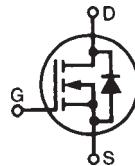


# Polar™ Power MOSFET

## HiPerFET™

N-Channel Enhancement Mode  
Avalanche Rated  
Fast Intrinsic Diode

### IXFR26N100P

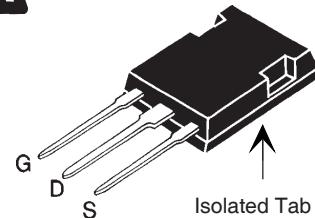


**V<sub>DSS</sub>** = 1000V  
**I<sub>D25</sub>** = 15A  
**R<sub>DS(on)</sub>** ≤ 430mΩ  
**t<sub>rr</sub>** ≤ 300ns

#### ISOPLUS247 (IXFR)



E153432



G = Gate      D = Drain  
S = Source

Symbol	Test Conditions	Maximum Ratings	
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 150°C	1000	V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 150°C, R <sub>GS</sub> = 1MΩ	1000	V
V <sub>GSS</sub>	Continuous	± 30	V
V <sub>GSM</sub>	Transient	± 40	V
I <sub>D25</sub>	T <sub>C</sub> = 25°C	15	A
I <sub>DM</sub>	T <sub>C</sub> = 25°C, pulse width limited by T <sub>JM</sub>	65	A
I <sub>AR</sub>	T <sub>C</sub> = 25°C	13	A
E <sub>AS</sub>	T <sub>C</sub> = 25°C	1	J
dV/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , V <sub>DD</sub> ≤ V <sub>DSS</sub> , T <sub>J</sub> ≤ 150°C	15	V/ns
P <sub>D</sub>	T <sub>C</sub> = 25°C	290	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>	Maximum lead temperature for soldering	300	°C
T <sub>SOLD</sub>	Plastic body for 10s	260	°C
V <sub>ISOL</sub>	50/60 Hz, RMS, 1 minute	2500	V~
F <sub>c</sub>	Mounting force	20..120/4.5..27	N/lb.
Weight		5	g

Symbol	Test Conditions (T <sub>J</sub> = 25°C, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 3mA	1000		V
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1mA	3.5		V
I <sub>GSS</sub>	V <sub>GS</sub> = ± 30V, V <sub>DS</sub> = 0V		± 200	nA
I <sub>DSS</sub>	V <sub>DS</sub> = V <sub>DSS</sub> V <sub>GS</sub> = 0V	T <sub>J</sub> = 125°C	25 2	μA mA
R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 13A, Note 1		430	mΩ

#### Features

- Silicon chip on Direct-Copper-Bond substrate
  - High power dissipation
  - Isolated mounting surface
  - 2500V electrical isolation
- Low drain to tab capacitance(<30pF)
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Fast intrinsic Rectifier

#### Applications

- Switched-mode and resonant-mode power supplies
- DC-DC converters
- Laser Drivers
- AC and DC motor controls
- Robotics and servo controls

#### Advantages

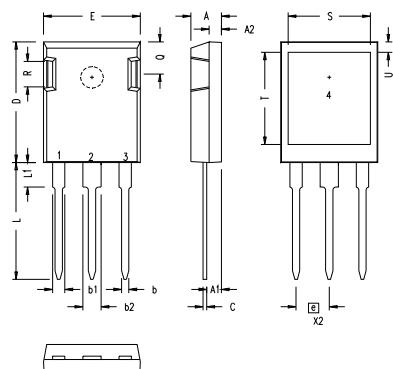
- Easy assembly
- Space savings
- High power density

Symbol	Test Conditions (T <sub>j</sub> = 25°C unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
<b>g<sub>fs</sub></b>	V <sub>DS</sub> = 20V, I <sub>D</sub> = 13A, Note 1	13	22	S
<b>C<sub>iss</sub></b> <b>C<sub>oss</sub></b> <b>C<sub>rss</sub></b>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1MHz	11.9	nF	
		690	pF	
		60	pF	
<b>R<sub>Gi</sub></b>	Gate input resistance	1.50	Ω	
<b>t<sub>d(on)</sub></b> <b>t<sub>r</sub></b> <b>t<sub>d(off)</sub></b> <b>t<sub>f</sub></b>	<b>Resistive Switching Times</b> V <sub>GS</sub> = 10V, V <sub>DS</sub> = 0.5 • V <sub>DSS</sub> , I <sub>D</sub> = 13A R <sub>G</sub> = 1Ω (External)	45	ns	
		45	ns	
		72	ns	
		50	ns	
<b>Q<sub>g(on)</sub></b> <b>Q<sub>gs</sub></b> <b>Q<sub>gd</sub></b>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 0.5 • V <sub>DSS</sub> , I <sub>D</sub> = 13A	197	nC	
		76	nC	
		85	nC	
<b>R<sub>thJC</sub></b>			0.43 °C/W	
<b>R<sub>thCS</sub></b>		0.15	°C/W	

**Source-Drain Diode**T<sub>j</sub> = 25°C unless otherwise specified**Characteristic Values**

	Min.	Typ.	Max.
<b>I<sub>s</sub></b>	V <sub>GS</sub> = 0V		26 A
<b>I<sub>SM</sub></b>	Repetitive, pulse width limited by T <sub>JM</sub>		104 A
<b>V<sub>SD</sub></b>	I <sub>F</sub> = I <sub>S</sub> , V <sub>GS</sub> = 0V, Note 1		1.5 V
<b>t<sub>rr</sub></b> <b>Q<sub>RM</sub></b> <b>I<sub>RM</sub></b>	I <sub>F</sub> = 13A, -di/dt = 100A/μs V <sub>R</sub> = 100V, V <sub>GS</sub> = 0V	300	ns
		1.2	μC
		12	A

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

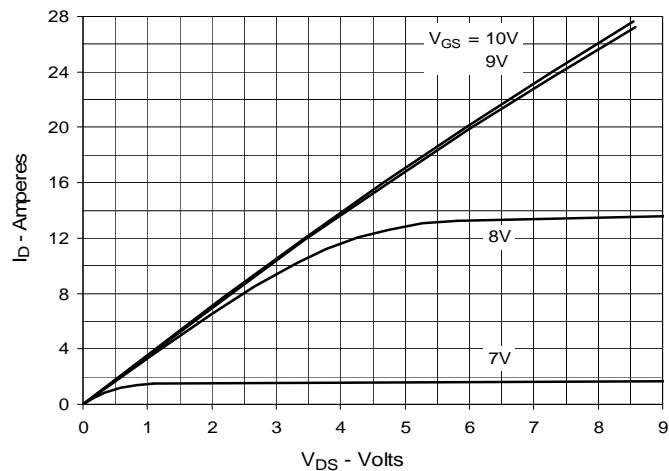
**ISOPLUS247 (IXFR) Outline**

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	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	.084	1.91	2.13
b2	.115	.123	2.92	3.12
C	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
E	.620	.635	15.75	16.13
e	.215 BSC		5.45 BSC	
L	.780	.800	19.81	20.32
L1	.150	.170	3.81	4.32
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83
S	.520	.540	13.21	13.72
T	.620	.640	15.75	16.26
U	.065	.080	1.65	2.03

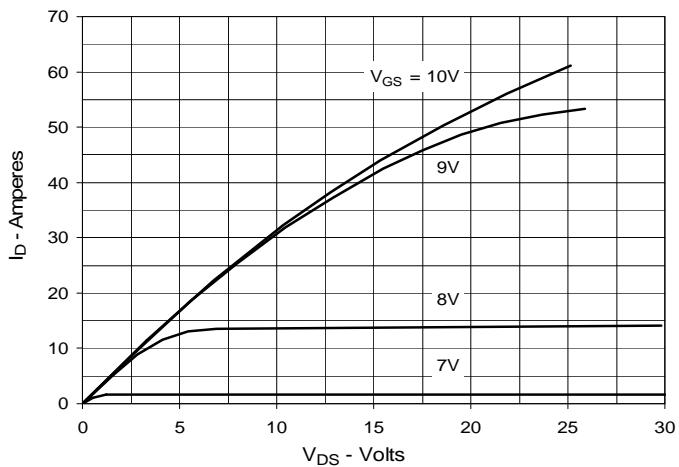
- 1 – GATE  
2 – DRAIN (COLLECTOR)  
3 – SOURCE (EMITTER)  
4 – NO CONNECTION

NOTE: This drawing will meet all dimensions requirement of JEDEC outline TO-247AD except screw hole.

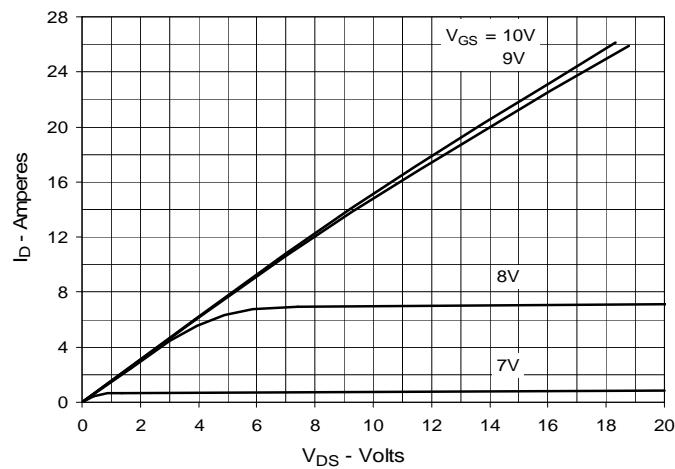
**Fig. 1. Output Characteristics  
@ 25°C**



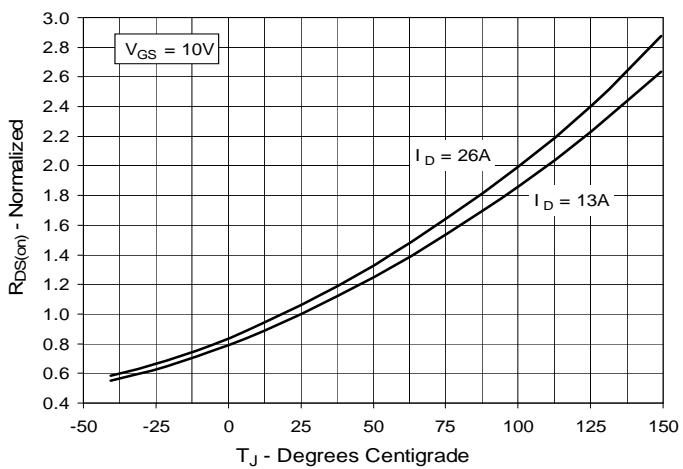
**Fig. 2. Extended Output Characteristics  
@ 25°C**



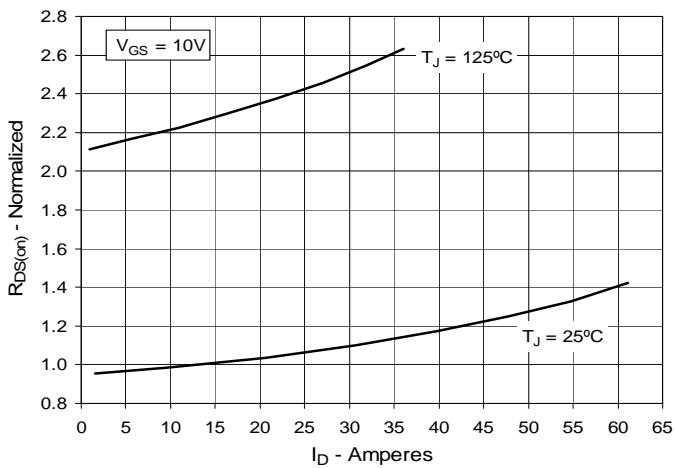
**Fig. 3. Output Characteristics  
@ 125°C**



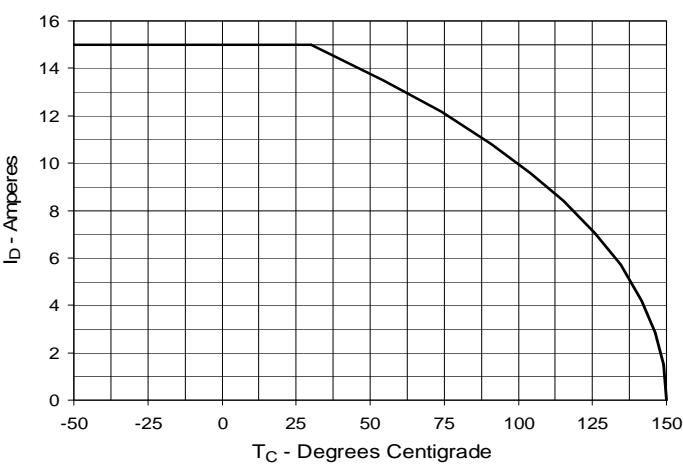
**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = 13A$  Value  
vs. Junction Temperature**

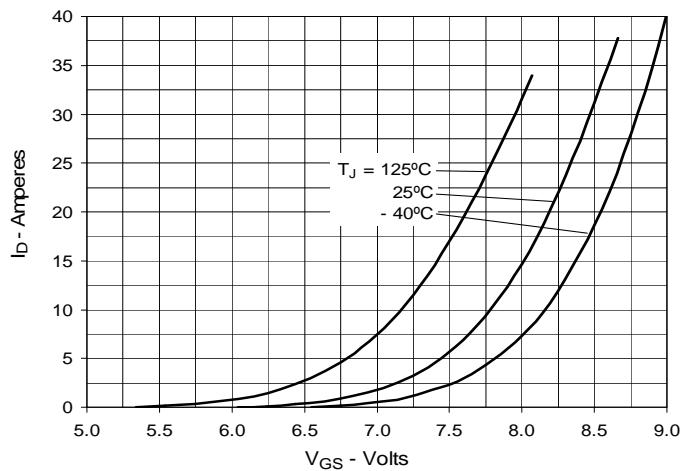
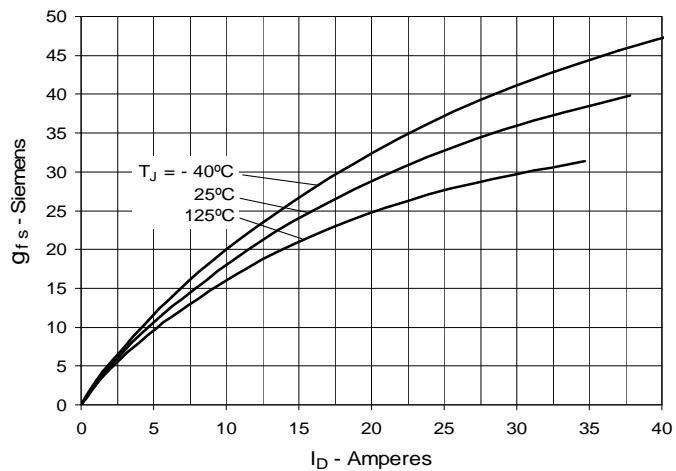
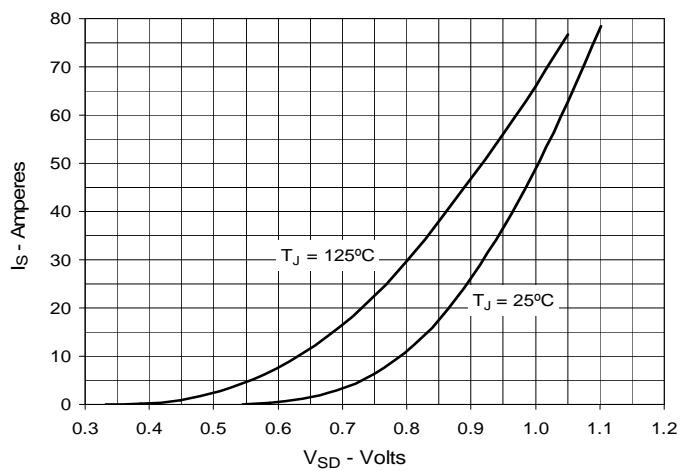
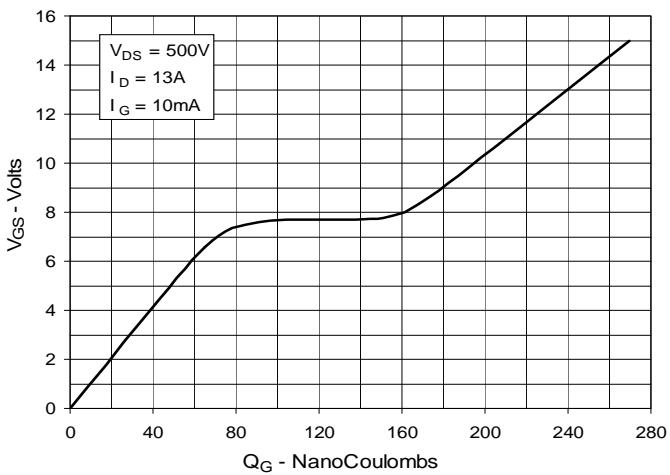
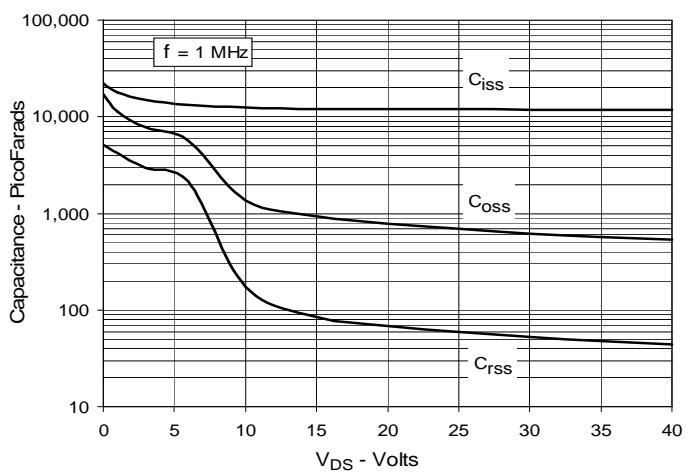
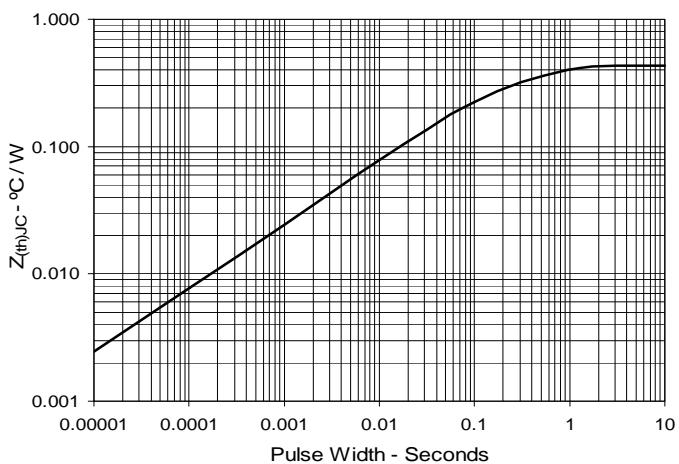


**Fig. 5.  $R_{DS(on)}$  Normalized to  $I_D = 13A$  Value  
vs. Drain Current**



**Fig. 6. Maximum Drain Current vs.  
Case Temperature**



**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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