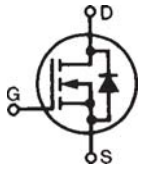
IXYS

HiPerFET™ Power MOSFET Q2-Class

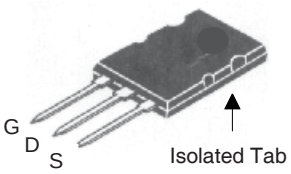
IXFL38N100Q2

V_{DSS} = 1000V
I_{D25} = 29A
$R_{DS(on)}$ ≤ 280mΩ
t_{rr} ≤ 300ns

N-Channel Enhancement Mode
Avalanche Rated, Low Q_g, Low Intrinsic R_G
High dV/dt, Low t_{rr}



ISOPLUS264™(IXFL)



G = Gate D = Drain
S = Source

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	1000	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	1000	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	T_C = 25°C	29	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	152	A
I_A	T_C = 25°C	38	A
E_{AS}	T_C = 25°C	5	J
dV/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$	20	V/ns
P_D	T_C = 25°C	380	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 10s	300	°C
T_{SOLD}	Plastic body for 10s	260	°C
F_C	Mounting force	30..120/6.7..27	N/lbs
V_{ISOL}	50/60 Hz, RMS t = 1 min	2500	V~
	$I_{ISOL} \le$ 1 mA t = 1 s	3000	V~
Weight		10	g

Symbol	Test Conditions (T$_J$ = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0 V, I_D = 1mA	1000			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 8mA	3.0		5.5	V
I_{GSS}	V_{GS} = ±30 V, V_{DS} = 0V			± 200	nA
I_{DSS}	$V_{DS} = V_{DSS}$			100	μA
	V_{GS} = 0V T_J = 125°C			5	mA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 19A, Note 1			280	mΩ

Features

- Electrically isolated mounting tab
- Double metal process for low gate resistance
- Unclamped Inductive Switching (UIS) rated
- Low package inductance - easy to drive and to protect
- Fast intrinsic diode

Applications

- DC-DC converters
- Switched-mode and resonant-mode power supplies
- DC choppers
- Pulse generation
- Laser drivers

Advantages

- 2500 V~ Electrical isolation
- ISOPLUS 264™ package for clip or spring mounting
- Space savings
- High power density

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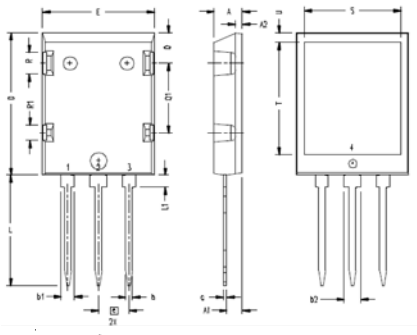
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 20V, I_D = 19A, Note 1	24	40		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		13.5		nF
C_{oss}			1035		pF
C_{rss}			180		pF
$t_{d(on)}$	**Resistive Switching Times**		25		ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 19A		28		ns
$t_{d(off)}$	R_G = 1Ω (External)		57		ns
t_f			15		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 19A		250		nC
Q_{gs}			60		nC
Q_{gd}			105		nC
R_{thJC}				0.33	°C/W
R_{thCS}			0.13		°C/W

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			38	A
I_{SM}	Repetitive, pulse width limited by T_{JM}			152	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			1.5	V
t_{rr}	I_F = 25A, V_{GS} = 0V			300	ns
Q_{RM}	-di/dt = 100 A/μs		1.4		μC
I_{RM}	V_R = 100 V		9.0		A

Note: 1. Pulse test, t ≤ 300μs, duty cycle, d ≤ 2 %.

ISOPLUS264™ (IXFL) Outline



Note: Bottom heatsink meets

SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.055	1.17	1.40
b	.045	.055	1.14	1.40
b1	.087	.102	2.21	2.59
b2	.111	.126	2.82	3.20
c	.020	.029	0.51	0.74
D	1.020	1.040	25.91	26.42
E	.770	.789	19.56	20.29
e	.215 BSC		5.46 BSC	
L	.780	.820	19.81	20.83
L1	.080	.102	2.03	2.59
Q	.210	.235	5.33	5.97
Q1	.490	.513	12.45	13.03
R	.150	.180	3.81	4.57
R1	.100	.130	2.54	3.30
S	.668	.690	16.97	17.53
T	.801	.821	20.34	20.85
U	.065	.080	1.65	2.03

Ref: IXYS CO 0128

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 4,850,072 4,881,106 4,931,844 5,017,508 5,034,796 5,049,961 5,063,307 5,187,117 5,237,481 5,381,025 5,486,715 6,162,665 6,259,123 B1 6,306,728 B1 6,404,065 B1 6,534,343 6,583,505 6,683,344 6,710,405 B2 6,710,463 6,727,585 6,759,692 6,771,478 B2 7,005,734 B2 7,063,975 B2 7,071,537 7,157,338B2

Fig. 1. Output Characteristics @ 25ºC

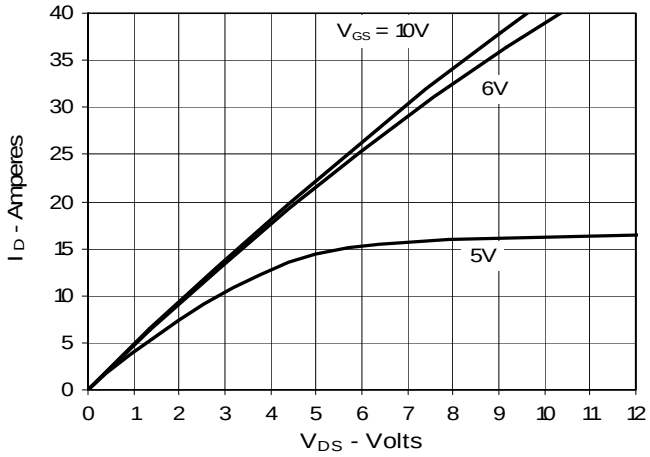


Fig. 2. Extended Output Characteristics @ 25ºC

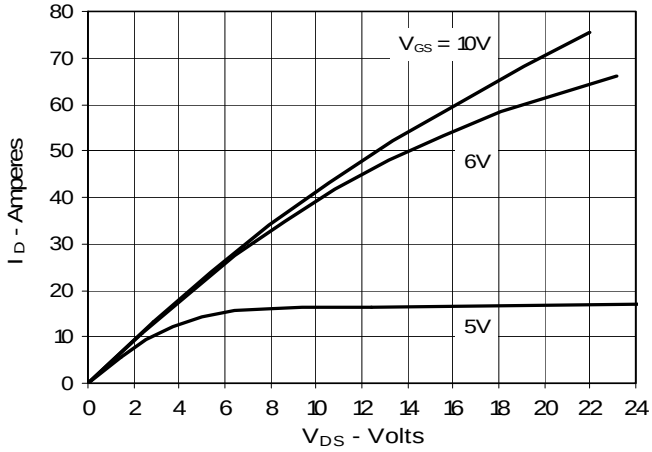


Fig. 3. Output Characteristics @ 125ºC

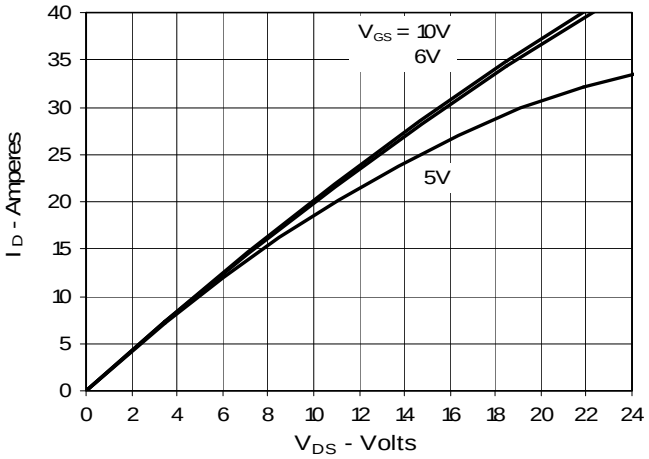


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 19A Value vs. Junction Temperature

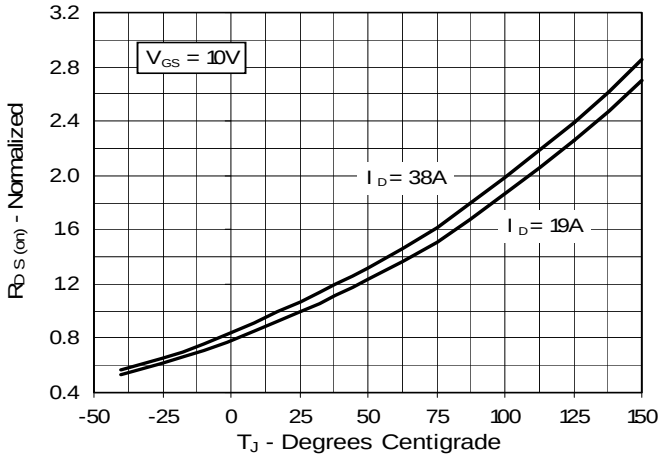


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 19A Value vs. Drain Current

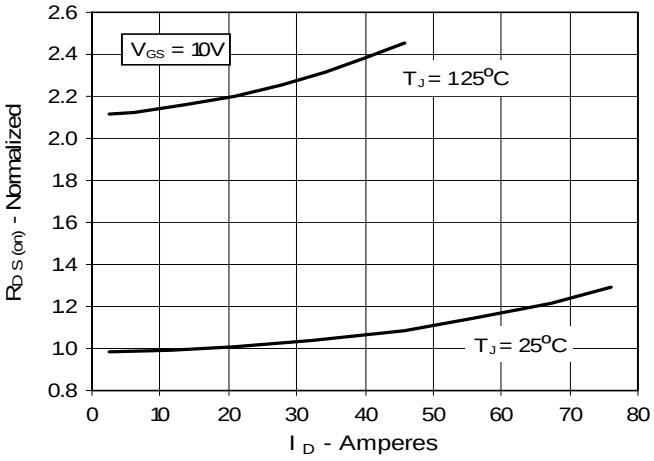
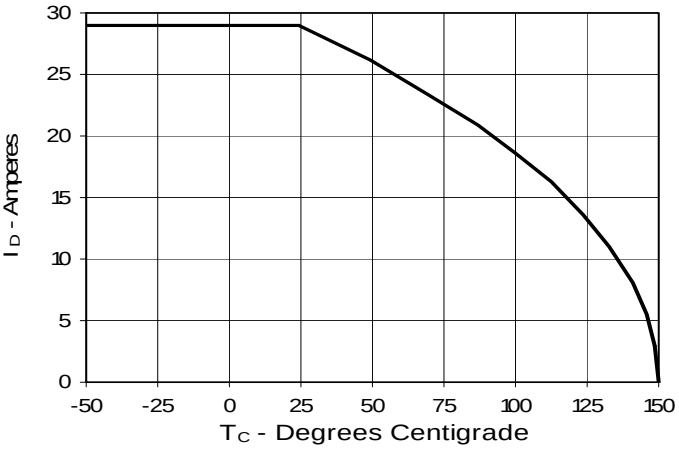


Fig. 6. Drain Current vs. Case Temperature



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Fig. 7. Input Admittance

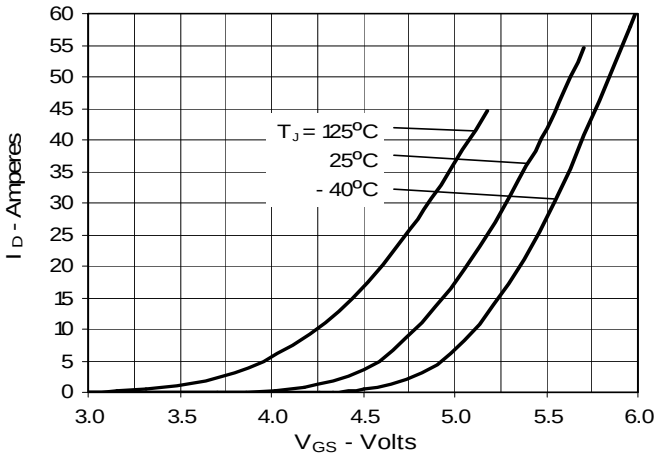


Fig. 8. Transconductance

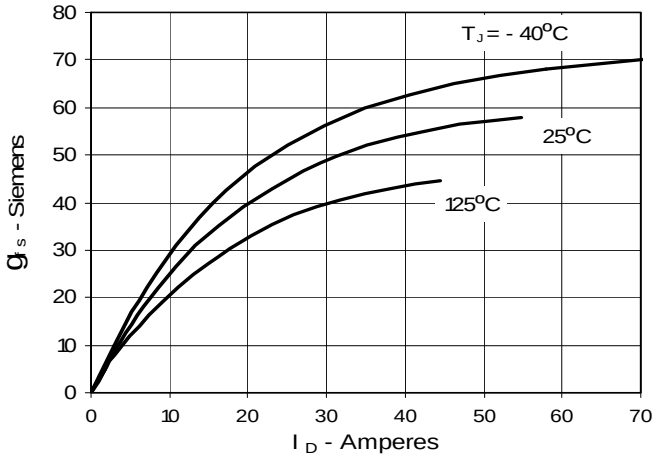


Fig. 9. Source Current vs. Source-To-Drain Voltage

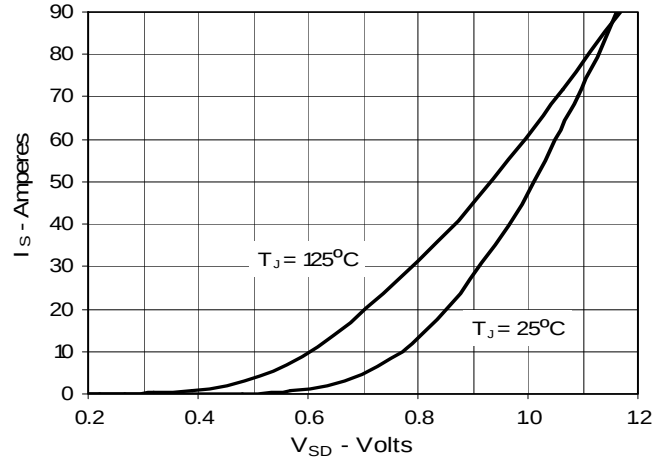


Fig. 10. Gate Charge

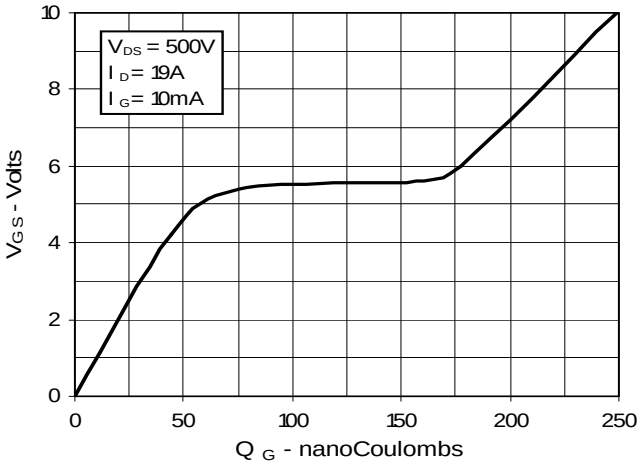


Fig. 11. Capacitance

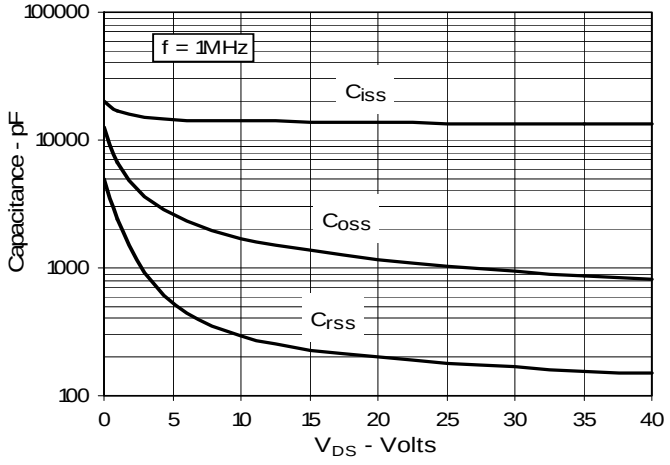
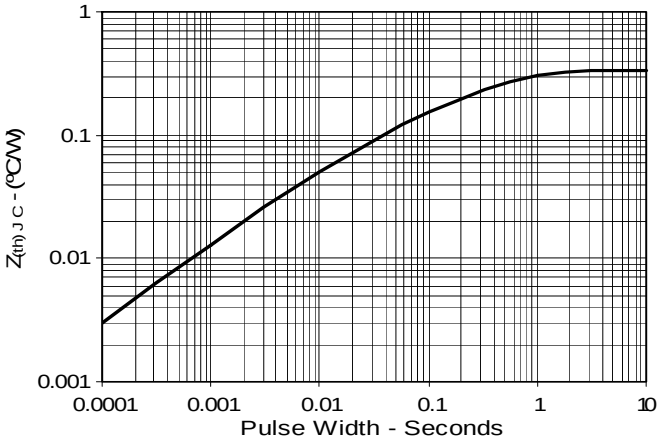


Fig. 12. Maximum Transient Thermal Impedance



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