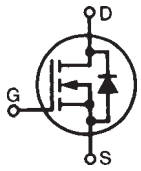
IXYS

Polar™ HiperFET™ Power MOSFET

IXFR26N120P

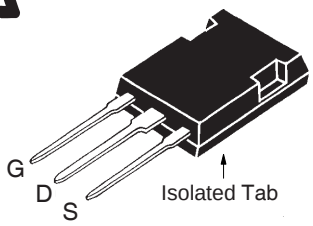
V_{DSS} = 1200V
I_{D25} = 15A
$R_{DS(on)}$ ≤ 550mΩ
t_{rr} ≤ 300ns

(Electrically Isolated Tab)



N-Channel Enhancement Mode
Fast Intrinsic Rectifier
Avalanche Rated

ISOPLUS247
E153432



G = Gate D = Drain
S = Source

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	1200	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	1200	V
V_{GSS}	Continuous	±30	V
V_{GSM}	Transient	±40	V
I_{D25}	T_C = 25°C	15	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	60	A
I_A	T_C = 25°C	13	A
E_{AS}	T_C = 25°C	1.5	J
dv/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$	15	V/ns
P_D	T_C = 25°C	320	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	Maximum Lead Temperature for Soldering	300	°C
T_{SOLD}	Plastic Body for 10s	260	°C
V_{ISOL}	50/60 Hz, 1 Minute	2500	V~
F_C	Mounting Force	20..120/4.5..27	N/lb
Weight		5	g

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Mounting Surface
- Low Intrinsic Gate Resistance
- 2500V~ Electrical Isolation
- International Standard Package
- Fast Recovery Rectifier
- Avalanche Rated
- Low Package Inductance

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 3mA	1200			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 1mA	3.5		6.5	V
I_{GSS}	V_{GS} = ±30V, V_{DS} = 0V			±200	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS} = 0V			50	μA
	T_J = 125°C			5	mA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 13A, Note 1			550	mΩ

Applications

- High Voltage Switch-mode and Resonant-Mode Power Supplies
- High Voltage Pulse Power Applications
- High Voltage Discharge Circuits in Lasers Pulsers, Spark Igniters, RF Generators
- High Voltage DC-DC Converters
- High Voltage DC-AC Inverters

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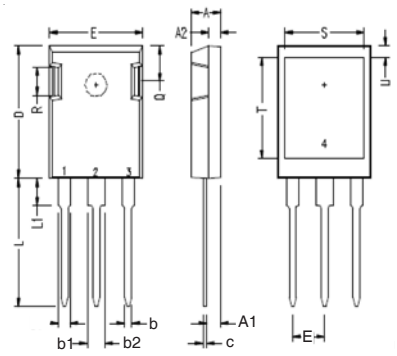
Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 20V, I_D = 13A, Note 1	13	21		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		14		nF
C_{oss}			725		pF
C_{rss}			50		pF
R_{Gi}	Gate Input Resistance		1.5		Ω
$t_{d(on)}$	**Resistive Switching Times**		56		ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 13A		55		ns
$t_{d(off)}$	R_G = 1Ω (External)		76		ns
t_f			58		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 13A		225		nC
Q_{gs}			87		nC
Q_{gd}			98		nC
R_{thJC}					0.39 °C/W
R_{thCS}			0.15		°C/W

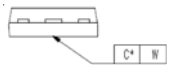
Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			26	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			104	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			1.5	V
t_{rr}	I_F = 13A, -di/dt = 100A/μs			300	ns
Q_{RM}	V_R = 100V, V_{GS} = 0V		1.3		μC
I_{RM}			12.0		A

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

ISOPLUS247 (IXFR) Outline





1 = Gate
2,4 = Drain
3 = Source

SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b1	.075	.085	1.91	2.15
b2	.115	.126	2.92	3.20
C	.024	.033	0.61	0.83
D	.819	.840	20.80	21.34
E	.620	.635	15.75	16.13
e	.215 BSC		5.45 BSC	
L	.780	.811	19.81	20.60
L1	.150	.172	3.81	4.38
Q	.220	.244	5.59	6.20
R	.170	.191	4.32	4.85
S	.520	.540	13.21	13.72
T	.620	.640	15.75	16.26
U	.065	.080	1.65	2.03
W	0	.004	0	0.10

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 4,860,072 4,881,106 4,931,844 5,017,508 5,034,796 5,049,961 5,063,307 5,187,117 5,237,481 5,381,025 5,486,715 6,162,665 6,259,123 B1 6,306,728 B1 6,404,065 B1 6,534,343 6,583,505 6,683,344 6,710,405 B2 6,710,463 6,727,585 6,759,692 6,771,478 B2 7,005,734 B2 7,063,975 B2 7,071,537 7,157,338B2

Fig. 1. Output Characteristics @ T_J = 25ºC

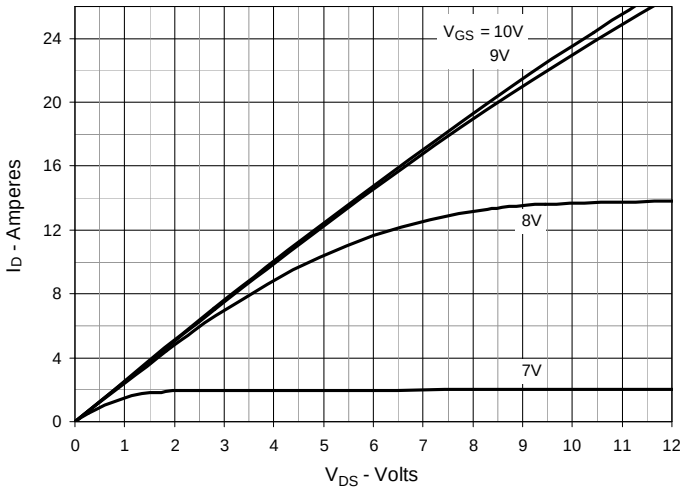


Fig. 2. Extended Output Characteristics @ T_J = 25ºC

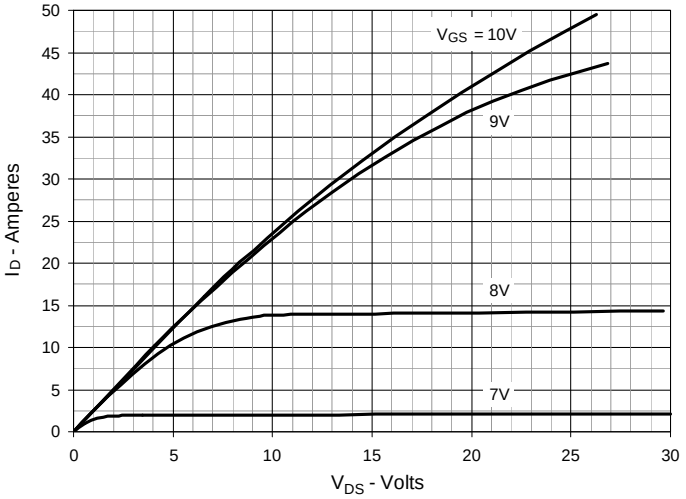


Fig. 3. Output Characteristics @ T_J = 125ºC

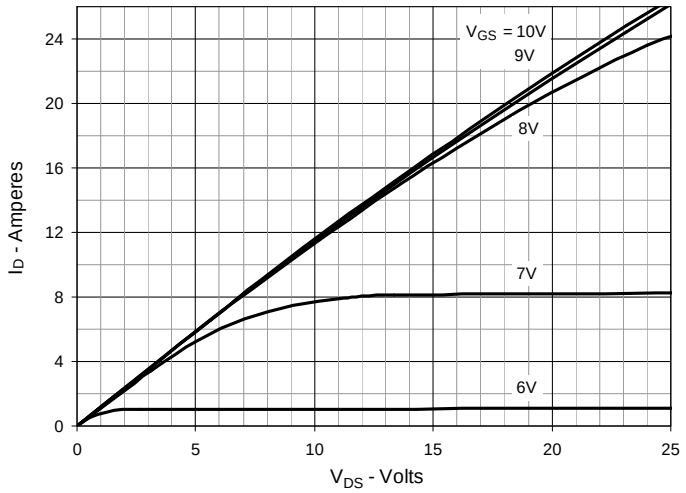


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 13A Value vs. Junction Temperature

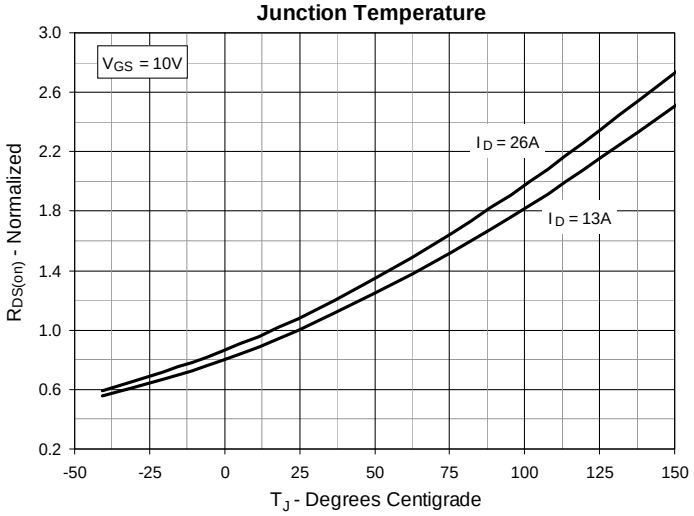


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 13A Value vs. Drain Current

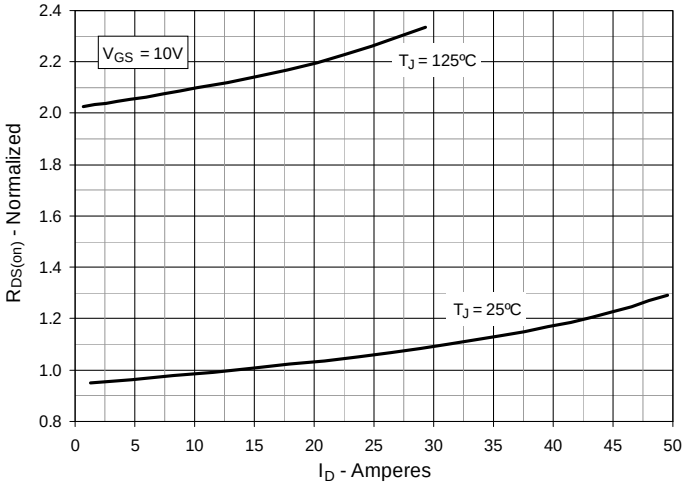
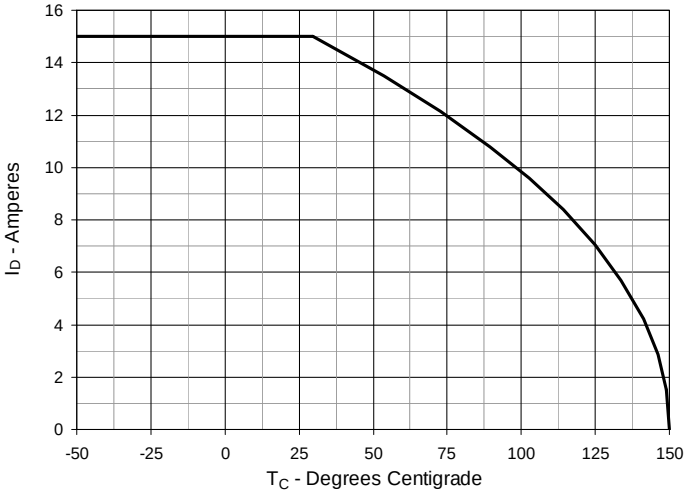


Fig. 6. Maximum Drain Current vs. Case Temperature



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Fig. 7. Input Admittance

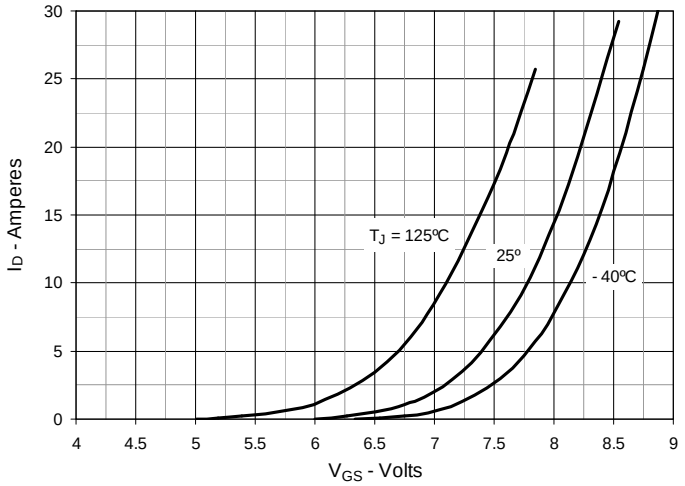


Fig. 8. Transconductance

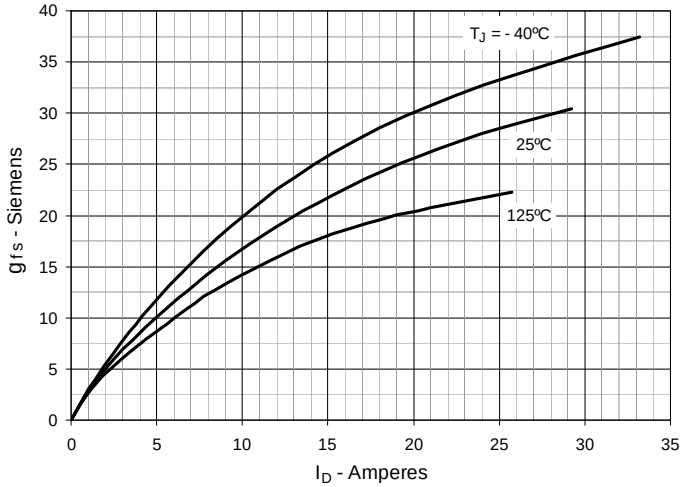


Fig. 9. Forward Voltage Drop of Intrinsic Diode

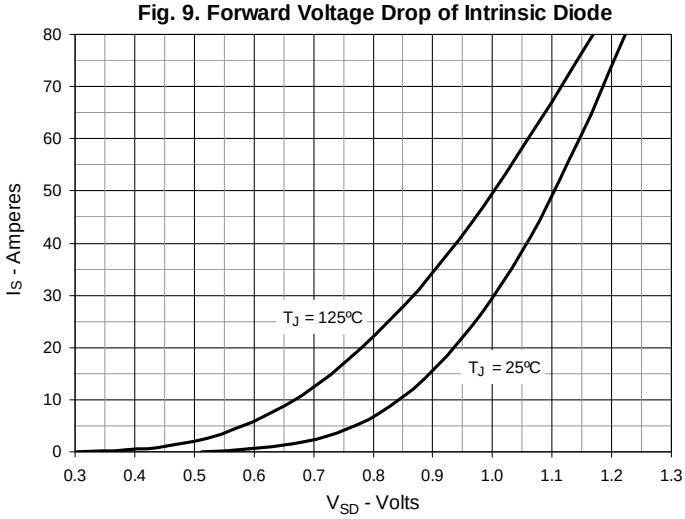


Fig. 10. Gate Charge

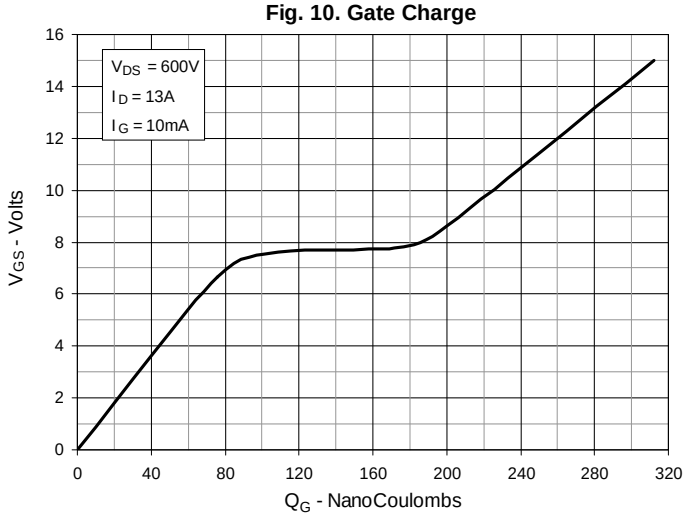


Fig. 11. Capacitance

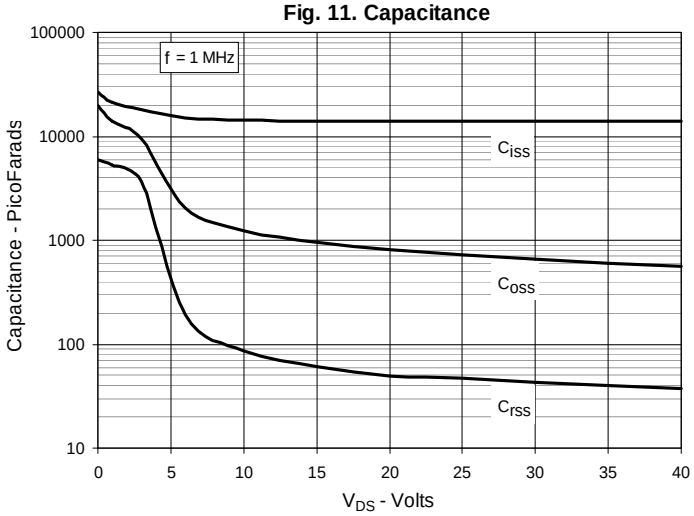
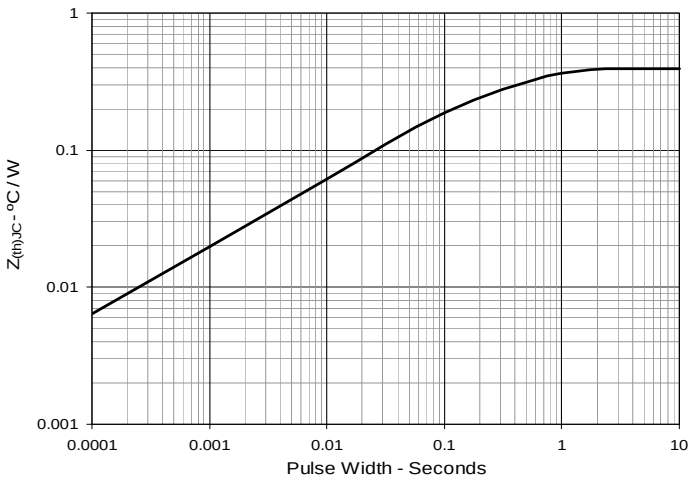


Fig. 12. Maximum Transient Thermal Impedance



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