

HiPerFET™ Power MOSFETs

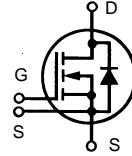
Single Die MOSFET

IXFN 26N90
IXFN 25N90

V_{DSS}	I_D (cont)	$R_{DS(on)}$	t_{rr}
900 V	26 A	0.30 Ω	250 ns
900 V	25 A	0.33 Ω	250 ns

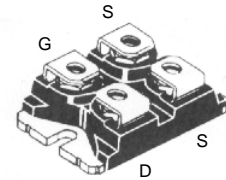
N-Channel Enhancement Mode
Avalanche Rated, High dv/dt, Low t_{rr}

Preliminary data sheet



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	900	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1\text{ M}\Omega$	900	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	26N90 25N90	26 25 A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	26N90 25N90	104 100 A
I_{AR}	$T_C = 25^\circ\text{C}$	26N90 25N90	26 25 A
E_{AR}	$T_C = 25^\circ\text{C}$	64	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	3	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	$T_C = 25^\circ\text{C}$	600	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_J	1.6 mm (0.63 in) from case for 10 s	-	$^\circ\text{C}$
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

- 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

Advantages

- Easy to mount
- Space savings
- High power density

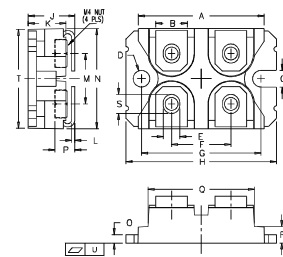
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0\text{ V}$, $I_D = 3\text{ mA}$	900		V
$V_{GH(th)}$	$V_{DS} = V_{GS}$, $I_D = 8\text{ mA}$	3.0		V
I_{GSS}	$V_{GS} = \pm 20\text{ V}_{DC}$, $V_{DS} = 0$			$\pm 200\text{ nA}$
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0\text{ V}$, $T_J = 125^\circ\text{C}$			100 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 $d \leq 2\%$	26N90 25N90		0.30 Ω 0.33 Ω

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

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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	18	28	S
C_{iss} C_{oss} C_{rss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		8.7	10.8 nF
			800	1000 pF
			300	375 pF
t_{d(on)} t_r t_{d(off)} t_f	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25} R _G = 1 Ω (External)		60	ns
			35	ns
			130	ns
			24	ns
Q_{g(on)} Q_{gs} Q_{gd}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25}		240	nC
			56	nC
			107	nC
R_{thJC} R_{thCK}			0.05	0.21 K/W 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°C, unless otherwise specified)		
		min.	typ.	max.
I_S	V _{GS} = 0 V	26N90 25N90		26 25 A
I_{SM}	Repetitive; pulse width limited by T _{JM}	26N90 25N90		104 100 A
V_{SD}	I _F = I _S , V _{GS} = 0 V, Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			1.5 V
t_{rr} Q_{RM} I_{RM}	I _F = I _S , -di/dt = 100 A/μs, V _R = 100 V		1.4 10	250 ns μC A

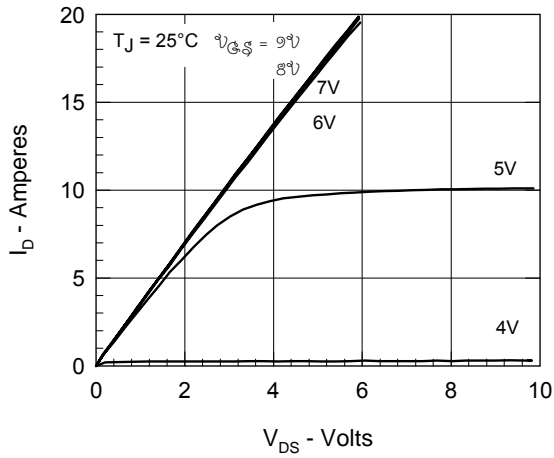
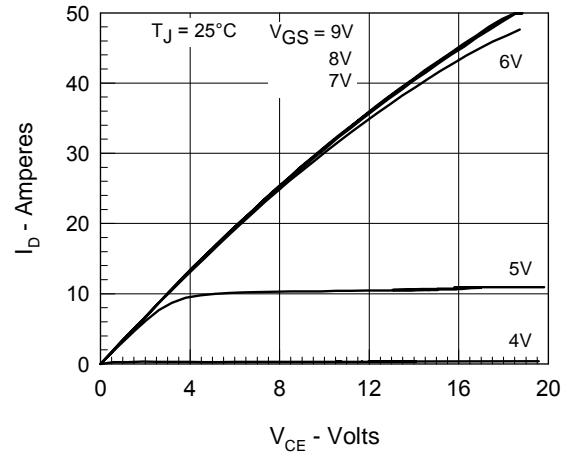
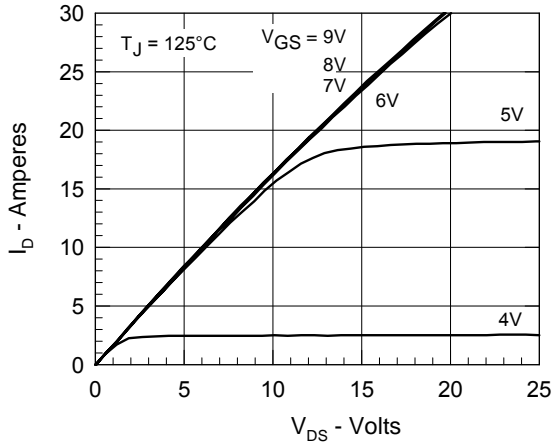
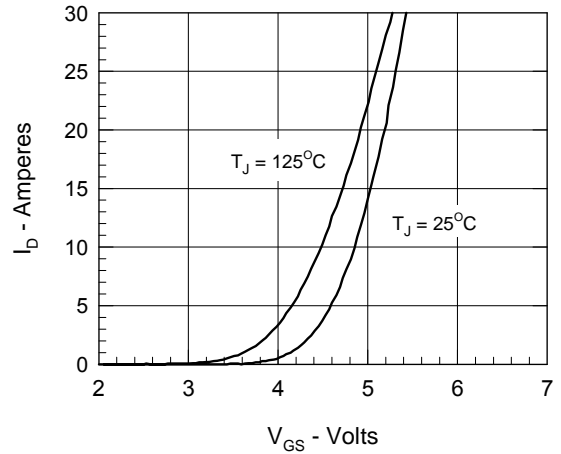
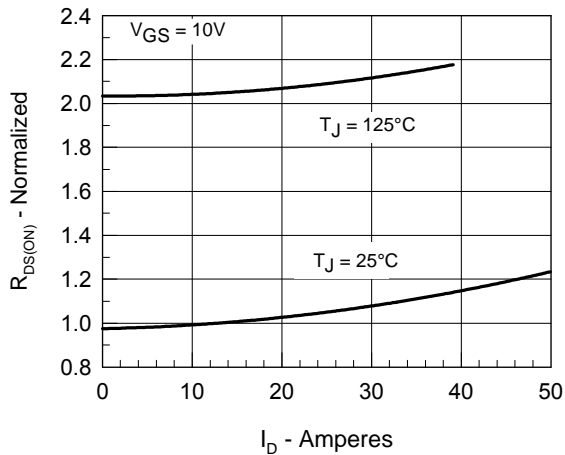
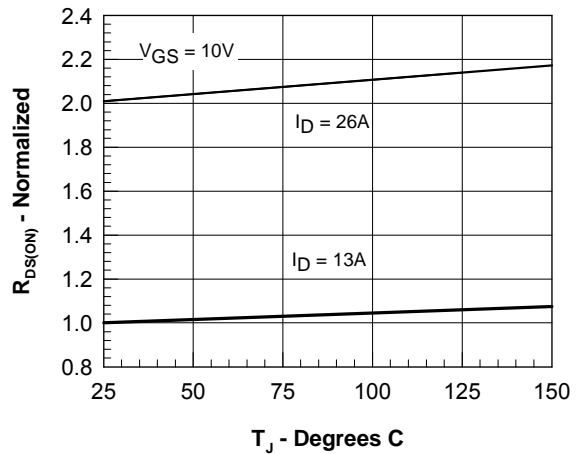
Figure 1. Output Characteristics at 25°C

Figure 2. Extended Output Characteristics at 125°C

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

Figure 4. Admittance Curves

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

Figure 6. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. T_J


Figure 7. Gate Charge

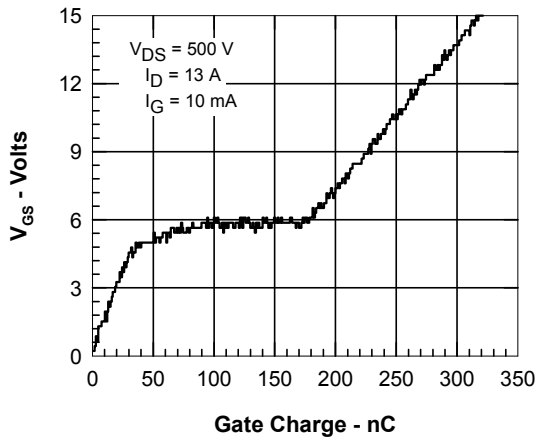
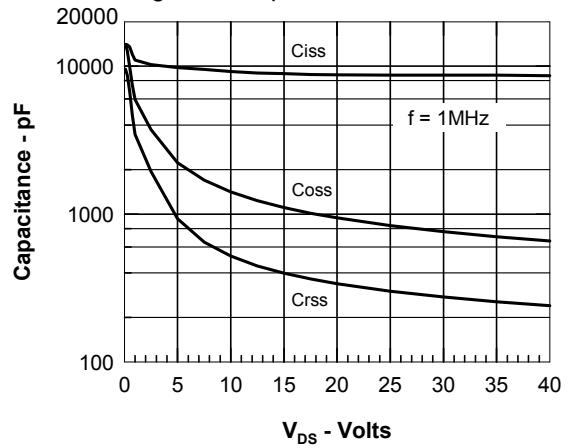


Figure 8. Capacitance Curves



Capacitance Curves

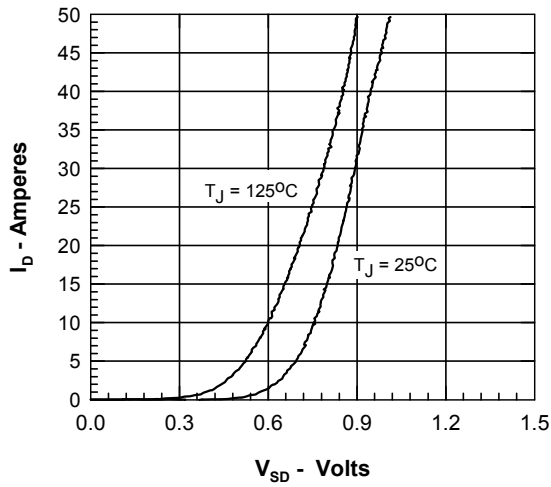


Figure 10. Drain Current vs. Case Temperature

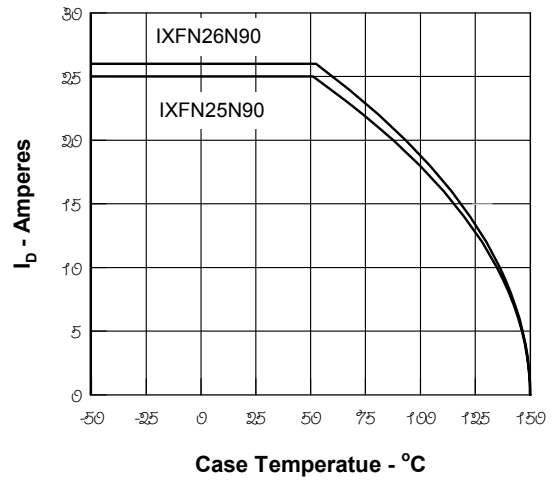


Figure 11. Transient Thermal Resistance

