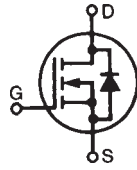


HiPerFET™ Power MOSFETs

Single Die MOSFET

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

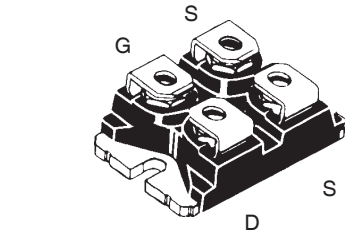


IXFN25N90
IXFN26N90

V_{DSS}	I_{D25}	$R_{DS(on)}$
900V	25A	330mΩ
900V	26A	300mΩ

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_{GSS}	Continuous	± 20		V
V_{GSM}	Transient	± 30		V
I_{D25}	$T_C = 25^\circ\text{C}$	25N90	25	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	25N90	100	A
I_{D25}	$T_C = 25^\circ\text{C}$	26N90	26	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	26N90	104	A
I_{AR}	$T_C = 25^\circ\text{C}$	25N90	25	A
I_{AR}	$T_C = 25^\circ\text{C}$	26N90	26	A
E_{AR}	$T_C = 25^\circ\text{C}$		64	mJ
E_{AS}	$T_C = 25^\circ\text{C}$		3	J
dV/dt	$I_S \leq I_{DM}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$	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_L	1.6mm (0.062 in.) from case for 10s	300		$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS	t = 1min	2500	V~
	$I_{ISOL} \leq 1\text{mA}$	t = 1s	3000	V~
M_d	Mounting torque	1.5/13	Nm/lb.in.	
	Terminal connection torque	1.3/11.5	Nm/lb.in.	
Weight		30		g

miniBLOC, SOT-227
E153432



G = Gate
S = Source
D = Drain

Either Source terminal S can be used as the Source terminal or the Kelvin Source (gate return) terminal.

Features

- International standard package
- miniBLOC, with Aluminium nitride isolation
- Low $R_{DS(ON)}$ HDMOS™ process
- Avalanche Rated
- Low package inductance
- Fast intrinsic diode

Advantages

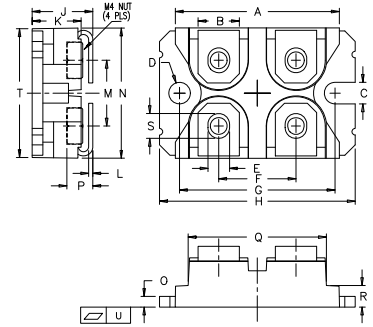
- Low gate drive requirement
- High power density

Applications:

- Switched-mode and resonant-mode power supplies
- DC-DC Converters
- Battery chargers
- DC choppers
- Temperature & lighting controls

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0\text{V}$, $I_D = 3\text{mA}$	900		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8\text{mA}$	3.0		5.0 V
I_{GSS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$			± 200 nA
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0\text{V}$ $T_J = 125^\circ\text{C}$			100 μA 2 mA
$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1	25N90 26N90		330 mΩ 300 mΩ

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}, I_D = 0.5 \cdot I_{DSS}$, Note 1	18	28	S
C_{iss}	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1\text{MHz}$		8.7	10.8 nF
C_{oss}			800	1000 pF
C_{rss}			300	375 pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{DSS}$ $R_G = 1\Omega$ (External)		60	ns
t_r			35	ns
$t_{d(off)}$			130	ns
t_f			24	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{DSS}$		240	nC
Q_{gs}			56	nC
Q_{gd}			107	nC
R_{thJC}		0.05		0.21°C/W
R_{thCS}				$^\circ\text{C/W}$

SOT-227B Outline


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.240	1.255	31.50	31.88
B	.307	.323	7.80	8.20
C	.161	.169	4.09	4.29
D	.161	.169	4.09	4.29
E	.161	.169	4.09	4.29
F	.587	.595	14.91	15.11
G	1.186	1.193	30.12	30.30
H	1.496	1.505	38.00	38.23
J	.460	.481	11.68	12.22
K	.351	.378	8.92	9.60
L	.030	.033	0.76	0.84
M	.496	.506	12.60	12.85
N	.990	1.001	25.15	25.42
O	.078	.084	1.98	2.13
P	.195	.235	4.95	5.97
Q	1.045	1.059	26.54	26.90
R	.155	.174	3.94	4.42
S	.186	.191	4.72	4.85
T	.968	.987	24.59	25.07
U	-.002	.004	-0.05	0.1

Source-Drain Diode		Characteristic Values		
$T_J = 25^\circ\text{C}$ unless otherwise specified)		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{V}$	25N90 26N90		25 A 26 A
I_{SM}	Repetitive, pulse width limited by T_{JM}	25N90 26N90		100 A 104 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{V}$, Note 1			1.5 V
t_{rr}	$I_F = I_S, -di/dt = 100\text{A}/\mu\text{s}$ $V_R = 100\text{V}$		1.4	250 ns
Q_{RM}				μC
I_{RM}				A

Note 1: Pulse test, $t \leq 300\mu\text{s}$; duty cycle, $d \leq 2\%$.

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	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585	7,005,734 B2	7,157,338B2
4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692	7,063,975 B2	
4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2	7,071,537	

Figure 1. Output Characteristics at 25°C

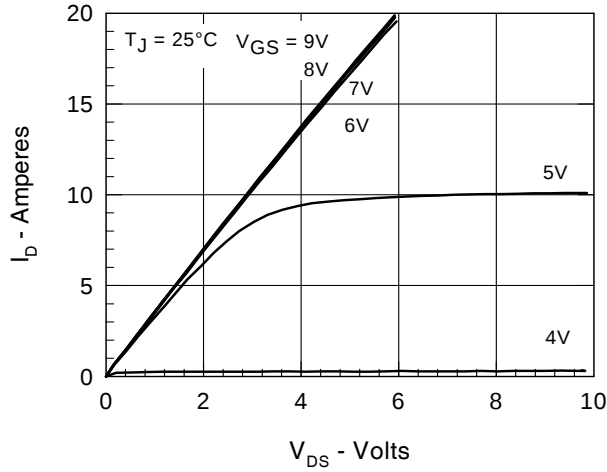


Figure 2. Extended Output Characteristics at 125°C

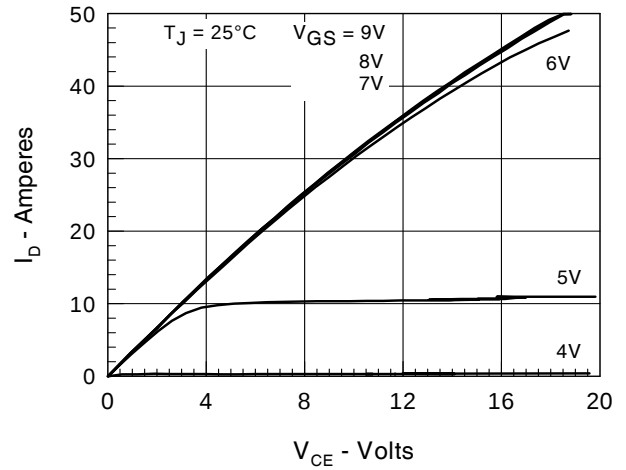
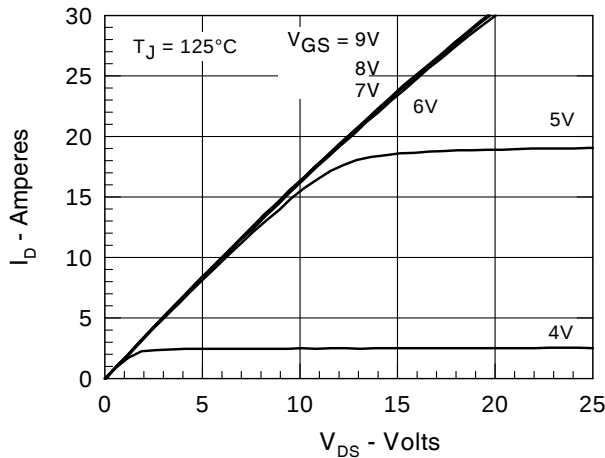

 Figure 3. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. I_D


Figure 4. Admittance Curves

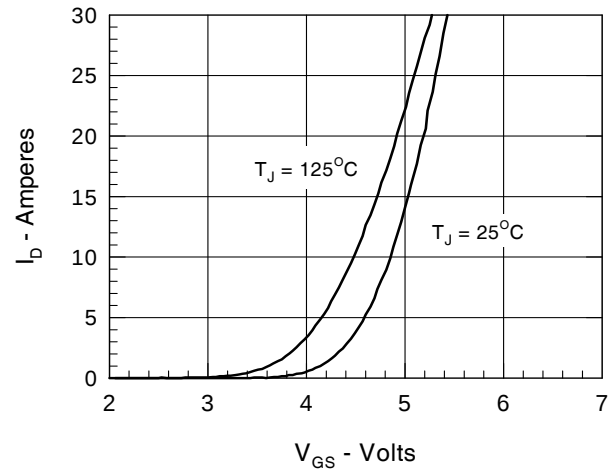
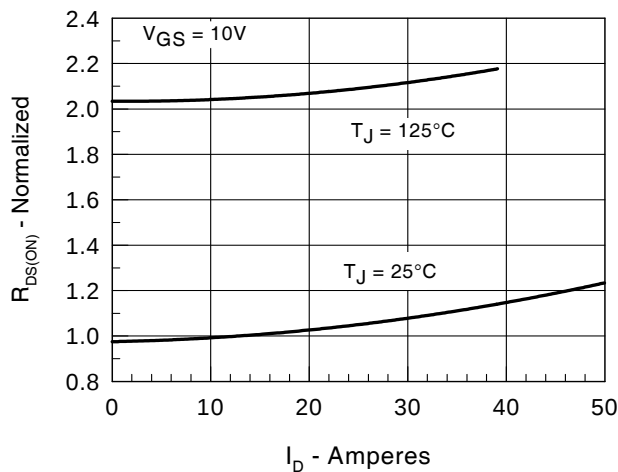
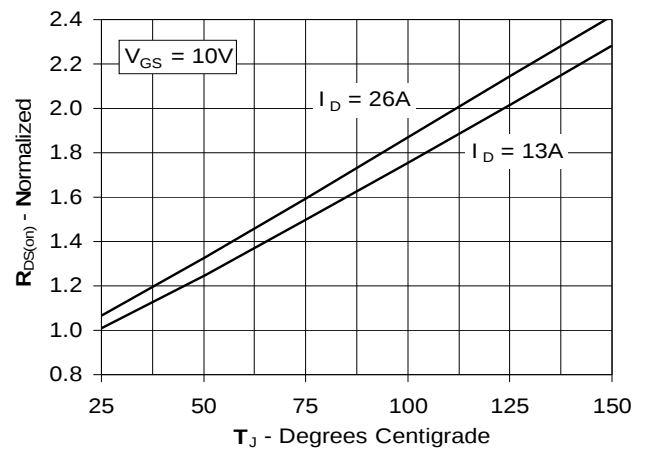
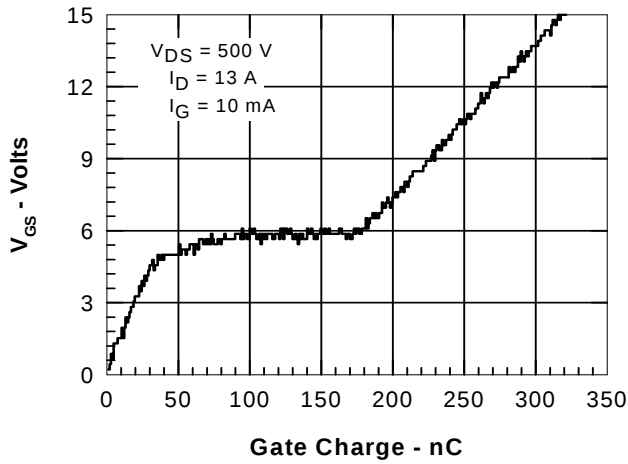
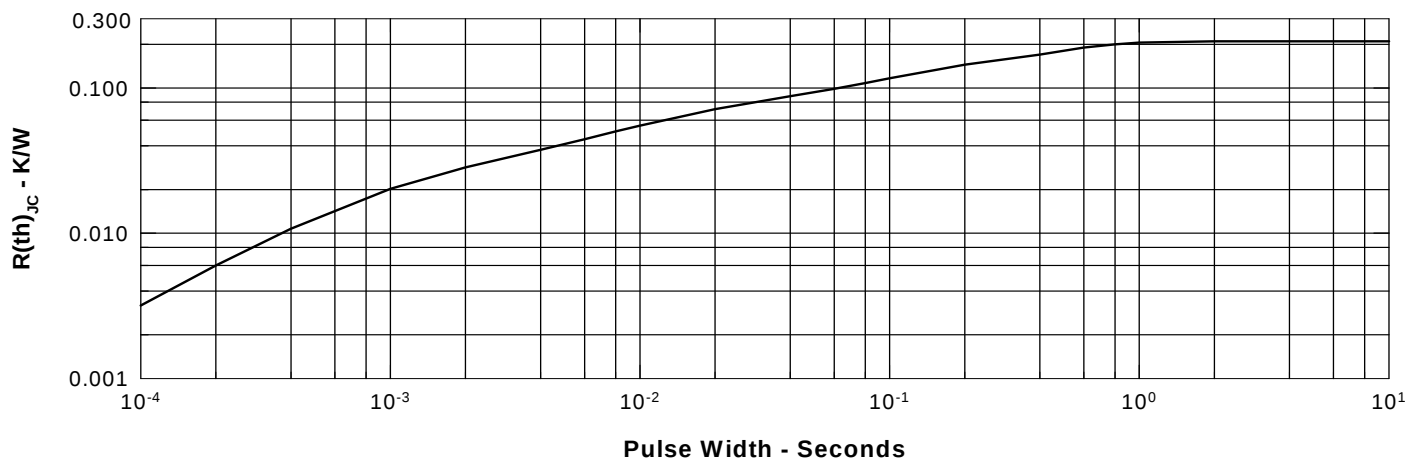
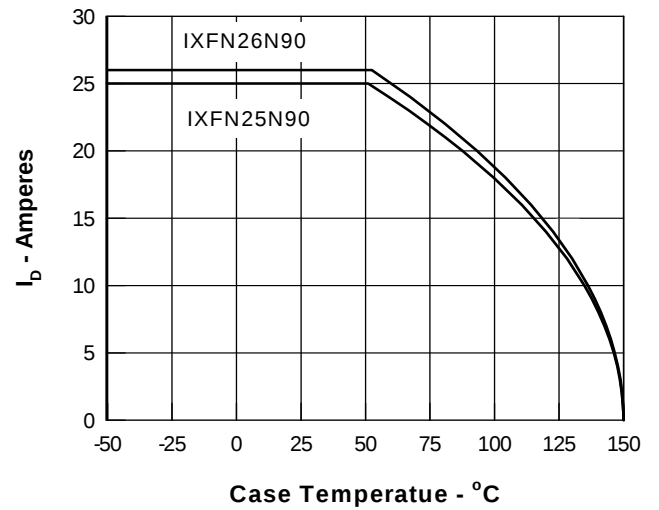
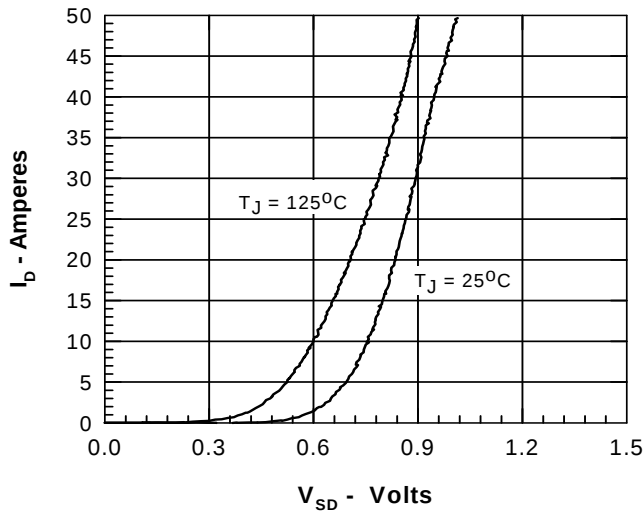
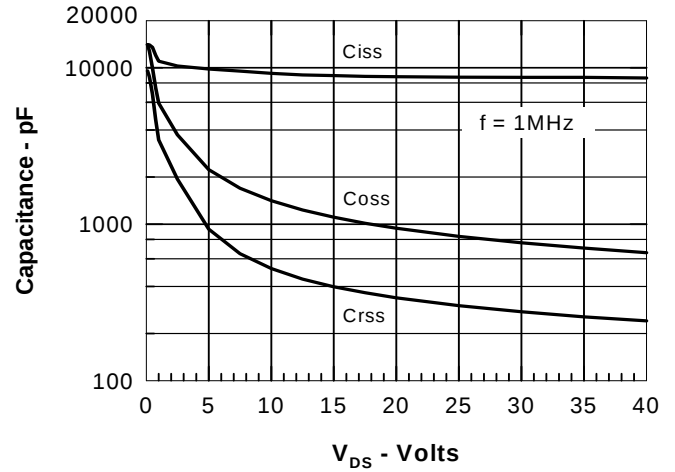

 Figure 5. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. I_D

 Fig. 6. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. Junction Temperature


Figure 7. Gate Charge

Figure 8. Capacitance Curves

Figure 11. Transient Thermal Resistance



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