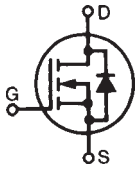
IXYS

HiPerFET™ Power MOSFETs
Single Die MOSFET



IXFN25N90
IXFN26N90

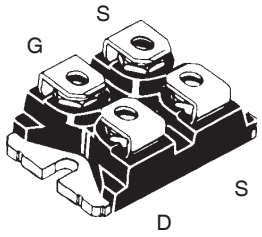
V_{DSS}	I_{D25}	$R_{DS(on)}$
900V	25A	330mΩ
900V	26A	300mΩ

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

Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		900	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ		900	V
V_{GSS}	Continuous		± 20	V
V_{GSM}	Transient		± 30	V
I_{D25}	T_C = 25°C	25N90	25	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	25N90	100	A
I_{D25}	T_C = 25°C	26N90	26	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	26N90	104	A
I_{AR}	T_C = 25°C	25N90	25	A
I_{AR}	T_C = 25°C	26N90	26	A
E_{AR}	T_C = 25°C		64	mJ
E_{AS}	T_C = 25°C		3	J
dV/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$		5	V/ns
P_D	T_C = 25°C		600	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
T_L	1.6mm (0.062 in.) from case for 10s		300	°C
V_{ISOL}	50/60 Hz, RMS	t = 1min	2500	V~
	$I_{ISOL} \le$ 1mA	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

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

miniBLOC, SOT-227
E153432



G = Gate D = Drain
S = Source

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

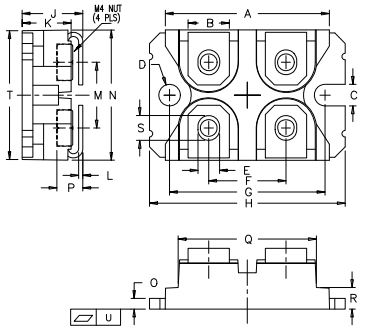
Applications:

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

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

Source-Drain Diode (T_J = 25°C unless otherwise specified)			Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V	25N90			25	A
		26N90			26	A
I_{SM}	Repetitive, pulse width limited by T_{JM}	25N90			100	A
		26N90			104	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1				1.5	V
t_{rr}	I_F = I_S, -di/dt = 100A/μs				250	ns
Q_{RM}	V_R = 100V			1.4		μC
I_{RM}				10		A

SOT-227B Outline



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS 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

Note 1: Pulse test, t ≤ 300μs; duty cycle, d ≤ 2%.

Figure 1. Output Characteristics at 25°C

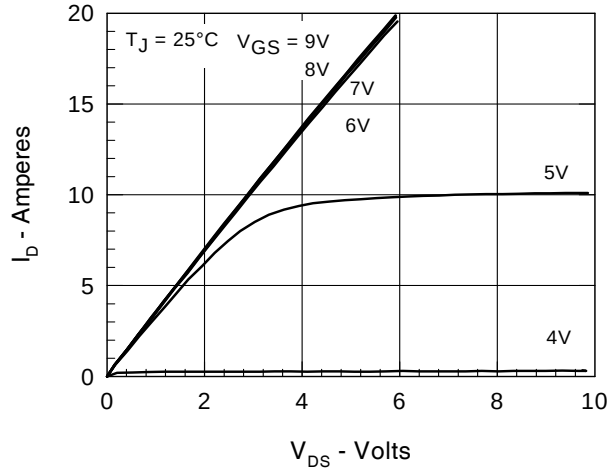


Figure 2. Extended Output Characteristics at 125°C

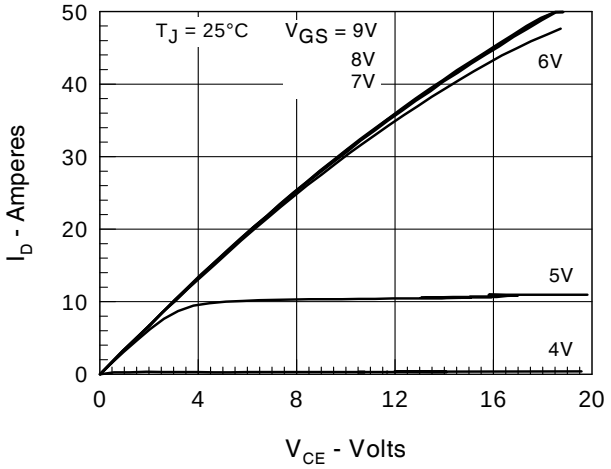


Figure 3. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. I_D

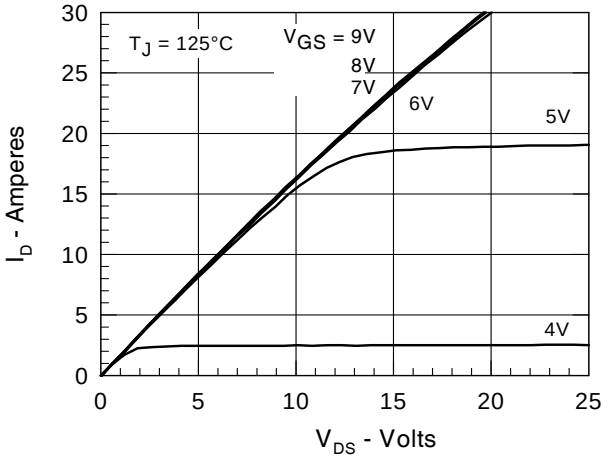


Figure 4. Admittance Curves

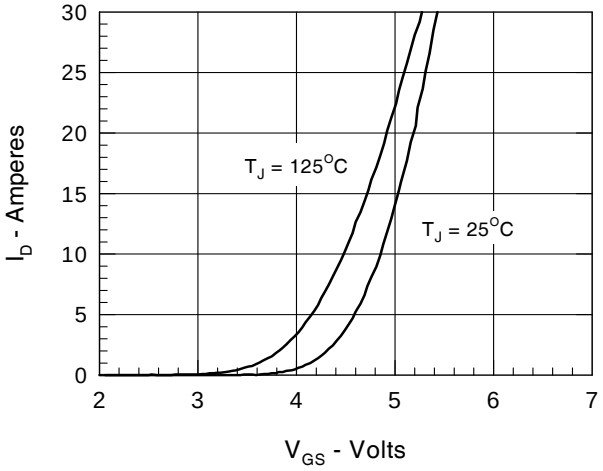


Figure 5. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. I_D

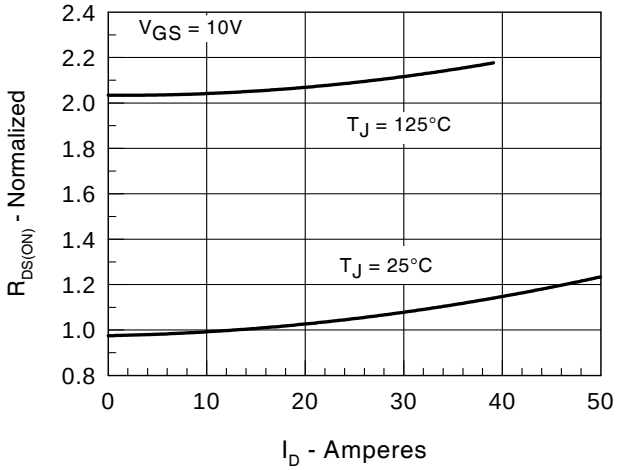


Fig. 6. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. Junction Temperature

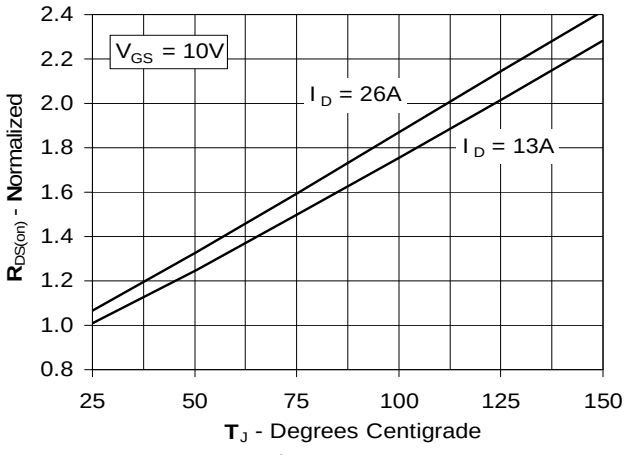


Figure 7. Gate Charge

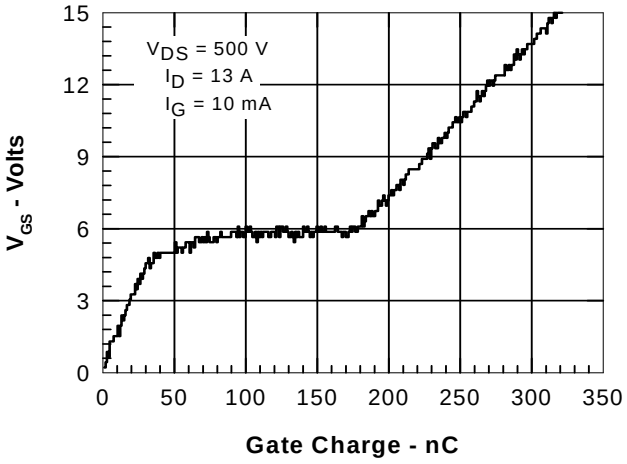
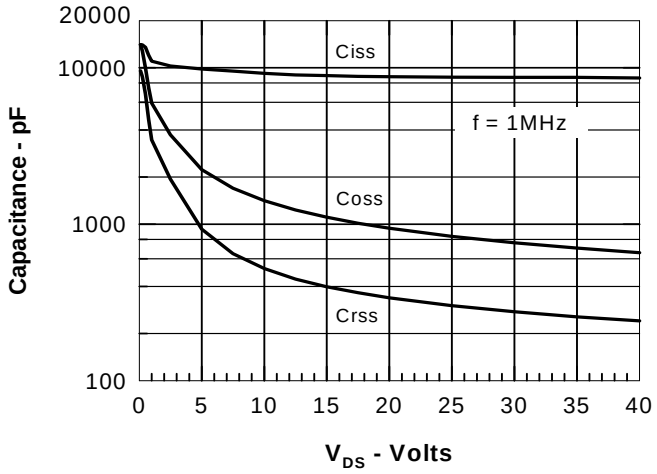
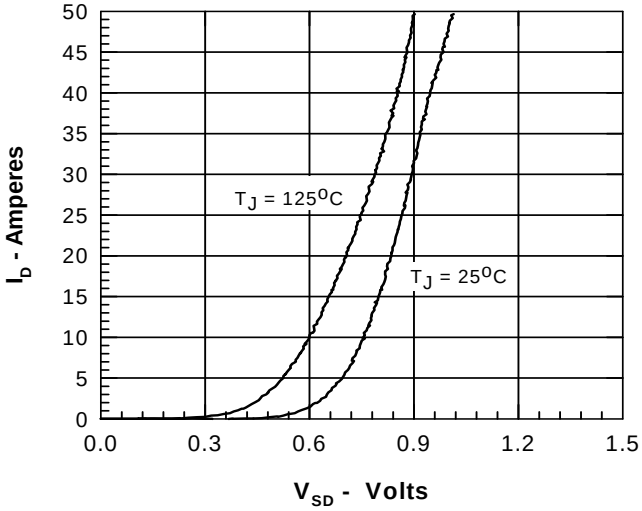
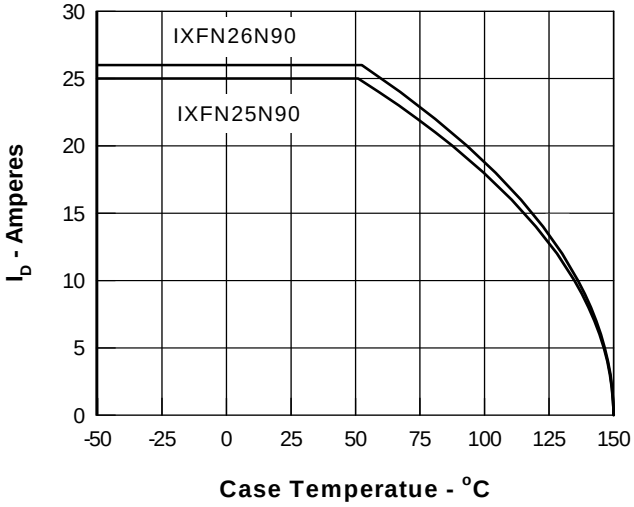


Figure 8. Capacitance Curves







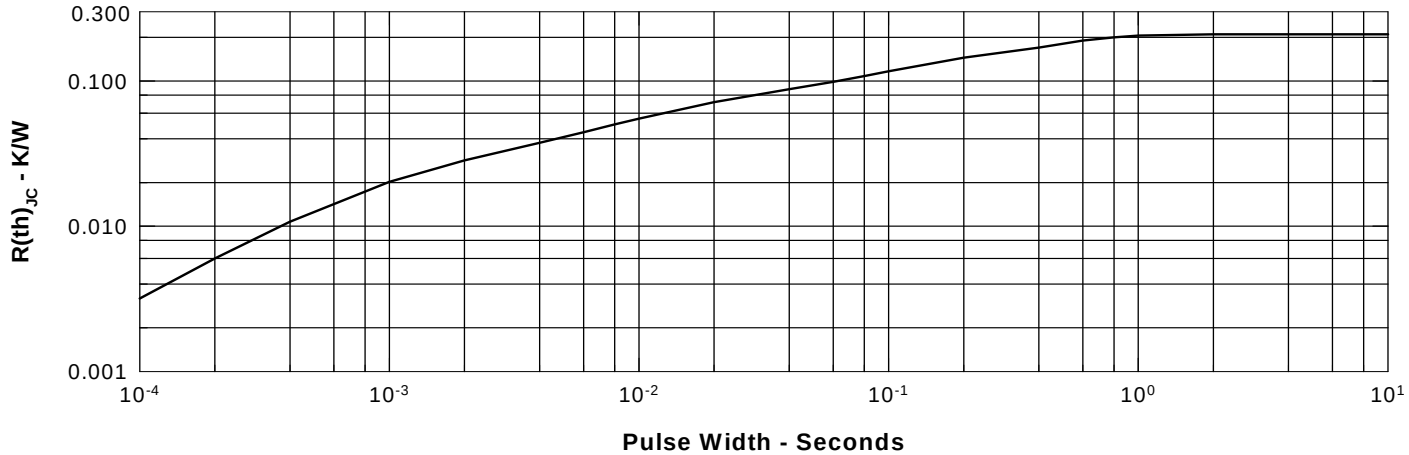


Figure 11. Transient Thermal Resistance