

HiPerFET™ Power MOSFETs Single Die MOSFET

IXFN 340N07

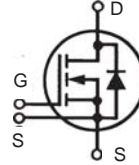
$$V_{DSS} = 70 \text{ V}$$

$$I_{D25} = 340 \text{ A}$$

$$R_{DS(on)} = 4 \text{ m}\Omega$$

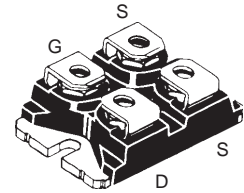
$$t_{rr} \leq 200 \text{ ns}$$

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



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	70	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	70	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$, Chip capability	340	A
$I_{L(RMS)}$	Terminal current limit	100	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	1360	A
I_{AR}	$T_C = 25^\circ\text{C}$	200	A
E_{AR}	$T_C = 25^\circ\text{C}$	64	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	4	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	$T_C = 25^\circ\text{C}$	700	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 $t = 1 \text{ min}$	2500	V~
	$I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	3000	V~
M_d	Mounting torque	1.5/13	Nm/lb.in.
	Terminal connection torque	1.5/13	Nm/lb.in.
Weight		30	g

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

Features

- International standard package
- 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

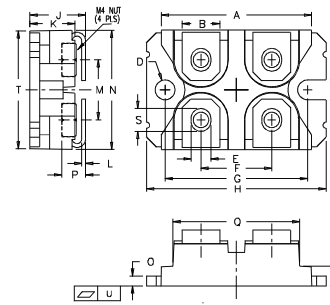
- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls
- Linear current regulators

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}	$V_{GS} = 0 \text{ V}$, $I_D = 3 \text{ mA}$	70		V
$V_{GH(th)}$	$V_{DS} = V_{GS}$, $I_D = 8 \text{ mA}$	2.0		V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			± 200 nA
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$		100 μA
		$T_J = 125^\circ\text{C}$		2 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 100 \text{ A}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2 \%$			4 m Ω

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 60\text{ A}$, pulse test	80	98	S
C_{iss} C_{oss} C_{rss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		12200	pF
			7100	pF
			3340	pF
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 100\text{ A}$ $R_G = 1\ \Omega$ (External)		100	ns
			95	ns
			200	ns
			33	ns
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10\text{ V}, V_{DS} = 50\text{ V}, I_D = 100\text{ A}$		490	nC
			72	nC
			266	nC
R_{thJC} R_{thCK}			0.18	K/W
			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	$V_{GS} = 0\text{ V}$			340 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			1360 A
V_{SD}	$I_F = 100\text{ A}, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.2 V
t_{rr} Q_{RM} I_{RM}	$I_F = 50\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 50\text{ V}, T_J = 25^\circ\text{C}$		100	ns
			1.4	μC
			8	A

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

 IXYS MOSFETs and IGBTs are covered by 4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,381,025 6,162,665 6,306,728 B1 6,534,343 6,683,344
 one or more of the following U.S. patents: 4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,486,715 6,259,123 B1 6,404,065 B1 6,583,505 6,710,405 B2

Fig. 1. Output Characteristics @ 25 Deg. C

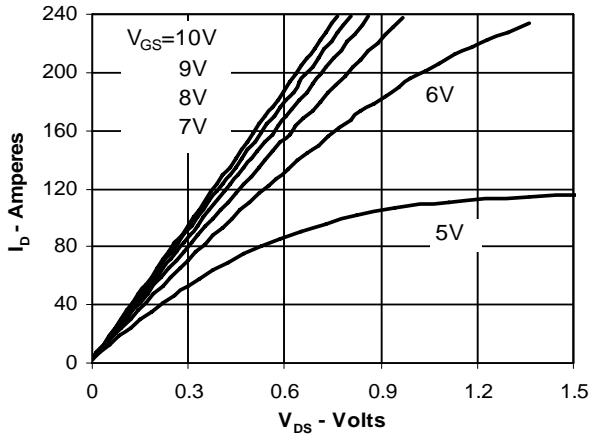


Fig. 2. Output Characteristics @ 125 Deg. C

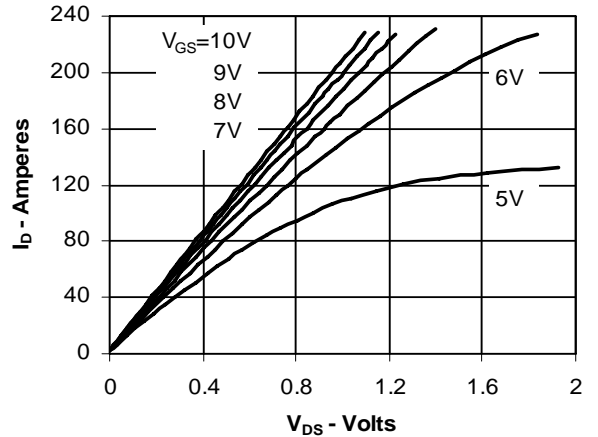


Fig. 3. Temperature Dependence of $R_{DS(ON)}$

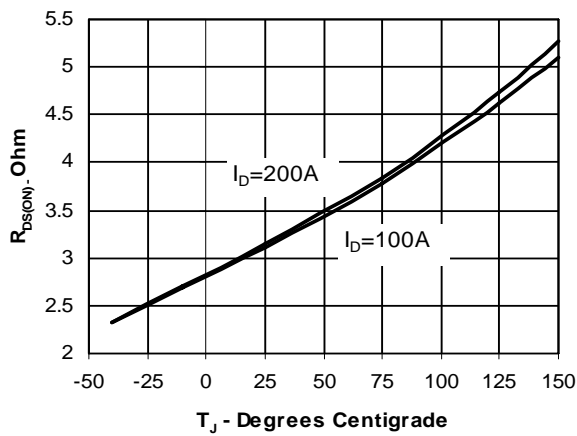


Fig. 4. $R_{DS(ON)}$ Normalized to $I_{L(RMS)}$ Value vs. Junction Temperature

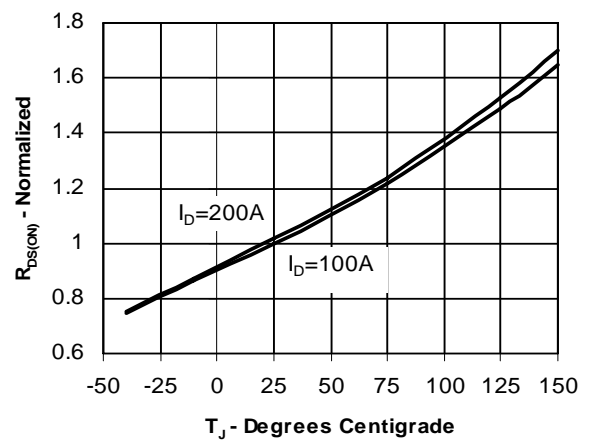


Fig. 5. $R_{DS(ON)}$ Normalized to $I_{L(RMS)}$ Value vs. I_D

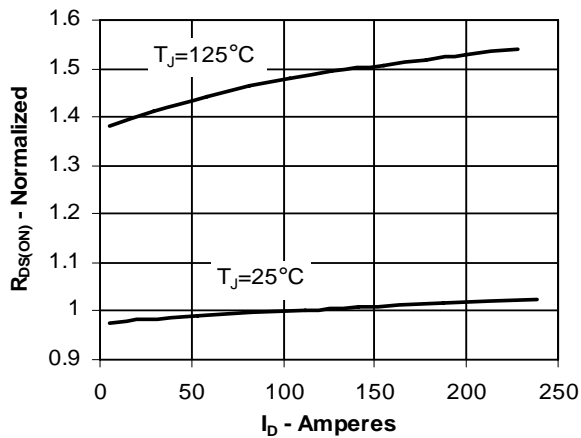


Fig. 6. Temperature dependence of Breakdown & Threshold Voltage

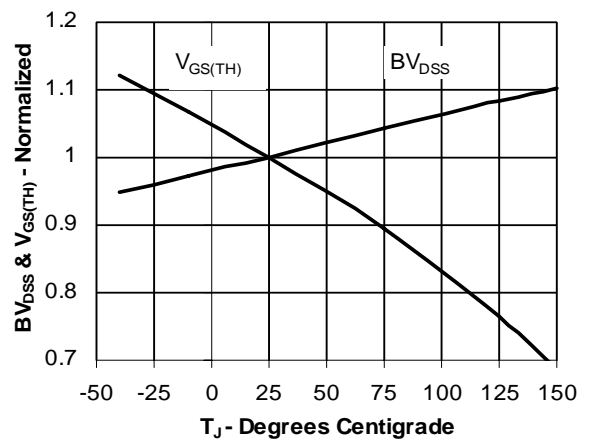


Fig. 7. Input Admittance

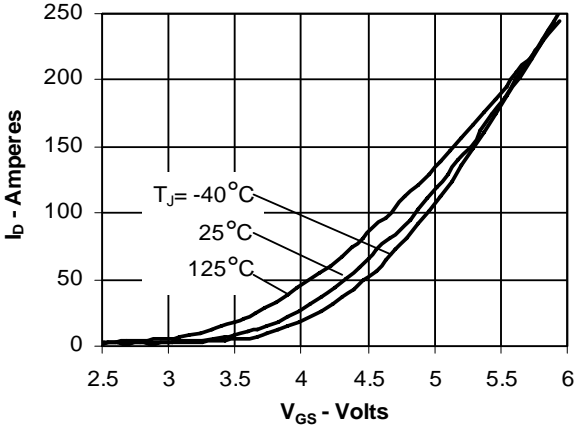


Fig. 8. Transconductance

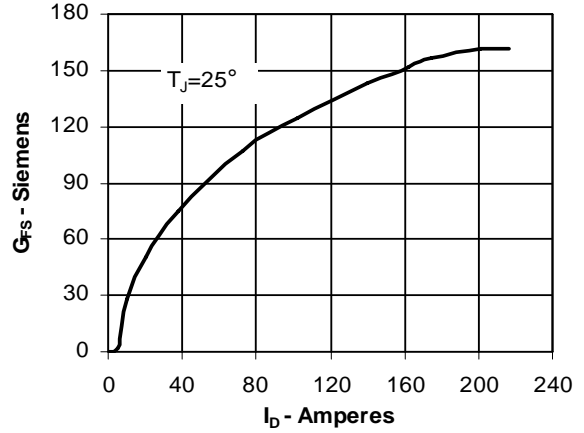


Fig. 9. Source Current vs. Source-To-Drain Voltage

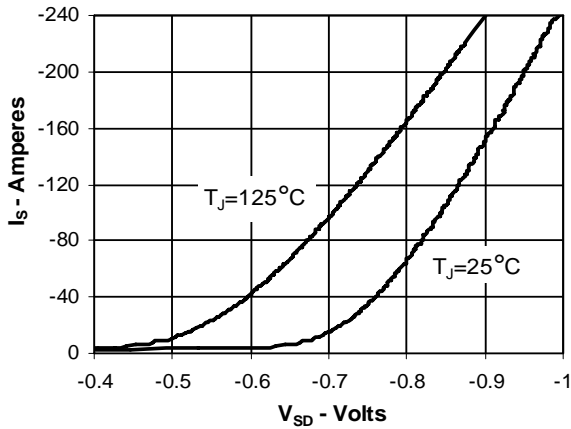


Fig. 10. Gate Charge

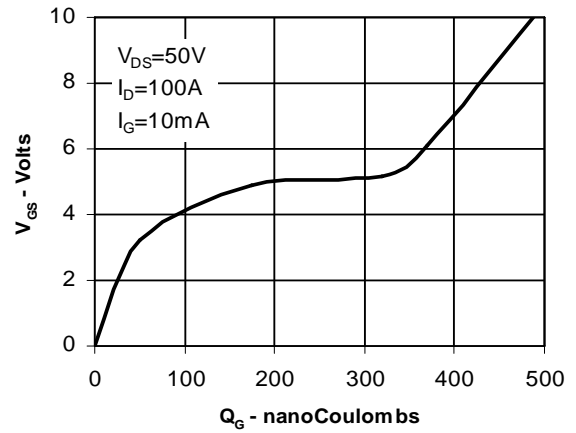


Fig. 11. Capacitance

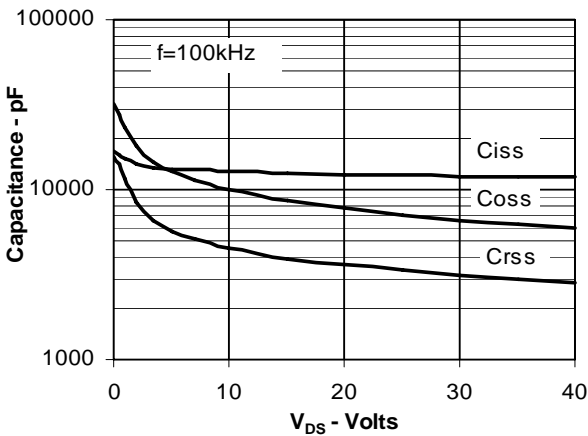


Fig. 12. Transient Thermal Resistance

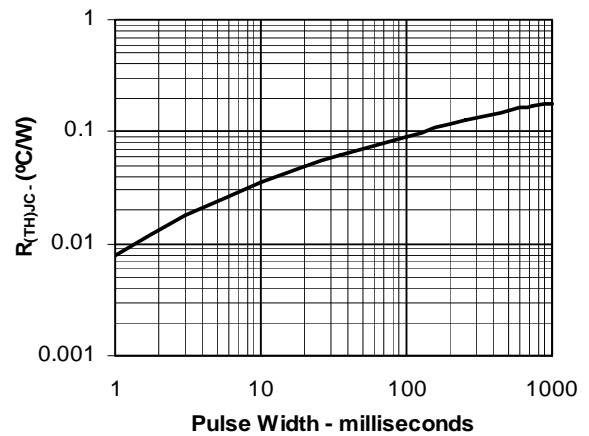


Fig. 13. Forward-Bias Safe Operating Area

