

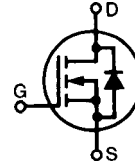
# HiPerFET™ MOSFETs

## ISOPLUS220™

**IXFC 26N50**  
**IXFC 24N50**

**Electrically Isolated Back Surface**

N-Channel Enhancement Mode  
High dV/dt, Low t<sub>rr</sub>, HDMOS™ Family

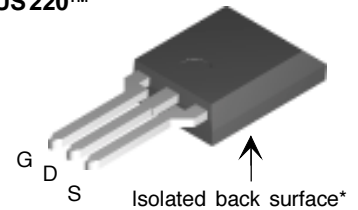


V <sub>DSS</sub>	I <sub>D25</sub>	R <sub>DS(on)</sub>
500 V	23 A	0.20 Ω
500 V	21 A	0.23 Ω

t<sub>rr</sub> ≤ 250 ns

Symbol	Test Conditions	Maximum Ratings	
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 150°C	500	V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 150°C; R <sub>GS</sub> = 1 MΩ	500	V
V <sub>GS</sub>	Continuous	±20	V
V <sub>GSM</sub>	Transient	±30	V
I <sub>D25</sub>	T <sub>C</sub> = 25°C	26N50	23 A
		24N50	21 A
I <sub>DM</sub>	T <sub>C</sub> = 25°C, Pulse width limited by T <sub>JM</sub>	26N50	92 A
		24N50	84 A
I <sub>AR</sub>	T <sub>C</sub> = 25°C	26N50	26 A
		24N50	24 A
E <sub>AR</sub>	T <sub>C</sub> = 25°C	30	mJ
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , di/dt ≤ 100 A/μs, V <sub>DD</sub> ≤ V <sub>DSS</sub> T <sub>J</sub> ≤ 150°C, R <sub>G</sub> = 2 Ω	5	V/ns
P <sub>D</sub>	T <sub>C</sub> = 25°C	230	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>	1.6 mm (0.062 in.) from case for 10 s	300	°C
V <sub>ISOL</sub>	50/60 Hz, RMS t = 1 minute leads-to-tab	2500	V~
Weight		3	g

ISOPLUS220™



G = Gate      D = Drain  
S = Source

\* Patent pending

### Features

- Silicon chip on Direct-Copper-Bond substrate
  - High power dissipation
  - Isolated mounting surface
  - 2500V electrical isolation
- Low drain to tab capacitance (<35pF)
- Low R<sub>DS(on)</sub> HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Fast intrinsic Rectifier

### Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control

### Advantages

- Easy assembly: no screws, or isolation foils required
- Space savings
- High power density
- Low collector capacitance to ground (low EMI)

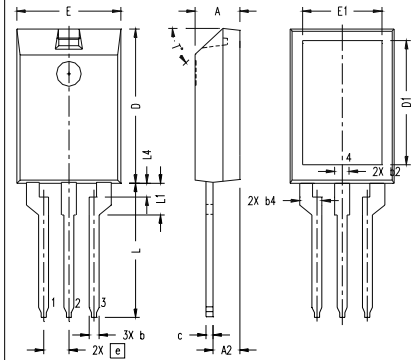
Symbol	Test Conditions	Characteristic Values (T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
V <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250μA	500		V
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 4mA	2		V
I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V <sub>DC</sub> , V <sub>DS</sub> = 0			±100 nA
I <sub>DSS</sub>	V <sub>DS</sub> = 0.8 V <sub>DSS</sub> V <sub>GS</sub> = 0 V	T <sub>J</sub> = 25°C		200 μA
		T <sub>J</sub> = 125°C		1 mA
R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = I <sub>T</sub> Notes 1 & 2	26N50		0.20 Ω
		24N50		0.23 Ω

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
			min.	typ.	max.
$g_{fs}$	$V_{DS} = 15\text{ V}; I_D = I_T$ Note 1		11	21	S
$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$			4200	pF
$C_{oss}$				450	pF
$C_{rss}$				135	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = I_T$ $R_G = 1\ \Omega$ (External),			16	ns
$t_r$				33	ns
$t_{d(off)}$				65	ns
$t_f$				30	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = I_T$			135	nC
$Q_{gs}$				28	nC
$Q_{gd}$				62	nC
$R_{thJC}$				0.54	K/W
$R_{thCK}$			0.30		K/W

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
			min.	typ.	max.
$I_S$	$V_{GS} = 0\text{ V}$			26	A
$I_{SM}$	Repetitive; pulse width limited by $T_{JM}$			104	A
$V_{SD}$	$I_F = I_S, V_{GS} = 0\text{ V}$ , Note 1			1.5	V
$t_{rr}$	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s},$ $V_R = 100\text{ V}$	$T_J = 25^\circ\text{C}$		250	ns
		$T_J = 125^\circ\text{C}$		400	ns
$Q_{RM}$		$T_J = 25^\circ\text{C}$	1	1	$\mu\text{C}$
		$T_J = 125^\circ\text{C}$	2		$\mu\text{C}$
$I_{RM}$		$T_J = 25^\circ\text{C}$	10		A
		$T_J = 125^\circ\text{C}$	15		A

- Note: 1. Pulse test,  $t \leq 300\ \mu\text{s}$ , duty cycle  $d \leq 2\%$   
 2.  $I_T$  test current: IXFC26N50  $I_T = 13\text{ A}$   
 IXFC24N50  $I_T = 12\text{ A}$   
 3. See IXFH26N50 data sheet for characteristic curves.

### ISOPLUS220 OUTLINE



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.157	.197	4.00	5.00
A2	.098	.118	2.50	3.00
b	.035	.051	0.90	1.30
b2	.049	.065	1.25	1.65
b4	.093	.100	2.35	2.55
c	.028	.039	0.70	1.00
D	.591	.630	15.00	16.00
D1	.472	.512	12.00	13.00
E	.394	.433	10.00	11.00
E1	.295	.335	7.50	8.50
e	.100 BASIC		2.55 BASIC	
L	.512	.571	13.00	14.50
L1	.118	.138	3.00	3.50
L4	.039	.059	1.00	1.50
T*			42.5*	47.5*

Note: All terminals are solder plated.

- 1 - Gate
- 2 - Drain
- 3 - Source

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 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715  
 4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025