IXYS

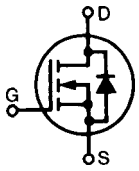
HiPerFET™ Power MOSFETs

IXFH/IXFM21N50
IXFH/IXFM/IXFT24N50
IXFH/IXFT26N50

V_{DSS}	I_{D25}	$R_{DS(on)}$
500 V	21 A	0.25 Ω
500 V	24 A	0.23 Ω
500 V	26 A	0.20 Ω

$t_{rr} \leq 250$ ns

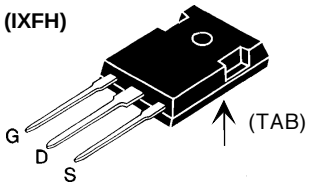
N-Channel Enhancement Mode
High dv/dt, Low t_{rr}, HDMOS™ Family



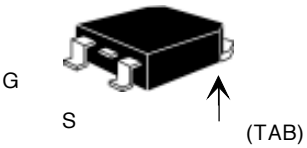
Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		500	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ		500	V
V_{GS}	Continuous		±20	V
V_{GSM}	Transient		±30	V
I_{D25}	T_C = 25°C	21N50	21	A
		24N50	24	A
		26N50	26	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	21N50	84	A
		24N50	96	A
		26N50	104	A
I_{AR}	T_C = 25°C	21N50	21	A
		24N50	24	A
		26N50	26	A
E_{AR}	T_C = 25°C		30	mJ
dv/dt	$I_S \leq I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \leq V_{DSS}$, $T_J \leq 150°C$, 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
T_L	1.6 mm (0.062 in.) from case for 10 s		300	°C
M_d	Mounting torque		1.13/10	Nm/lb.in.
Weight			TO-204 = 18 g, TO-247 = 6 g	

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		500			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 4 mA		2		4	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0				±100	nA
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$	T_J = 25°C			200	µA
	V_{GS} = 0 V	T_J = 125°C			1	mA

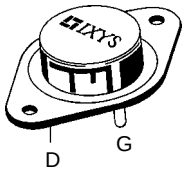
TO-247 AD (IXFH)



TO-268 (D3) Case Style



TO-204 AE (IXFM)



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

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)
- High power surface mountable package
- High power density

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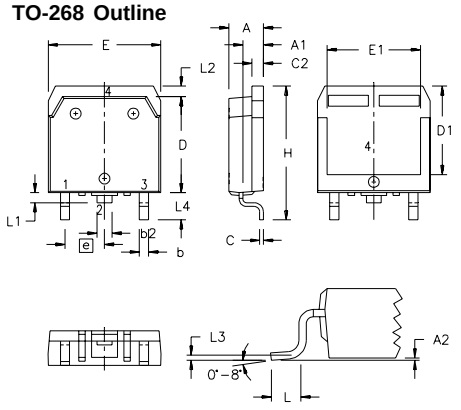
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 0.5 I_{D25}	21N50			0.25	Ω
		24N50			0.23	Ω
		26N50			0.20	Ω
	Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %					
g_{fs}	V_{DS} = 10 V; I_D = 0.5 I_{D25}, pulse test		11	21		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz			4200		pF
C_{oss}				450		pF
C_{rss}				135		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}			16	25	ns
t_r	R_G = 2 Ω (External)			33	45	ns
$t_{d(off)}$				65	80	ns
t_f				30	40	ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}			135	160	nC
Q_{gs}				28	40	nC
Q_{gd}				62	85	nC
R_{thJC}					0.42	K/W
R_{thCK}	(TO-247 Case Style)			0.25		K/W

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0 V	21N50			21	A
		24N50			24	A
		26N50			26	A
I_{SM}	Repetitive; pulse width limited by T_{JM}	21N50			84	A
		24N50			96	A
		26N50			104	A
V_{SD}	I_F = I_S, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %				1.5	V
t_{rr}	I_F = I_S, -di/dt = 100 A/µs, V_R = 100 V	T_J = 25°C			250	ns
		T_J = 125°C			400	ns
Q_{RM}		T_J = 25°C		1		µC
		T_J = 125°C		2		µC
I_{RM}		T_J = 25°C		10		A
		T_J = 125°C		15		A

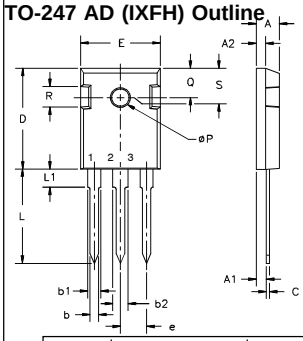
Note 1: Add "S" suffix for TO-247 SMD package option (ex: IXFH24N50S)

TO-268 Outline



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b2	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D1	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E1	.524	.535	13.30	13.60
e	.215 BSC		5.45 BSC	
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L1	.047	.055	1.20	1.40
L2	.039	.045	1.00	1.15
L3	.010 BSC		0.25 BSC	
L4	.150	.161	3.80	4.10

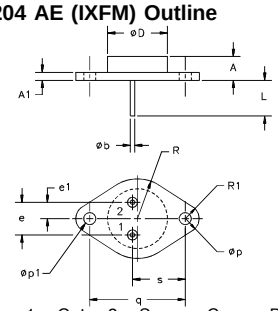
TO-247 AD (IXFH) Outline



Terminals:
1 - Gate
2 - Drain
3 - Source
Tab - Drain

Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	4.7	5.3	.185	.209
A_1	2.2	2.54	.087	.102
A_2	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b_1	1.65	2.13	.065	.084
b_2	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15 BSC		242 BSC	

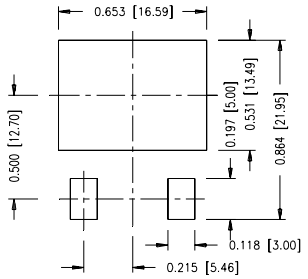
TO-204 AE (IXFM) Outline



Pins: 1 - Gate, 2 - Source, Case - Drain

Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	6.4	11.4	.250	.450
A1	1.53	3.42	.060	.135
Øb	1.45	1.60	.057	.063
ØD		22.22		.875
e	10.67	11.17	.420	.440
e1	5.21	5.71	.205	.225
L	11.18	12.19	.440	.480
Øp	3.84	4.19	.151	.165
Øp1	3.84	4.19	.151	.165
q	30.15 BSC		1.187 BSC	
R	12.58	13.33	.495	.525
R1	3.33	4.77	.131	.188
s	16.64	17.14	.655	.675

Min. Recommended Footprint



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

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

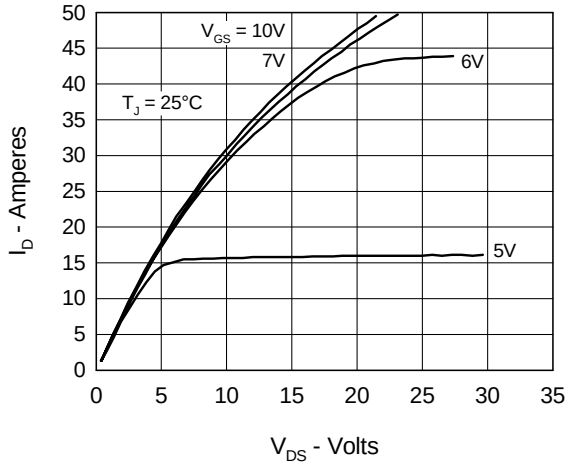


Fig. 2 Input Admittance

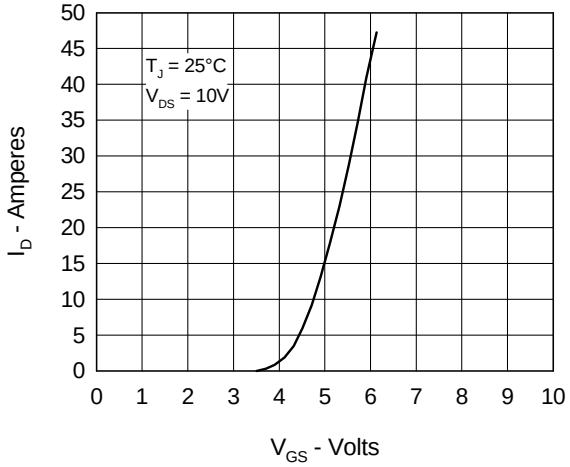


Fig. 3 $R_{DS(on)}$ vs. Drain Current

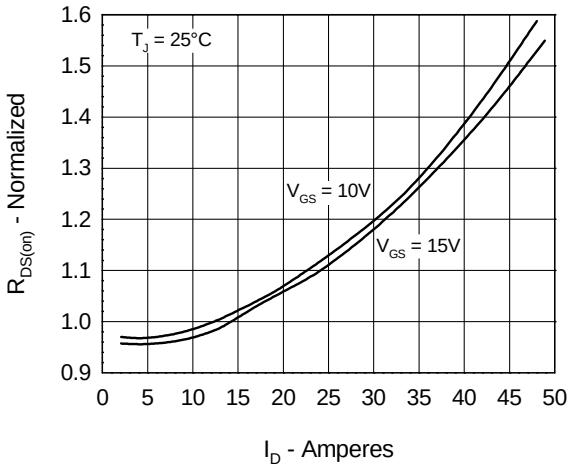


Fig. 4 Temperature Dependence of Drain to Source Resistance

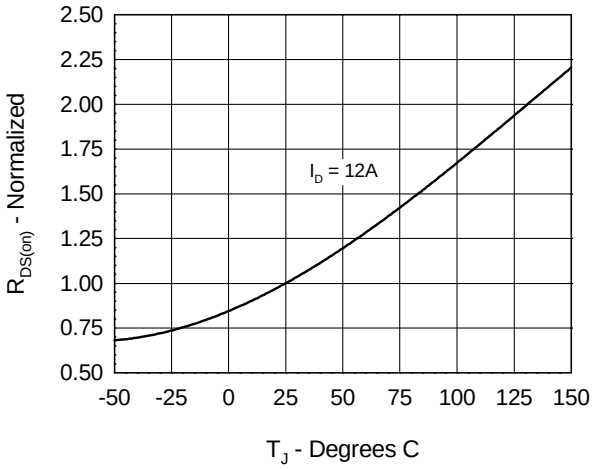


Fig. 5 Drain Current vs. Case Temperature

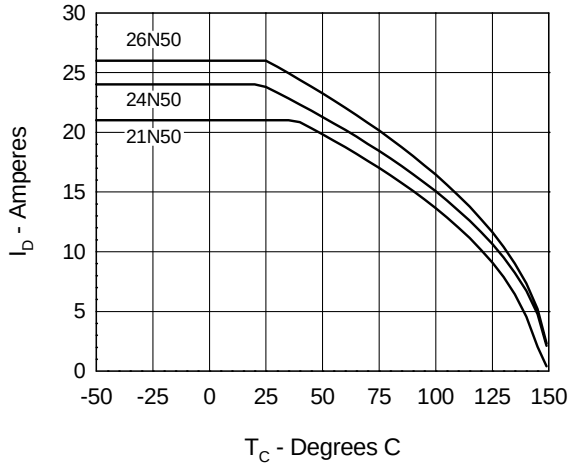


Fig. 6 Temperature Dependence of Breakdown and Threshold Voltage

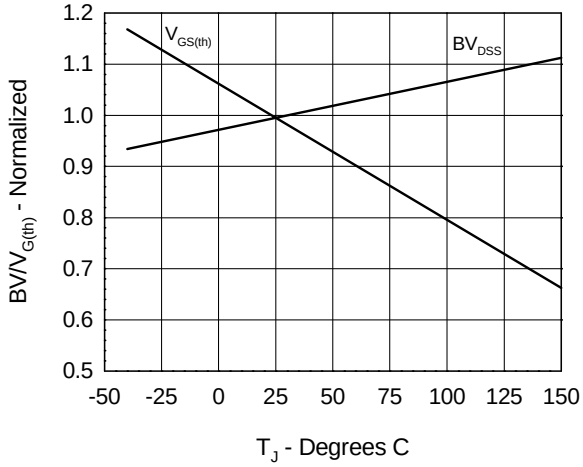


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Fig.7 Gate Charge Characteristic Curve

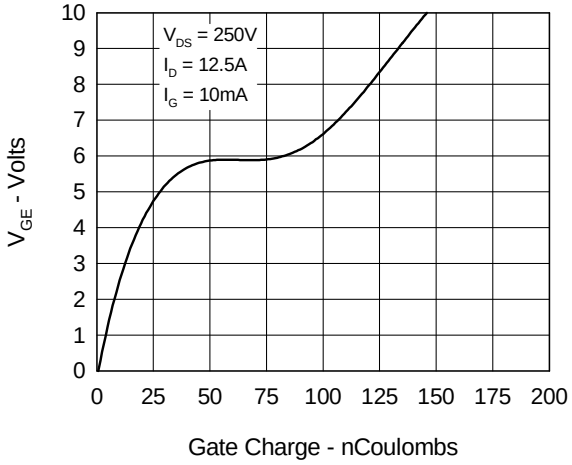


Fig.8 Forward Bias Safe Operating Area

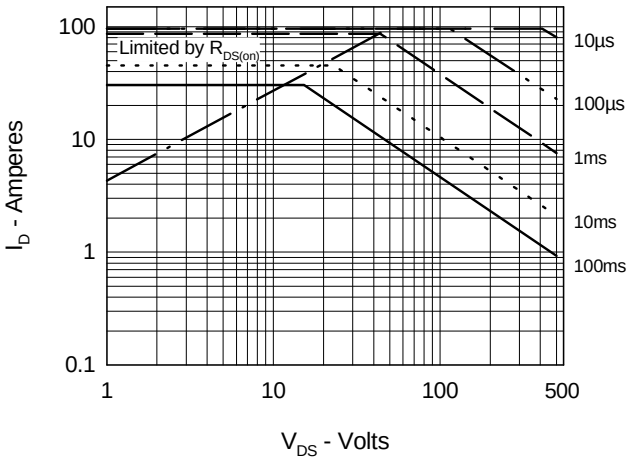


Fig.9 Capacitance Curves

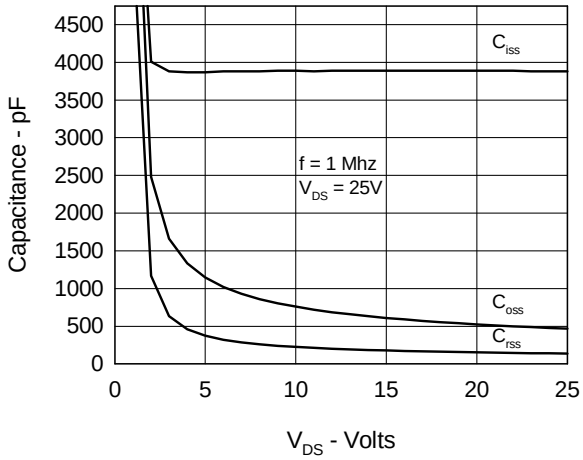


Fig.10 Source Current vs. Source to Drain Voltage

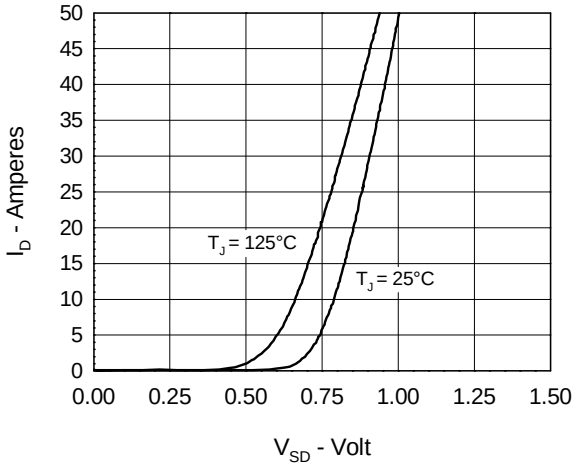
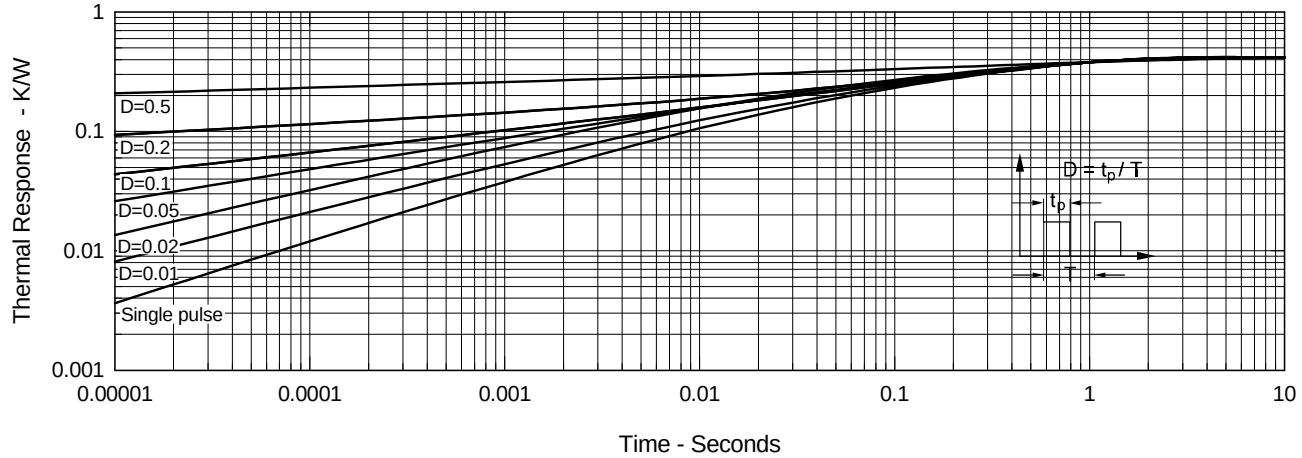


Fig.11 Transient Thermal Impedance



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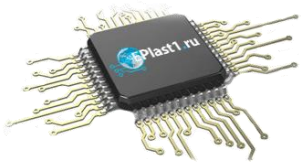
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.