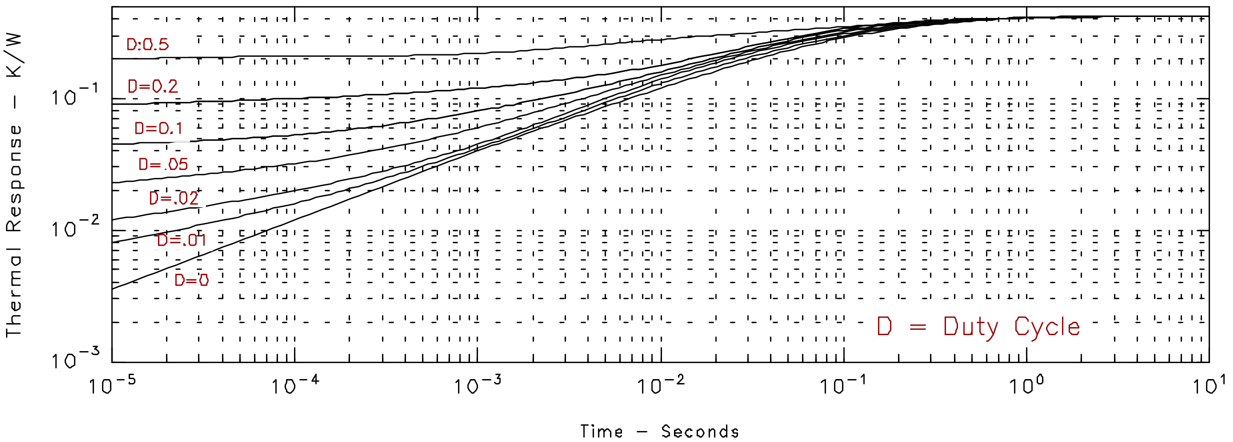


Fig. 11. Transient Thermal Impedance



IXYS reserves the right to change limits, test conditions, and dimensions.

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