

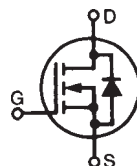
HiPerFET™ Power MOSFETs Q-Class

IXFN 73N30Q

$$\begin{aligned} V_{DSS} &= 300 \text{ V} \\ I_{D25} &= 73 \text{ A} \\ R_{DS(on)} &= 45 \text{ m}\Omega \end{aligned}$$

N-Channel Enhancement Mode
Avalanche Rated, Low Q_g , High dv/dt

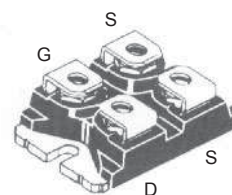
Preliminary data sheet



$$t_{rr} \leq 250 \text{ ns}$$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	300	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	300	V
V_{GS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	73	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	292	A
I_{AR}	$T_C = 25^\circ\text{C}$	73	A
E_{AR}	$T_C = 25^\circ\text{C}$	60	mJ
E_{AS}		2.5	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$	10	V/ns
P_D	$T_C = 25^\circ\text{C}$	500	W
T_J		-55 to +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 to +150	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	2500 3000	V~ V~
M_d	Mounting torque Terminal connection torque	1.5/13 1.5/13	Nm/lb.in. Nm/lb.in.
Weight		30	g

miniBLOC, SOT-227 B (IXFN)
E153432



G = Gate
S = Source

D = Drain

Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Features

- IXYS advanced low Q_g process
- Low gate charge and capacitances
- easier to drive
- faster switching
- Unclamped Inductive Switching (UIS) rated
- Low $R_{DS(on)}$
- Fast intrinsic diode
- International standard package
- miniBLOC with Aluminium nitride isolation for low thermal resistance
- Low terminal inductance (<10 nH) and stray capacitance to heatsink (<35pf)
- Molding epoxies meet UL 94 V-0 flammability classification

Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls

Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 1 \text{ mA}$	300		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4 \text{ mA}$	2.0		4.0 V
I_{GSS}	$V_{GS} = \pm 20 V_{DC}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0 \text{ V}$			25 μA 2 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2 \%$			45 m Ω

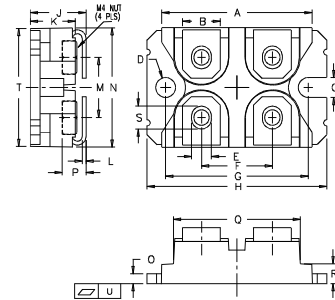
Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	V _{DS} = 10 V; I _D = 0.5 • I _{D25} , pulse test	30	55	S
C_{iss}	$\left. \begin{array}{l} \\ \\ \end{array} \right\} V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$		5400	pF
C_{oss}			1300	pF
C_{rss}			370	pF
t_{d(on)}	$\left. \begin{array}{l} \\ \\ \\ \end{array} \right\} V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 1.0 \, \Omega \text{ (External),}$		37	ns
t_r			36	ns
t_{d(off)}			82	ns
t_f			12	ns
Q_{g(on)}	$\left. \begin{array}{l} \\ \\ \end{array} \right\} V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		195	nC
Q_{gs}			42	nC
Q_{gd}			82	nC
R_{thJC}			0.05	0.22 K/W
R_{thCK}				K/W

Source-Drain Diode

Characteristic Values

($T_j = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			73 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			292 A
V_{SD}	$I_F = I_S$, $V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle $d \leq 2\%$			1.5 V
t_{rr} Q_{RM} I_{RM}	$I_F = 25\text{ A}$, $-di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 100\text{ V}$		0.8 7	250 ns μC A

miniBLOC, SOT-227 B

M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	38.00	38.23	1.496	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004

Fig. 1. Output Characteristics
@ 25 Deg. C

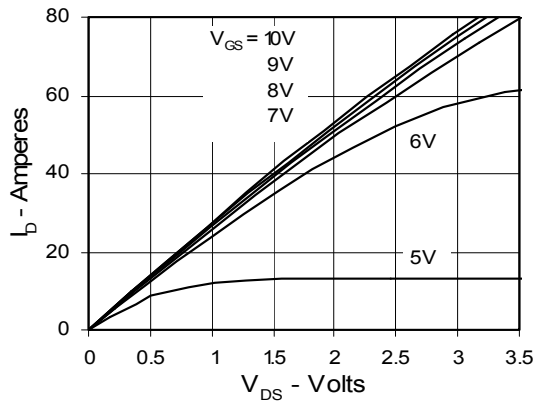


Fig. 2. Extended Output Characteristics
@ 25 deg. C

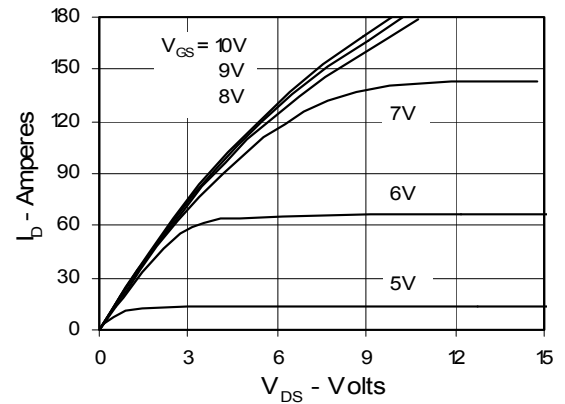


Fig. 3. Output Characteristics
@ 125 Deg. C

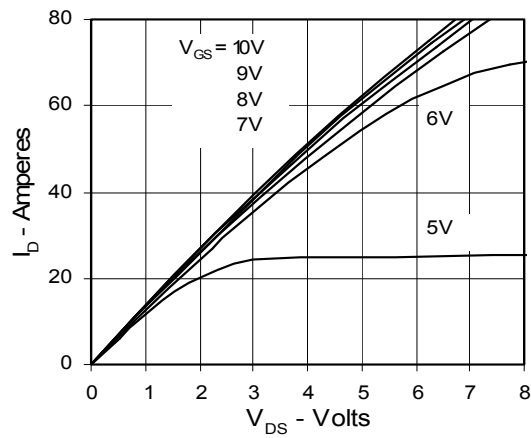


Fig. 4. $R_{DS(on)}$ Normalized to I_{D25} Value vs. Junction Temperature

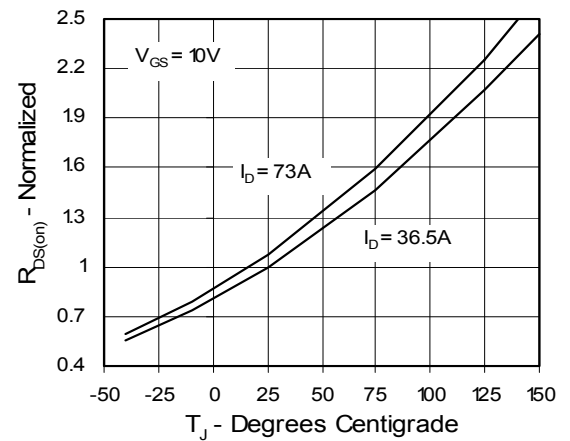


Fig. 5. $R_{DS(on)}$ Normalized to I_{D25} Value vs. I_D

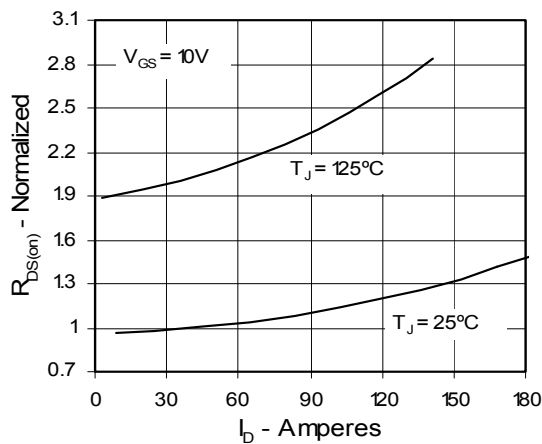


Fig. 6. Drain Current vs. Case Temperature

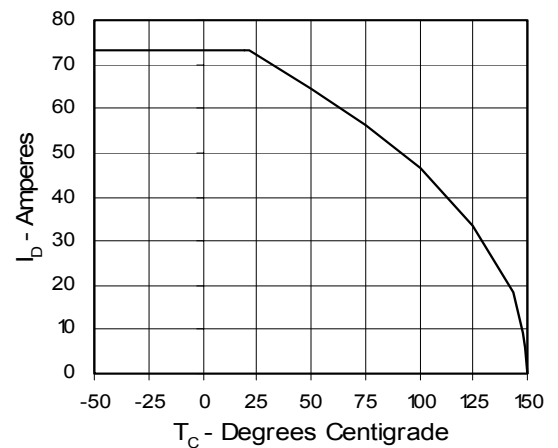


Fig. 7. Input Admittance

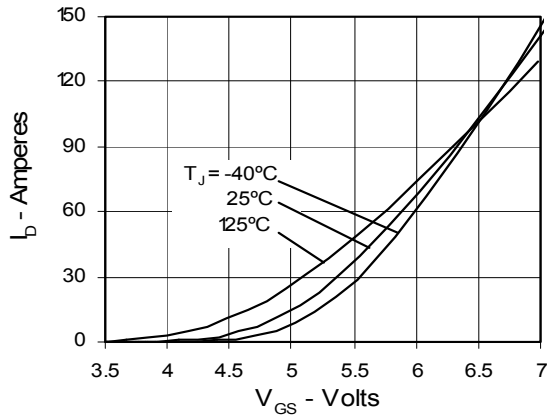


Fig. 8. Transconductance

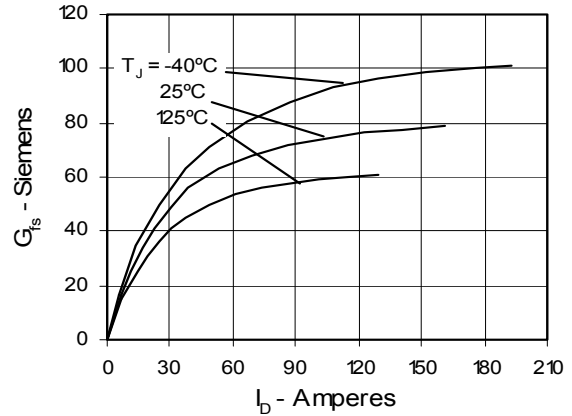


Fig. 9. Source Current vs. Source-To-Drain Voltage

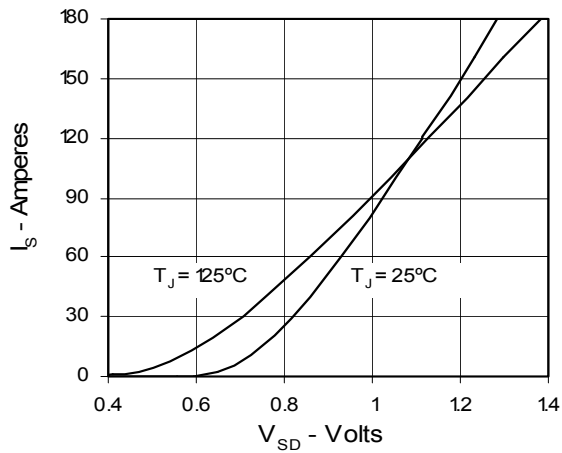


Fig. 10. Gate Charge

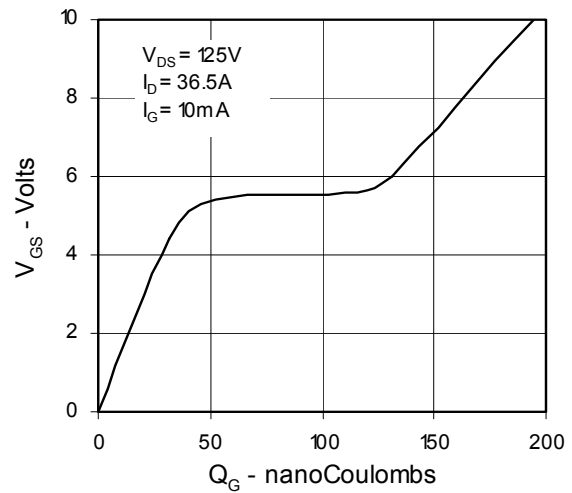


Fig. 11. Capacitance

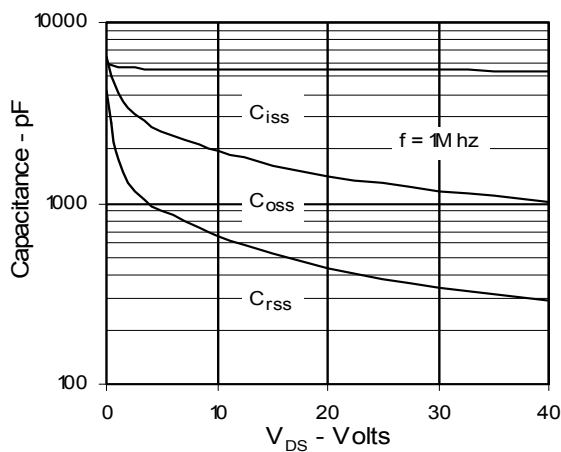
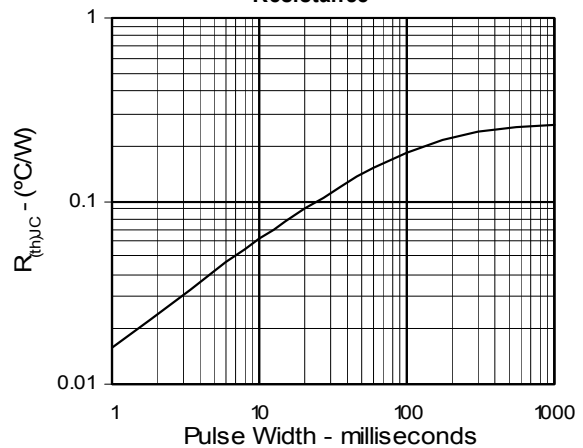


Fig. 12. Maximum Transient Thermal Resistance



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 6,306,728B1 6,259,123B1 6,306,728B1
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343 6,583,505