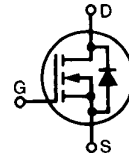


HiPerFET™ Power MOSFETs

IXFH/IXFM 67 N10
IXFH/IXFM 75 N10

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

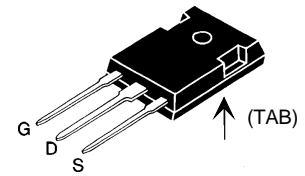


V_{DSS}	I_{D25}	$R_{DS(on)}$
100 V	67 A	25 mΩ
100 V	75 A	20 mΩ

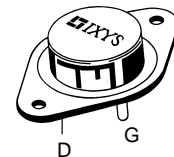
$t_{rr} \leq 200$ ns

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	100	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1$ MΩ	100	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	$T_C = 25^\circ\text{C}$	67N10	67 A
		75N10	75 A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	67N10	268 A
		75N10	300 A
I_{AR}	$T_C = 25^\circ\text{C}$	67N10	67 A
		75N10	75 A
E_{AR}	$T_C = 25^\circ\text{C}$	30	mJ
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100$ A/μs, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2$ Ω	5	V/ns
P_D	$T_C = 25^\circ\text{C}$	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	

TO-247 AD (IXFH)



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)
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, 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		V
I_{GSS}	$V_{GS} = \pm 20$ V _{DC} , $V_{DS} = 0$			±100 nA
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0$ V	$T_J = 25^\circ\text{C}$		250 μA
		$T_J = 125^\circ\text{C}$		1 mA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300$ μs, duty cycle $d \leq 2\%$	67N10		0.025 Ω
		75N10		0.020 Ω

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

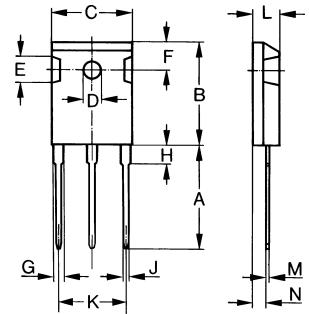
91521F (10/95)

© 2000 IXYS All rights reserved

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	$V_{DS} = 10\text{ V}; I_D = I_{D25}$, pulse test	25	30	S	
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		4500	pF	
C_{oss}			1600	pF	
C_{rss}			800	pF	
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 2\ \Omega$, (External)		20	30	ns
t_r			60	110	ns
$t_{d(off)}$			80	110	ns
t_f			60	90	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 I_{D25}$		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	

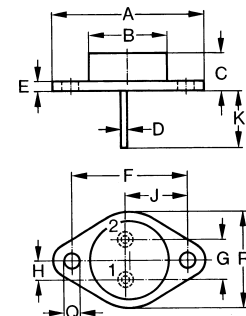
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$	67N10 75N10		67 A 75 A
I_{SM}	Repetitive; pulse width limited by T_{JM}	67N10 75N10		268 A 300 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.75 V
t_{rr}	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}$, $T_J = 25^\circ\text{C}$ $V_R = 25\text{ V}$, $T_J = 125^\circ\text{C}$			200 ns 300 ns

TO-247 AD (IXFH) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

TO-204 AE (IXFM) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	38.61	39.12	1.520	1.540
B	-	22.22	-	0.875
C	6.40	11.40	0.252	0.449
D	1.45	1.60	0.057	0.063
E	1.52	3.43	0.060	0.135
F	30.15	BSC	1.187	BSC
G	10.67	11.17	0.420	0.440
H	5.21	5.71	0.205	0.225
J	16.64	17.14	0.655	0.675
K	11.18	12.19	0.440	0.480
Q	3.84	4.19	0.151	0.165
R	25.16	26.66	0.991	1.050

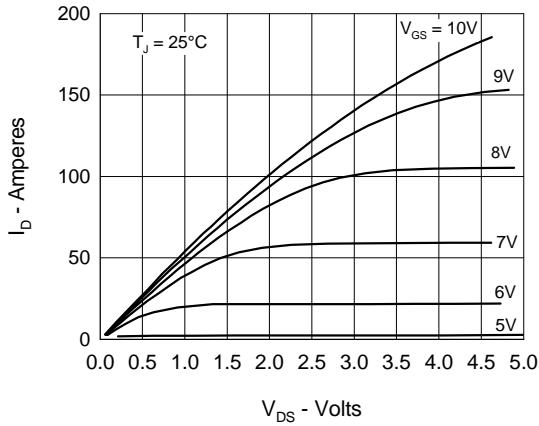
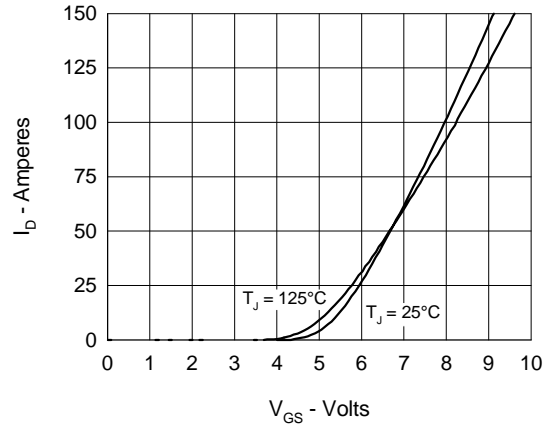
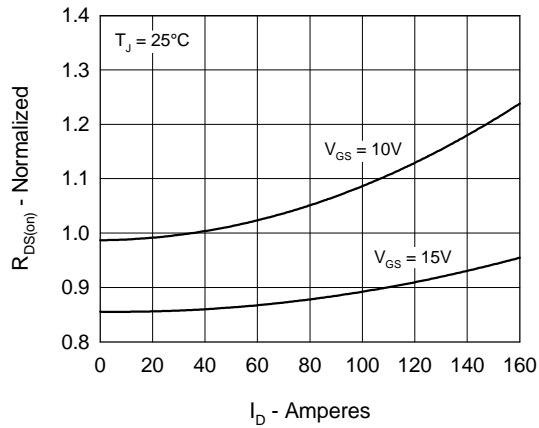
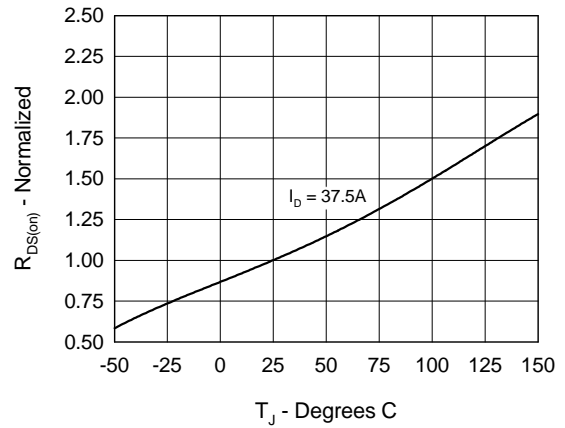
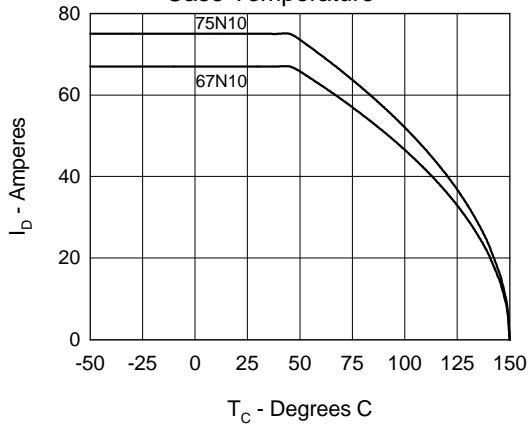
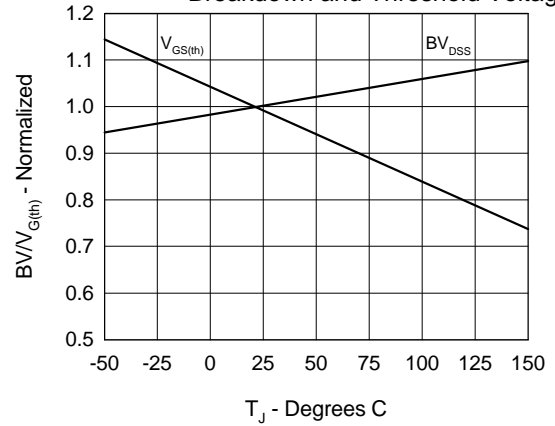
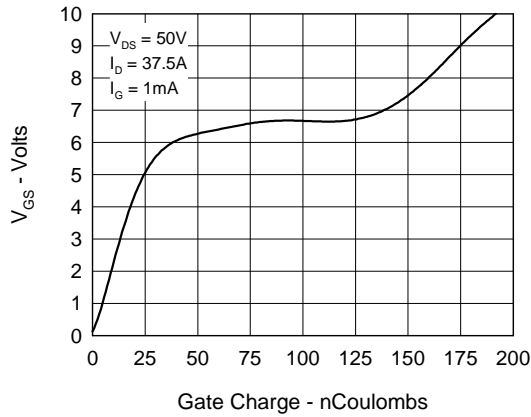
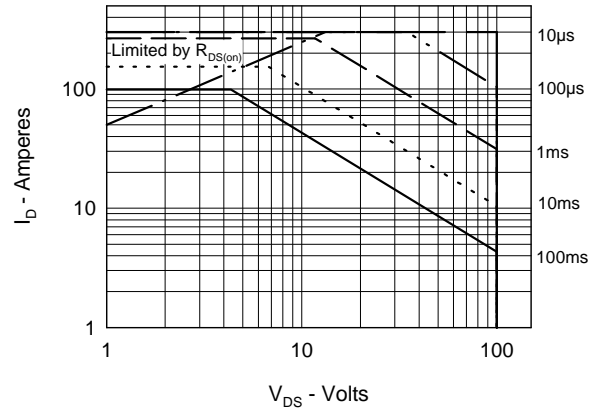
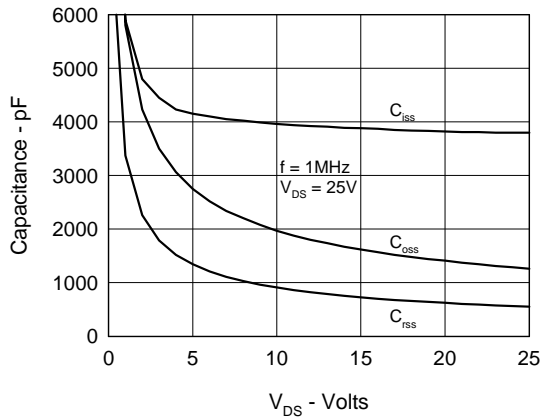
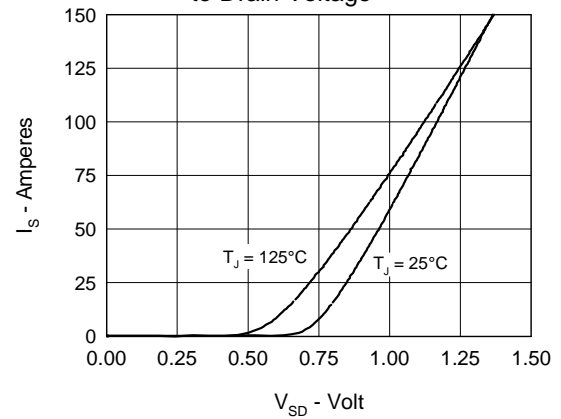
Fig. 1 Output Characteristics

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


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
