



# HiPerFET™ Power MOSFETs Single DieMOSFET

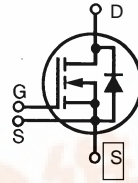
**IXFN 34N80**

**V<sub>DSS</sub> = 800 V**

**I<sub>D25</sub> = 34 A**

**R<sub>DS(on)</sub> = 0.24 Ω**

N-Channel Enhancement Mode  
Avalanche Rated, High dv/dt, Low t<sub>rr</sub>

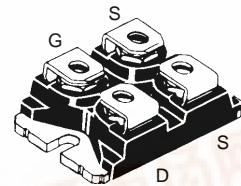


**t<sub>rr</sub> ≤ 250 ns**

Preliminary data sheet

Symbol	Test Conditions	Maximum Ratings
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 150°C	800 V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 150°C; R <sub>GS</sub> = 1 MΩ	800 V
V <sub>GS</sub>	Continuous	±20 V
V <sub>GSM</sub>	Transient	±30 V
I <sub>D25</sub>	T <sub>C</sub> = 25°C	34 A
I <sub>DM</sub>	T <sub>C</sub> = 25°C, pulse width limited by T <sub>JM</sub>	136 A
I <sub>AR</sub>		34 A
E <sub>AR</sub>	T <sub>C</sub> = 25°C	64 mJ
E <sub>AS</sub>	T <sub>C</sub> = 25°C	3 J
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , di/dt ≤ 100 A/μs, V <sub>DD</sub> ≤ V <sub>DSS</sub> , T <sub>J</sub> ≤ 150°C, R <sub>G</sub> = 2 Ω	5 V/ns
P <sub>D</sub>	T <sub>C</sub> = 25°C	600 W
T <sub>J</sub>		-55 ... +150 °C
T <sub>JM</sub>		150 °C
T <sub>stg</sub>		-55 ... +150 °C
T <sub>L</sub>	1.6 mm (0.063 in) from case for 10 s	300 °C
V <sub>ISOL</sub>	50/60 Hz, RMS t = 1 min I <sub>ISOL</sub> ≤ 1 mA t = 1 s	2500 V~ 3000 V~
M <sub>d</sub>	Mounting torque Terminal connection torque	1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.
Weight		30 g

miniBLOC, SOT-227 B  
E153432



G = Gate D = Drain  
S = Source

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

### Features

- International standard packages
- miniBLOC, with Aluminium nitride isolation
- Low R<sub>DS(on)</sub> 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

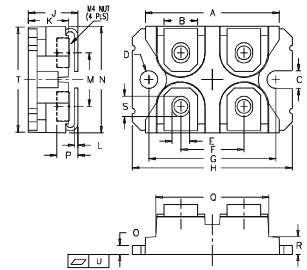
### Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values (T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
V <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 3 mA V <sub>DSS</sub> temperature coefficient	800		V %/K
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 8 mA V <sub>GS(th)</sub> temperature coefficient	3.0		V %/K
I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V <sub>DC</sub> , V <sub>DS</sub> = 0			±200 nA
I <sub>DSS</sub>	V <sub>DS</sub> = V <sub>DSS</sub> V <sub>GS</sub> = 0 V			T <sub>J</sub> = 25°C: 100 μA T <sub>J</sub> = 125°C: 2 mA
R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.5 • I <sub>D25</sub> Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			0.24 Ω



Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$g_{fs}$	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$ , pulse test	20	35	S
$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		7500	pF
$C_{oss}$			920	pF
$C_{rss}$			220	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)		45	ns
$t_r$			45	ns
$t_{d(off)}$			100	ns
$t_f$			40	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		270	nC
$Q_{gs}$			60	nC
$Q_{gd}$			140	nC
$R_{thJC}$			0.22	K/W
$R_{thCK}$		0.15		K/W
$R_{thJC}$			0.21	K/W
$R_{thCK}$		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.	
$I_S$	$V_{GS} = 0\text{ V}$			34 A	
$I_{SM}$	Repetitive; pulse width limited by $T_{JM}$			136 A	
$V_{SD}$	$I_F = I_S, V_{GS} = 0\text{ V},$ Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $d \leq 2\%$			1.5 V	
$t_{rr}$	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$			250 ns	
$Q_{RM}$		$T_J = 25^\circ\text{C}$		400 ns	
$I_{RM}$		$T_J = 125^\circ\text{C}$	1.4		$\mu\text{C}$
		$T_J = 25^\circ\text{C}$	10		A

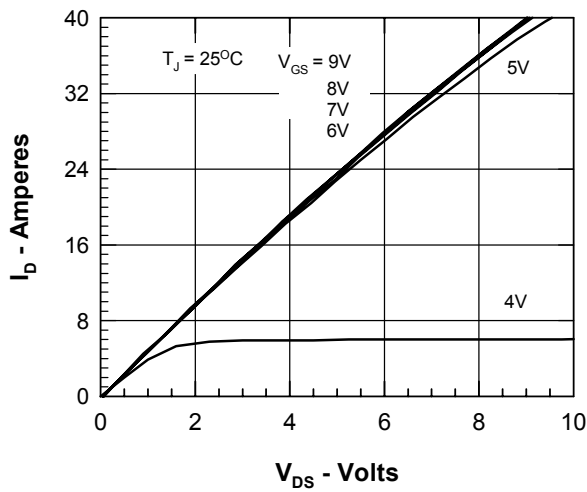


Figure 1. Output Characteristics at 25°C

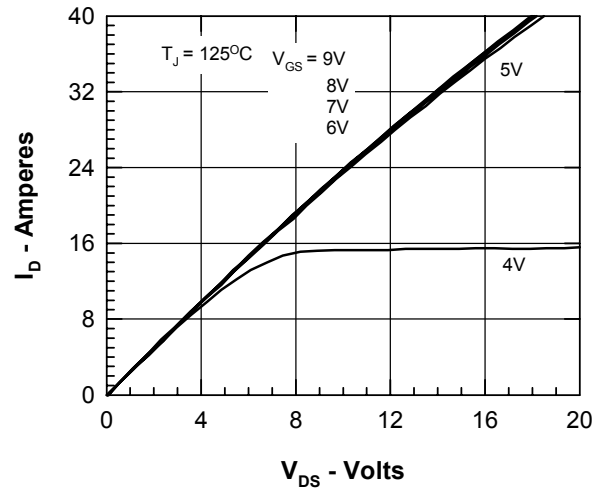


Figure 2. Output Characteristics at 125°C

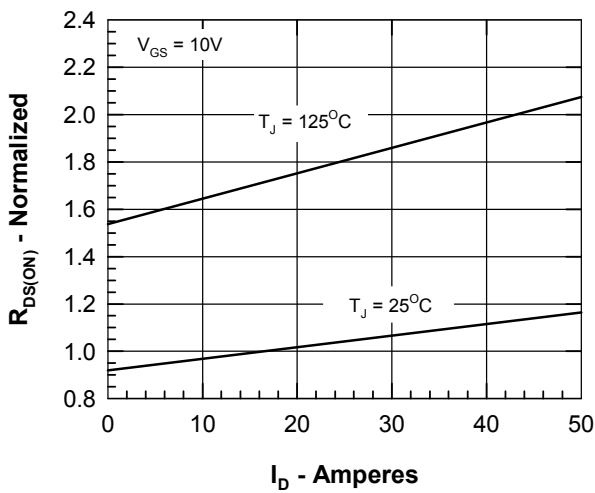


Figure 3.  $R_{DS(on)}$  normalized to  $0.5 I_{D25}$  value vs.  $I_D$

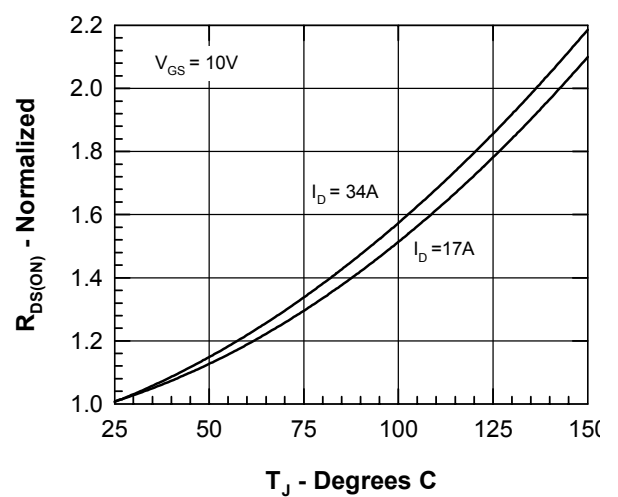


Figure 4.  $R_{DS(on)}$  normalized to  $0.5 I_{D25}$  value vs.  $T_J$

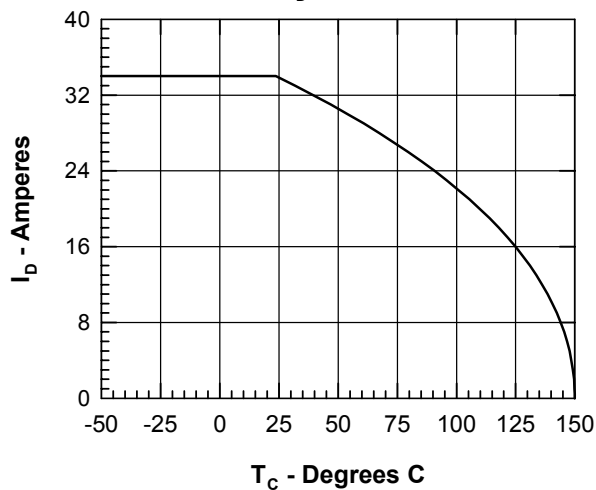


Figure 5. Drain Current vs. Case Temperature

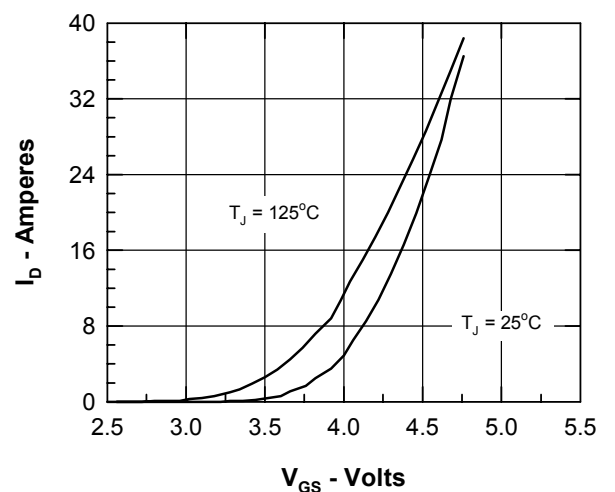


Figure 6. Admittance Curves

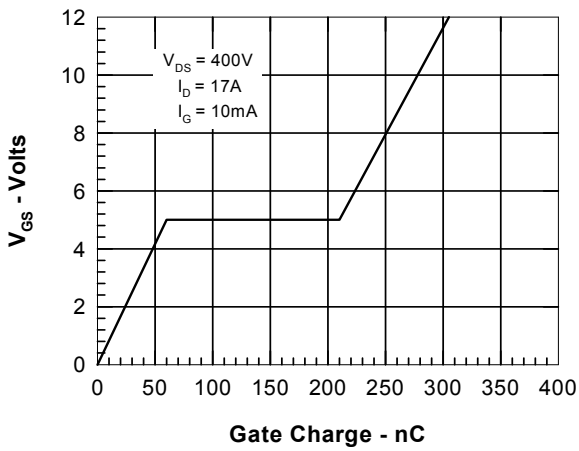


Figure 7. Gate Charge

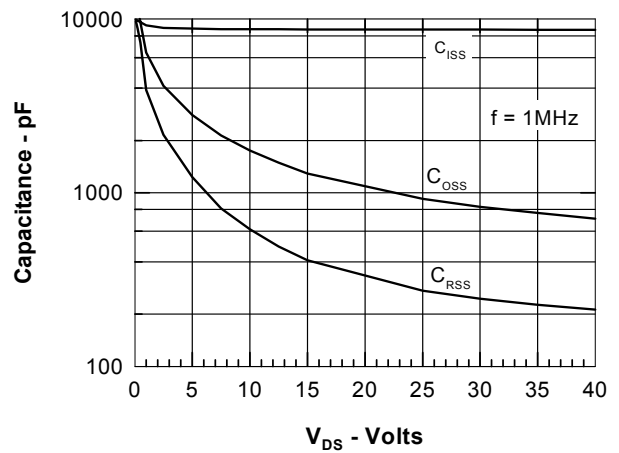


Figure 8. Capacitance Curves

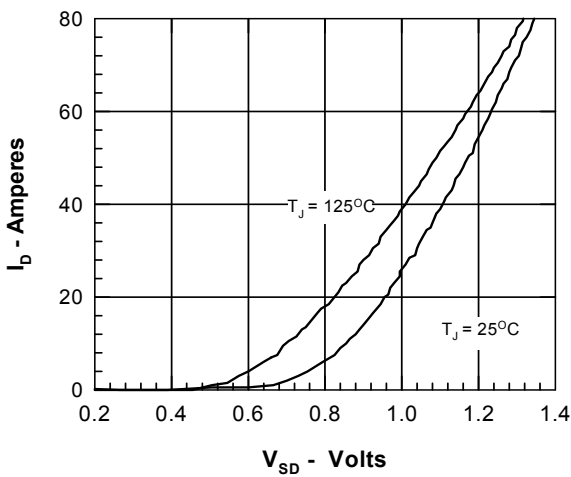


Figure 8. Forward Voltage Drop of the Intrinsic Diode

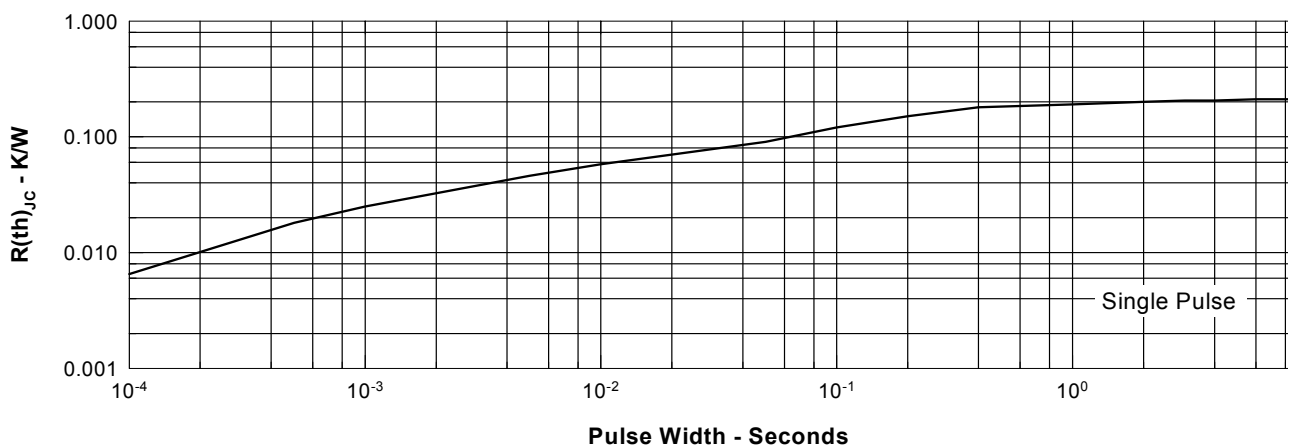


Figure 9. Transient Thermal Resistance