

Polar[™] Power MOSFET HiPerFET[™]

IXFK26N100P IXFX26N100P

N-Channel Enhancement Mode Avalanche Rated Fast Intrinsic Diode

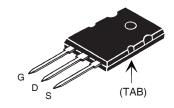


Symbol	Test Conditions		Maximum Ratings		
V _{DSS} V _{DGR}	$T_J = 25$ °C to 150°C $T_J = 25$ °C to 150°C, $R_{GS} = 1M\Omega$		1000 1000	V	
V _{GSS}	Continuous Transient		± 30 ± 40	V V	
 _{D25} _{DM}	$T_{c} = 25^{\circ}C$ $T_{c} = 25^{\circ}C$, pulse w	vidth limited by T_{JM}	26 65	A A	
I _{AR} E _{AS}	$T_{c} = 25^{\circ}C$ $T_{c} = 25^{\circ}C$		13 1	A J	
dV/dt	$I_{S} \leq I_{DM}, V_{DD} \leq V_{DSS}$	_s , T _J ≤ 150°C	15	V/ns	
P _D	T _C = 25°C		780	W	
T _J T _{JM} T _{stg}			-55 +150 150 -55 +150	°C °C °C	
T _L T _{SOLD}	1.6mm (0.062 in.) f		300 260	°C °C	
M _d	Mounting torque	(IXFK)	1.13/10	Nm/lb.in.	
F _c	Mounting force	(IXFX)	20120 /4.527	N/lb.	
Weight	TO-264 TO-247		10 6	g g	

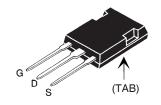
Symbol	Test Conditions	Cha (T _J = 25°C unle Min.		_
BV _{DSS}	$V_{GS} = 0V, I_D = 3mA$	1000		V
$V_{\rm GS(th)}$	$V_{DS} = V_{GS}, I_{D} = 1mA$	3.5	6.5	V
l _{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$		± 200	nA
I _{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0V$	T _J = 125°C	25 2	μA mA
R _{DS(on)}	$V_{GS} = 10V, I_{D} = 0.5 \cdot I_{D25}, N$	lote 1	390	mΩ

 $V_{DSS} = 1000V$ $I_{D25} = 26A$ $R_{DS(on)} \le 390m\Omega$ $t_{rr} \le 300ns$

TO-264 (IXFK)



PLUS247 (IXFX)



G = Gate D = Drain S = Source TAB = Drain

Features

- Fast intrinsic diode
- International standard packages
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- easy to drive and to protect

Advantages

- Easy to mount
- Space savings
- High power density

Applications:

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



Symbo (T _J = 25		Test Conditions nless otherwise specified)	Cha Min.	racteris Typ.	tic Value Max.	s
g _{fs}		$V_{DS} = 20V, I_{D} = 0.5 \cdot I_{D25}, \text{ Note 1}$	13	22		S
C _{iss})			11.9		nF
C _{oss}	}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		690		pF
C _{rss}	<u> </u>			60		pF
R_{gi}		Gate input resistance		1.50		Ω
$\mathbf{t}_{d(on)}$)	Resistive Switching Times		45		ns
t,		$V_{gs} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_{D} = 0.5 \cdot I_{D25}$		45		ns
$\mathbf{t}_{d(off)}$	1	$R_{G} = 1\Omega$ (External)		72		ns
t _f	<u> </u>			50		ns
$\mathbf{Q}_{g(on)}$)			197		nC
Q_{gs}	}	$V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_{D} = 0.5 \cdot I_{D25}$		76		nC
\mathbf{Q}_{gd}	<u> </u>			85		nC
R _{thJC}					0.16	°C/W
$\mathbf{R}_{\mathrm{thCS}}$				0.15		°C/W

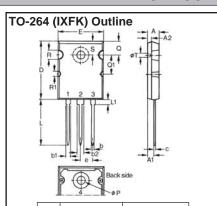
Source-Drain Diode

Characteristic Values

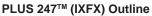
T₁ = 25°C unless otherwise specified)

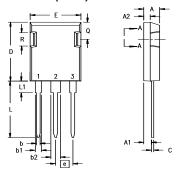
Symbol	Test Conditions	Min.	Тур.	Max.	
I s	$V_{GS} = 0V$			26	Α
SM	Repetitive, pulse width limited by T_{JM}	I		104	Α
V _{SD}	$I_F = I_S$, $V_{GS} = 0V$, Note 1			1.5	V
$\left\{ egin{array}{ll} \mathbf{t}_{rr} & \\ \mathbf{Q}_{RM} & \\ \mathbf{I}_{RM} & \end{array} ight\}$	$I_F = 13A$, $-di/dt = 100A/\mu s$ $V_R = 100V$, $V_{GS} = 0V$		1.2 12	300	ns μC A

Note 1: Pulse test, $t \le 300\mu s$; duty cycle, $d \le 2\%$.



Dim.	Milli	meter	Inches	
J	Min.	Max.	Min.	Max.
Α	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
С	0.53	0.83	.021	.033
D	25.91	26.16	1.020	1.030
Е	19.81	19.96	.780	.786
е	5.46	BSC	.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
Р	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
Т	1.57	1.83	.062	.072





Terminals:

- 1 Gate
- 2 Drain (Collector)
- 3 Source (Emitter) 4 Drain (Collector)

Dim.	Milli	meter	Incl	nes	
	Min.	Max.	Min.	Max.	
Α	4.83	5.21	.190	.205	
A ₁	2.29	2.54	.090	.100	
A ₂	1.91	2.16	.075	.085	
b	1.14	1.40	.045	.055	
b₁	1.91	2.13	.075	.084	
b ₂	2.92	3.12	.115	.123	
С	0.61	0.80	.024	.031	
D	20.80	21.34	.819	.840	
Е	15.75	16.13	.620	.635	
е	5.45	BSC	.215 BSC		
L	19.81	20.32	.780	.800	
L1	3.81	4.32	.150	.170	
Q	5.59	6.20	.220	0.244	
R	4 32	4 83	170	190	

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

Fig. 1. Output Characteristics @ 25°C

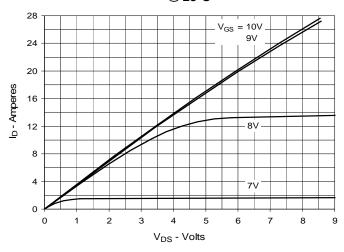


Fig. 3. Output Characteristics @ 125°C

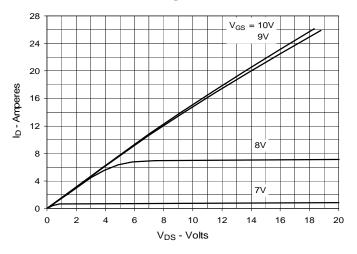


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 13A$ Value vs. Drain Current

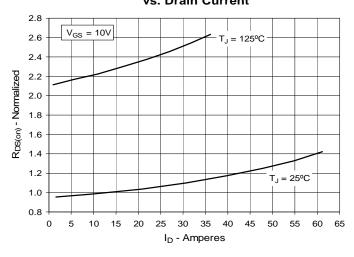


Fig. 2. Extended Output Characteristics @ 25°C

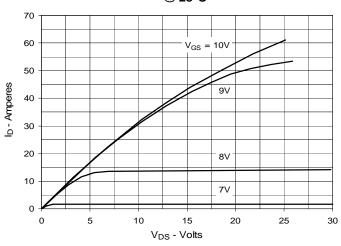


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 13A$ Value vs. Junction Temperature

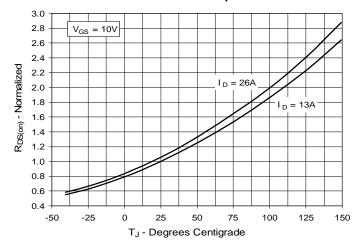
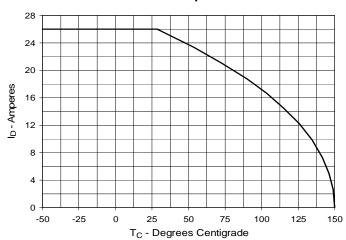


Fig. 6. Maximum Drain Current vs.

Case Temperature





40

35

30

25

20

15

10

5

0 ↓ 5.0

5.5

6.0

6.5

I_D - Amperes

Fig. 7. Input Admittance

T_J = 125°C

25°C

- 40°C

7.5

8.0

8.5

9.0

Fig. 8. Transconductance 50 45 40 35 gfs-Siemens 30 25°C 25 125°C 20 15 10 5 0 0 10 20 25 35 I_D - Amperes

Fig. 9. Forward Voltage Drop of Intrinsic Diode

7.0

V_{GS} - Volts

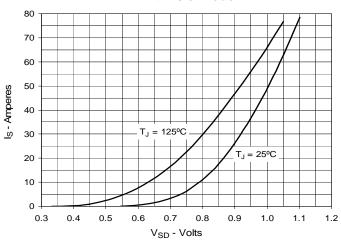


Fig. 10. Gate Charge

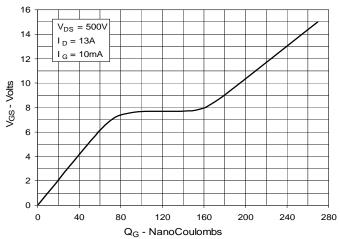


Fig. 11. Capacitance

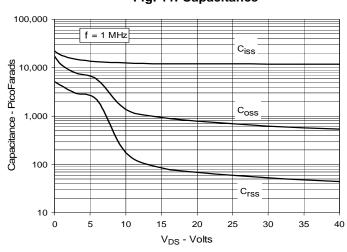
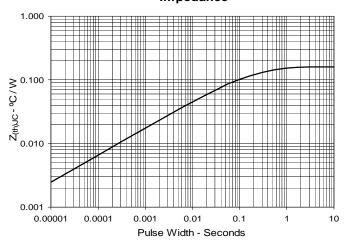


Fig. 12. Maximum Transient Thermal Impedance



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