

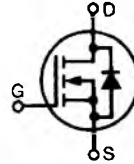
Preliminary Data

# HiPerFET™ Power MOSFETs

N-Channel Enhancement Mode  
High dv/dt, Low t<sub>rr</sub>, HDMOS™ Family

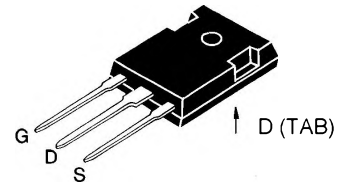
IXFH 76N06  
IXFH 76N07-11  
IXFH 76N07-12

V <sub>DSS</sub>	I <sub>D25</sub>	R <sub>DS(on)</sub>	t <sub>rr</sub>
60 V	76 A	11 mΩ	150 ns
70 V	76 A	11 mΩ	150 ns
70 V	76 A	12 mΩ	150 ns



Symbol	Test Conditions	Maximum Ratings		
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 175°C	N07	70	V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 175°C; R <sub>GS</sub> = 10 kΩ	N06	60	V
		N07	70	V
		N06	60	V
V <sub>GS</sub>	Continuous		±20	V
V <sub>GSM</sub>	Transient		±30	V
I <sub>D25</sub>	T <sub>C</sub> = 25°C (Chip capability = 125 A)		76	A
I <sub>D119</sub>	T <sub>C</sub> = 119°C, limited by external leads		76	A
I <sub>DM</sub>	T <sub>C</sub> = 25°C, pulse width limited by T <sub>JM</sub>		304	A
I <sub>AR</sub>	T <sub>C</sub> = 25°C		100	A
E <sub>AR</sub>	T <sub>C</sub> = 25°C		30	mJ
E <sub>AS</sub>			2	J
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , di/dt ≤ 100 A/μs, V <sub>DD</sub> ≤ V <sub>DSS</sub> , T <sub>J</sub> ≤ 150°C, R <sub>G</sub> = 2 Ω		5	V/ns
P <sub>D</sub>	T <sub>C</sub> = 25°C		360	W
T <sub>J</sub>			-55 ... +175	°C
T <sub>JM</sub>			175	°C
T <sub>stg</sub>			-55 ... +150	°C
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s			300	°C
M <sub>d</sub>	Mounting torque		1.15/10	Nm/lb.in.
Weight			6	g

TO-247 AD



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

### Features

- International standard package JEDEC TO-247 AD
- Low R<sub>DS(on)</sub> HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance (<5 nH)
  - 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
- Temperature and lighting controls
- Low voltage relays

### Advantages

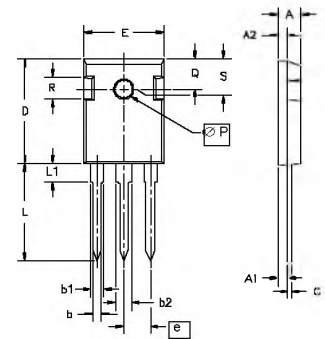
- Easy to mount with 1 screw (isolated mounting screw hole)
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values (T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
V <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA	N07	70	V
		N06	60	V
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA		2.0	3.4 V
I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V <sub>DC</sub> , V <sub>DS</sub> = 0			±100 nA
I <sub>DSS</sub>	V <sub>DS</sub> = 0.8 V <sub>DSS</sub> , V <sub>GS</sub> = 0 V	T <sub>J</sub> = 25°C		100 μA
		T <sub>J</sub> = 125°C		500 μA
R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 40 A	76N06, 76N07-11		11 mΩ
	Pulse test, t ≤ 300 μs, duty cycle δ ≤ 2 %	76N07-12		12 mΩ

Symbol	Test Conditions	Characteristic Values		
		(T <sub>J</sub> = 25°C, unless otherwise specified)		
		Min.	Typ.	Max.
g <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 40 A, pulse test	30	40	S
C <sub>iss</sub>	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 25 V, f = 1 MHz		4400	pF
C <sub>oss</sub>			2000	pF
C <sub>rss</sub>			1200	pF
t <sub>d(on)</sub>	V <sub>GS</sub> = 10 V, V <sub>DS</sub> = 50 V, I <sub>D</sub> = 30 A R <sub>G</sub> = 1 Ω (External)		40	ns
t <sub>r</sub>			70	ns
t <sub>d(off)</sub>			130	ns
t <sub>f</sub>			55	ns
Q <sub>g(on)</sub>	V <sub>GS</sub> = 10 V, V <sub>CS</sub> = 0.5 V <sub>CSs</sub> , I <sub>D</sub> = 40 A		240	nC
Q <sub>gs</sub>			30	nC
Q <sub>gd</sub>			120	nC
R <sub>thJC</sub>			0.42	K/W
R <sub>thCK</sub>		0.25		K/W

Symbol	Test Conditions	Characteristic Values		
		(T <sub>J</sub> = 25°C, unless otherwise specified)		
		Min.	Typ.	Max.
I <sub>s</sub>	V <sub>GS</sub> = 0			76 A
I <sub>SM</sub>	Repetitive, pulse width limited by T <sub>JM</sub>			304 A
V <sub>SD</sub>	I <sub>F</sub> = I <sub>S</sub> , V <sub>GS</sub> = 0 V, Pulse test, t ≤ 300 μs, duty cycle δ ≤ 2 %			1.5 V
t <sub>rr</sub>	I <sub>F</sub> = 25 A, -di/dt = 100 A/μs, T <sub>J</sub> = 25°C V <sub>R</sub> = 25 V T <sub>J</sub> = 125°C		150	ns 250 ns

### TO-247 AD Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A <sub>1</sub>	2.2	2.54	.087	.102
A <sub>2</sub>	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b <sub>1</sub>	1.65	2.13	.065	.084
b <sub>2</sub>	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
∅P	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

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