

HiPerFET™ Power MOSFETs Single Die MOSFET

IXFN 340N07

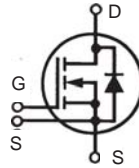
$$V_{DSS} = 70 \text{ V}$$

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

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

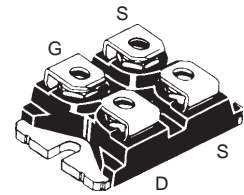
$$t_{rr} \leq 200 \text{ ns}$$

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

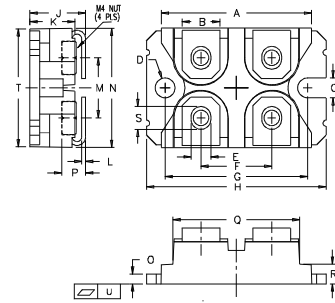
- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls
- Linear current regulators

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 one or more of the following U.S. patents:	4,835,592	4,881,106	5,017,508	5,049,961	5,187,117	5,381,025	6,162,665	6,306,728 B1	6,534,343	6,683,344
	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

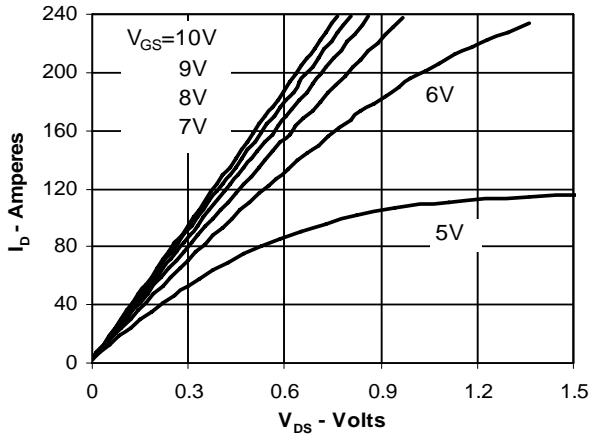


Fig. 2. Output Characteristics @ 125 Deg. C

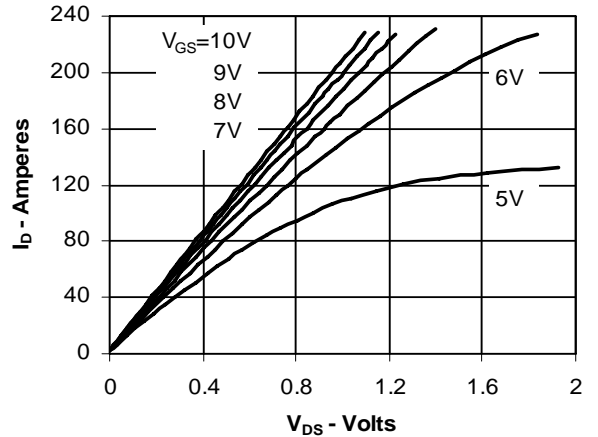


Fig. 3. Temperature Dependence of $R_{DS(ON)}$

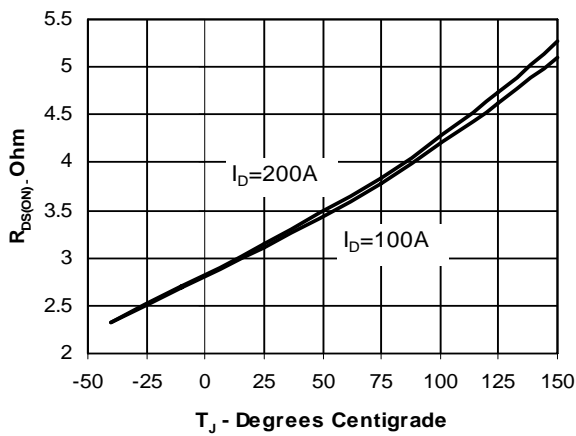


Fig. 4. $R_{DS(ON)}$ Normalized to $I_{L(RMS)}$ Value vs. Junction Temperature

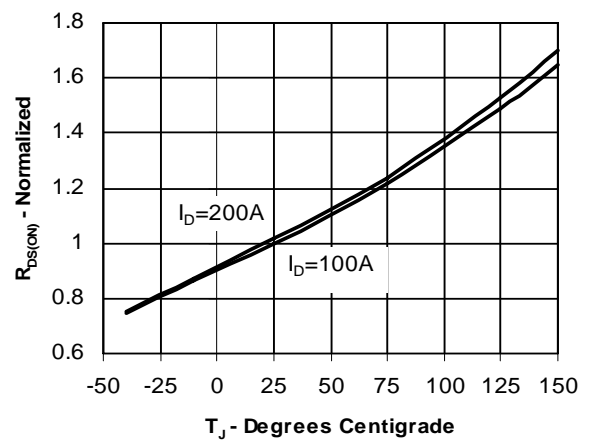


Fig. 5. $R_{DS(ON)}$ Normalized to $I_{L(RMS)}$ Value vs. I_D

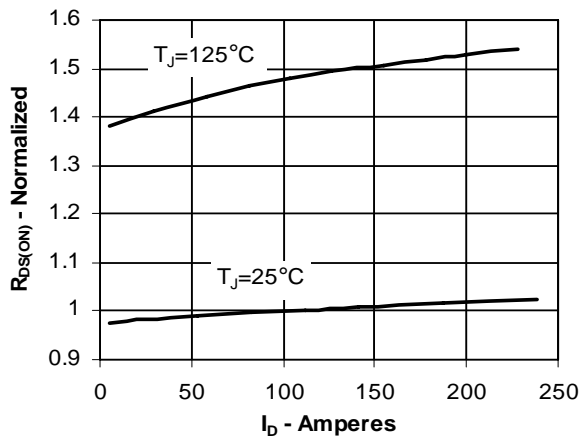


Fig. 6. Temperature dependence of Breakdown & Threshold Voltage

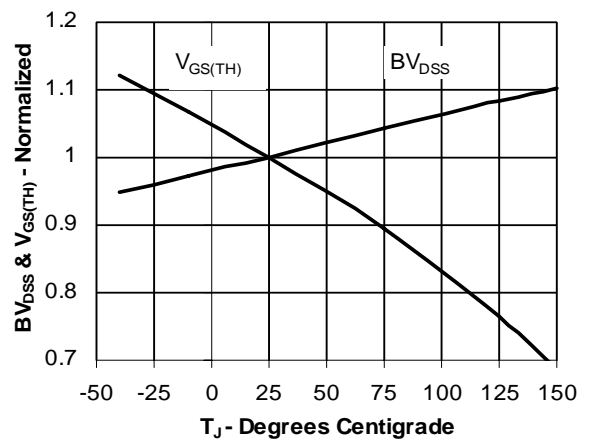


Fig. 7. Input Admittance

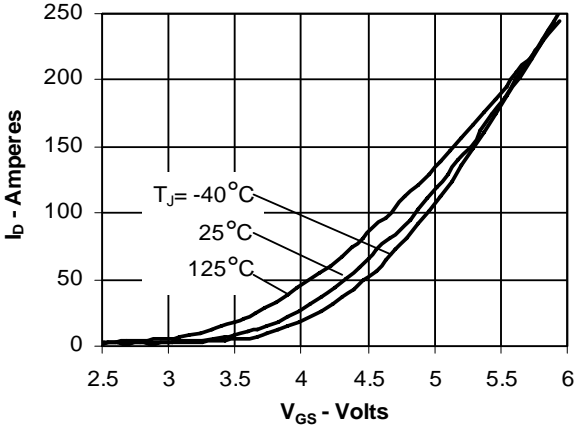


Fig. 8. Transconductance

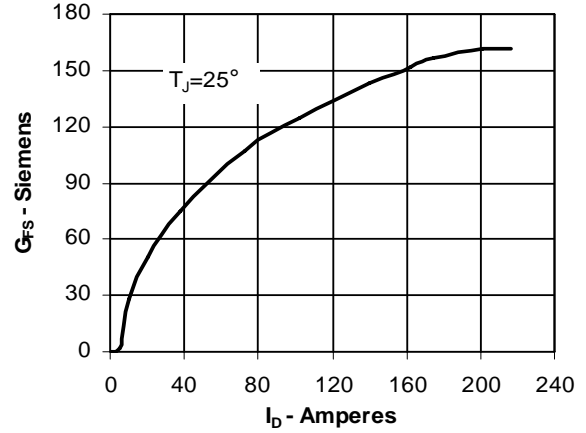


Fig. 9. Source Current vs. Source-To-Drain Voltage

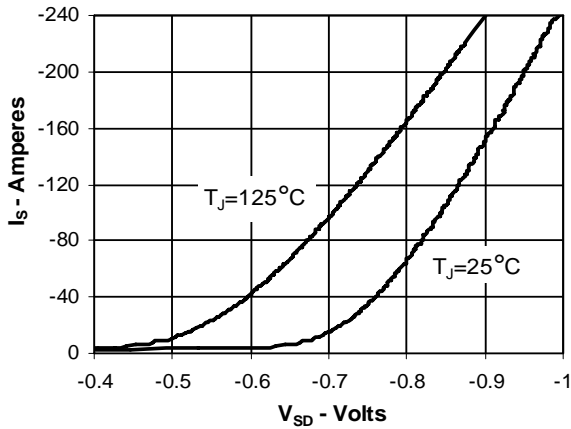


Fig. 10. Gate Charge

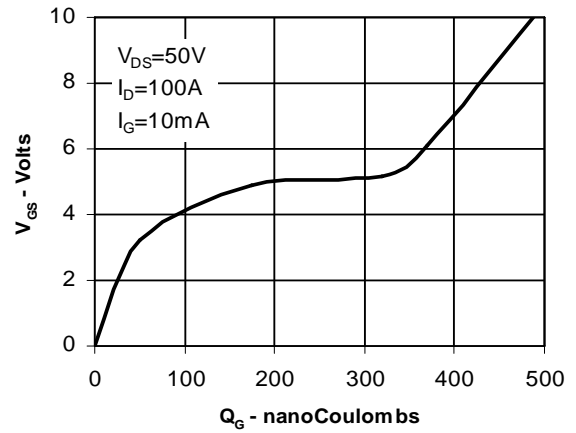


Fig. 11. Capacitance

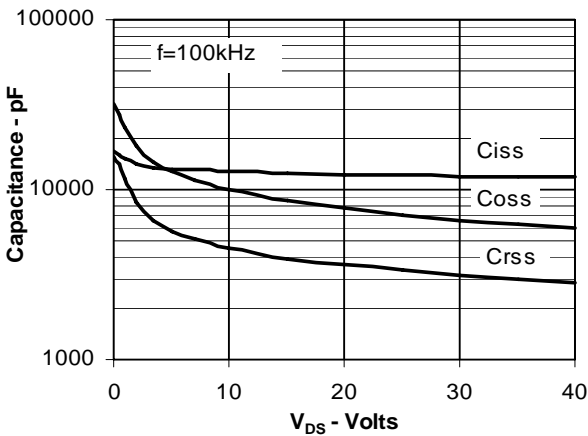


Fig. 12. Transient Thermal Resistance

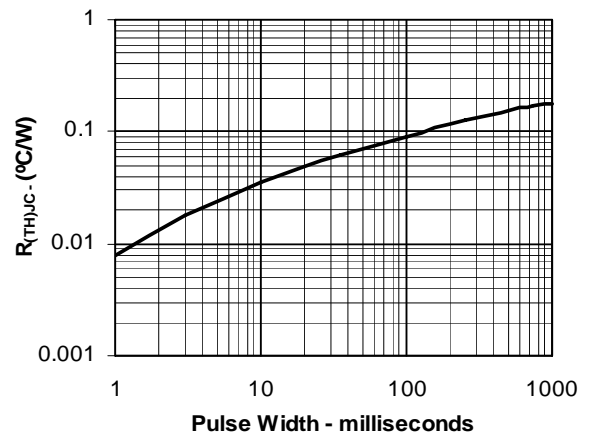
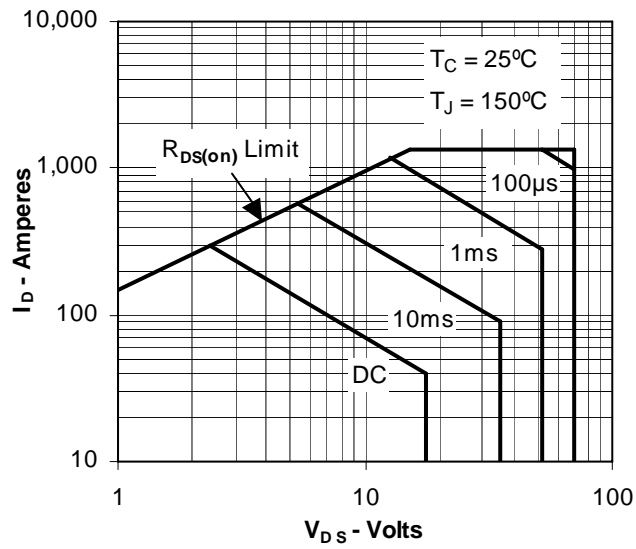


Fig. 13. Forward-Bias Safe Operating Area





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