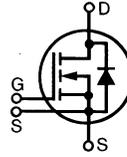


HiPerFET™ Power MOSFETs

N-Channel Enhancement Mode
Avalanche Rated, High dv/dt, Low t_{rr}

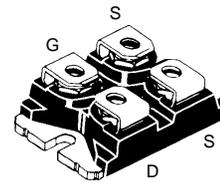
IXFN 200 N06
IXFN 180 N07
IXFN 200 N07



V_{DSS}	I_{D25}	$R_{DS(on)}$
60 V	200 A	6 mΩ
70 V	180 A	7 mΩ
70 V	200 A	6 mΩ

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

miniBLOC, SOT-227 B (IXFN)
E153432



G = Gate D = Drain
S = Source
Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Symbol	Test Conditions	Maximum Ratings		
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	N07	70	V
		N06	60	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	N07	70	V
		N06	60	V
V_{GS}	Continuous		± 20	V
V_{GSM}	Transient		± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$; Chip capability	200N06/200N07	200	A
		180N07	180	A
$I_{L(RMS)}$	Terminal current limit		100	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}		600	A
I_{AR}	$T_C = 25^\circ\text{C}$		100	A
E_{AR}	$T_C = 25^\circ\text{C}$		30	mJ
E_{AS}	$T_C = 25^\circ\text{C}$		2	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$		5	V/ns
P_D	$T_C = 25^\circ\text{C}$		520	W
T_J			-55 ... +150	$^\circ\text{C}$
T_{JM}			150	$^\circ\text{C}$
T_{stg}			-55 ... +150	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$ $t = 1 \text{ s}$	2500 3000	V~ V~
M_d	Mounting torque Terminal connection torque		1.5/13Nm/lb.in. 1.5/13Nm/lb.in.	
Weight			30	g

Features

- International standard packages
- miniBLOC with Aluminium nitride isolation
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- 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
- Space savings
- High power density

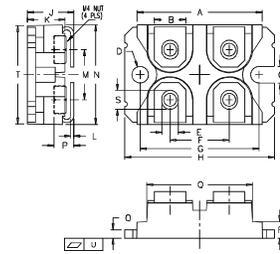
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 1 \text{ mA}$	N06	60	V
		N07	70	V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8 \text{ mA}$		2	V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$		400	μA
			2	mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 \cdot I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$	200N06/200N07	6	mΩ
		180N07	7	mΩ

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

97533A (9/99)

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Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$, pulse test	60	80	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		9000	pF
C_{oss}			4000	pF
C_{rss}			2400	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 1\ \Omega$ (External),		30	ns
t_r			60	ns
$t_{d(off)}$			100	ns
t_f			60	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		480	nC
Q_{gs}			60	nC
Q_{gd}			240	nC
R_{thJC}	miniBLOC, SOT-227 B		0.24	K/W
R_{thCK}	miniBLOC, SOT-227 B	0.05		K/W

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

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$	200N06/200N07 180N07		200 180
I_{SM}	Repetitive; pulse width limited by T_{JM}			600
V_{SD}	$I_F = 100\text{ A}, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.7
t_{rr}	$I_F = 25\text{ A}$ $-di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 50\text{ V}$		150	250
Q_{RM}			0.7	μC
I_{RM}			9	A

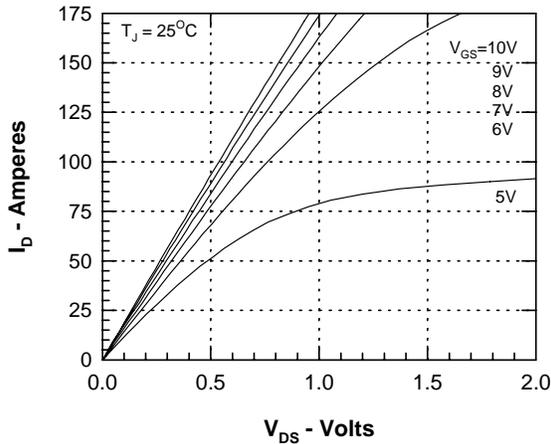


Figure 1. Output Characteristics at 25°C

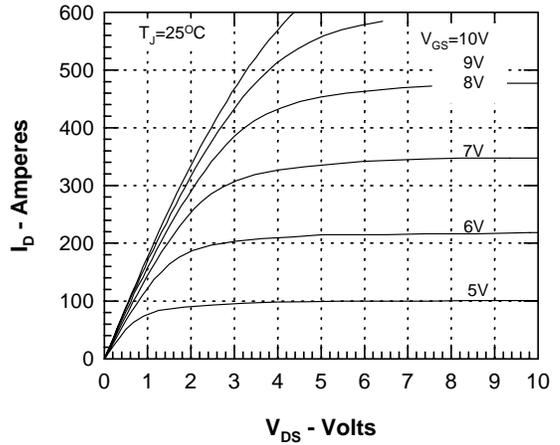


Figure 2. Extended Output Characteristics

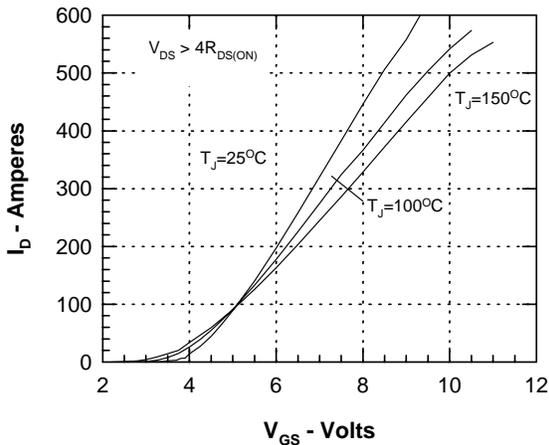


Figure 3. Admittance Curves

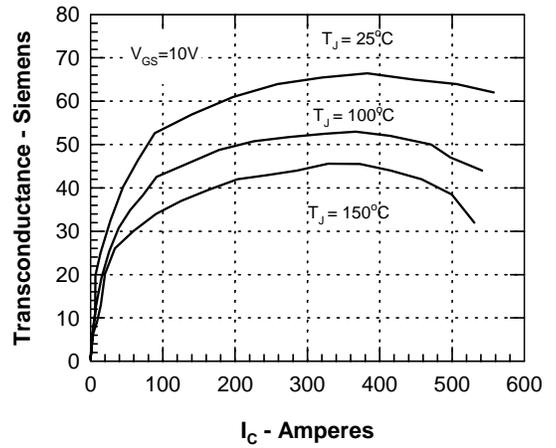
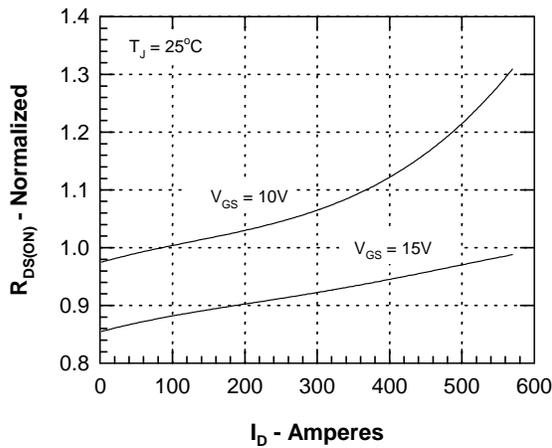
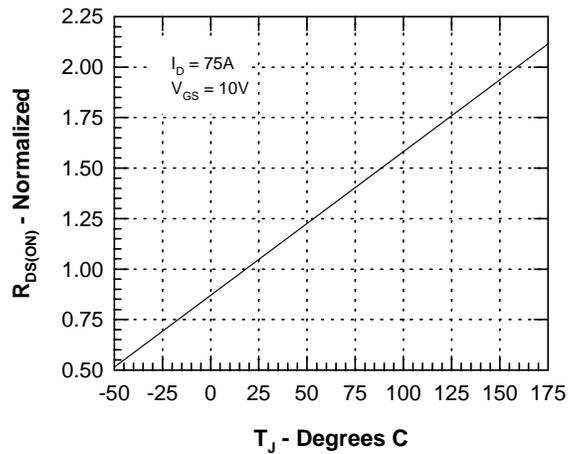


Figure 4. Transconductance vs. Drain Current


 Figure 5. $R_{DS(on)}$ normalized to $0.5 I_{D25}$ value

 Figure 6. Normalized $R_{DS(on)}$ vs. Junction Temperature

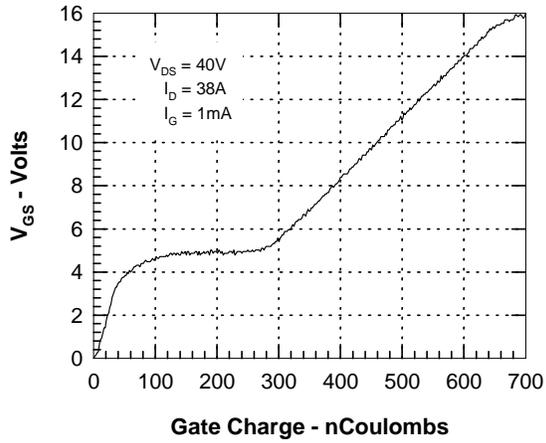


Figure 7. Gate Charge

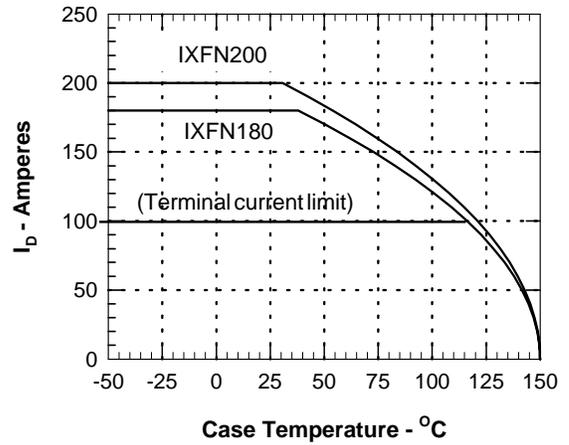


Figure 8. Drain Current vs. Case Temperature

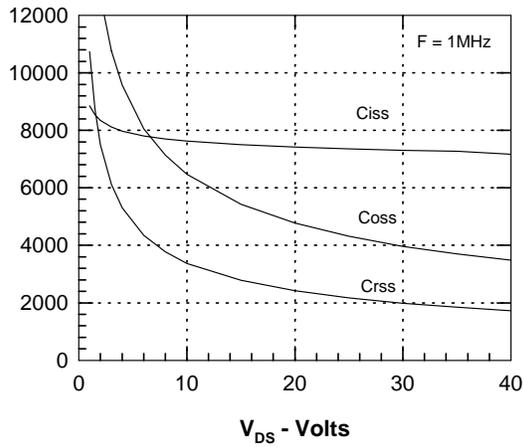


Figure 9. Capacitance Curves

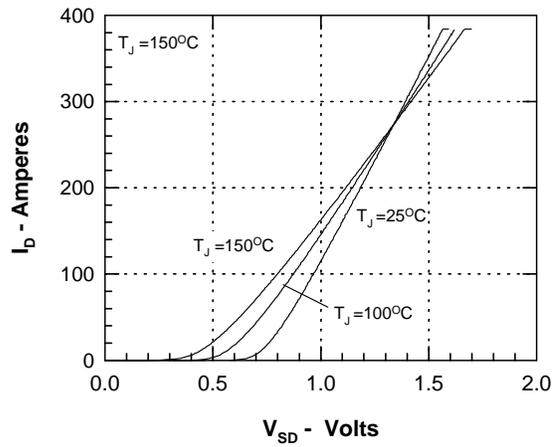


Figure 10. Source-Drain Voltage vs. Source Current

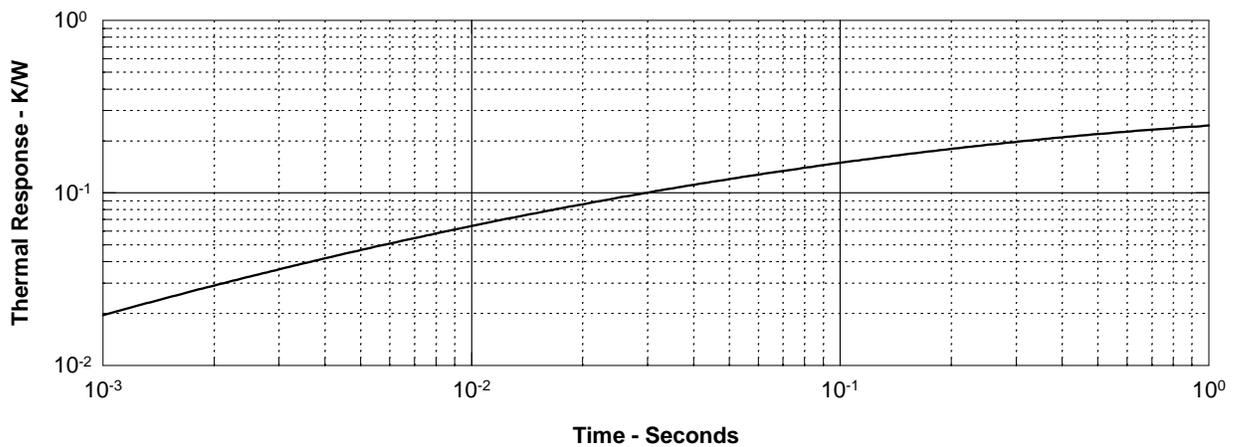


Figure 11. Transient Thermal Resistance