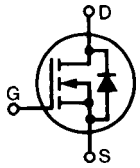
IXYS

HiPerFET™ Power MOSFETs

IXFK 150N15
IXFX 150N15

V_{DSS} = 150 V
I_{D25} = 150 A
$R_{DS(on)}$ = 12.5 mΩ
$t_{rr} \leq$ 250 ns

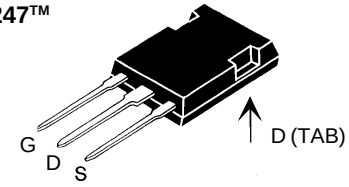
Single MOSFET Die



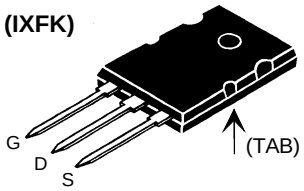
Preliminary data sheet

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	150	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ	150	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C (MOSFET chip capability)	150	A
$I_{D(RMS)}$	External lead (current limit)	76	A
I_{DM}	T_C = 25°C, Note 1	600	A
I_{AR}	T_C = 25°C	150	A
E_{AR}	T_C = 25°C	60	mJ
E_{AS}	T_C = 25°C	3	J
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	560	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6 mm (0.063 in.) from case for 10 s	300	°C
M_d	Mounting torque TO-264	0.9/6	Nm/lb.in.
Weight	PLUS 247	6	g
	TO-264	10	g

PLUS 247™ (IXFX)



TO-264 AA (IXFK)



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
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control
- Temperature and lighting controls

Advantages
- PLUS 247™ package for clip or spring mounting
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 3mA	150			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 8mA	2.0		4.0	V
I_{GSS}	V_{GS} = ±20 V, V_{DS} = 0			±100	nA
I_{DSS}	$V_{DS} = V_{DSS}$ V_{GS} = 0 V	T_J = 25°C		100	μA
		T_J = 125°C		2	mA
$R_{DS(on)}$	V_{GS} = 10 V, $I_D = 0.5 \bullet I_{D25}$ Note 1			12.5	mΩ

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

© 2000 IXYS All rights reserved

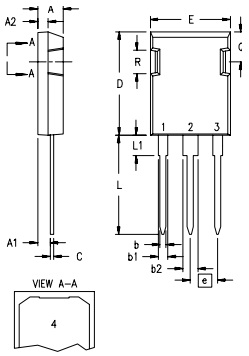
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values min.	typ.	max.	
g_{fs}	V_{DS} = 10 V; I_D = 60A	Note 2	50	75		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz			9100		pF
C_{oss}				2600		pF
C_{rss}				1200		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25} R_G = 1 Ω (External),			50		ns
t_r				60		ns
$t_{d(off)}$				110		ns
t_f				45		ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}			360		nC
Q_{gs}				65		nC
Q_{gd}				190		nC
R_{thJC}					0.22	K/W
R_{thCK}				0.15		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			150	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			600	A
V_{SD}	I_F = 100A, V_{GS} = 0 V, Note 1			1.5	V
t_{rr}	I_F = 50A,-di/dt = 100 A/µs, V_R = 50 V			250	ns
Q_{RM}			1.1		µC
I_{RM}			13		A

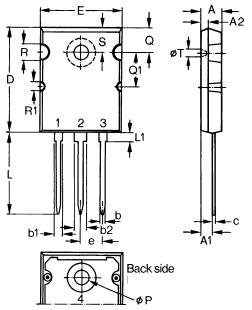
Note: 1. Pulse width limited by T_{JM}
2. Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %

PLUS247™ (IXFX) Outline)



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.83	5.21	.190	.205
A_1	2.29	2.54	.090	.100
A_2	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b_1	1.91	2.13	.075	.084
b_2	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190

TO-264 AA Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
c	0.53	0.83	.021	.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	.780	.786
e	5.46 BSC		.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
P	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
T	1.57	1.83	.062	.072

© 2000 IXYS All rights reserved

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



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.