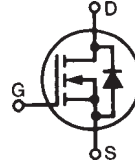


# HiPerFET™ MOSFETs ISOPLUS220™

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

**Electrically Isolated Back Surface**

N-Channel Enhancement Mode  
High dV/dt, Low  $t_{rr}$ , HDMOS™ Family

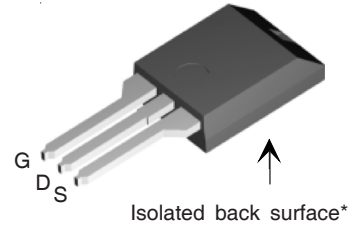


$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
500 V	23 A	0.20 $\Omega$
500 V	21 A	0.23 $\Omega$

$t_{rr} \leq 250$  ns

Symbol	Test Conditions	Maximum Ratings		
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	500	V	
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1$ M $\Omega$	500	V	
$V_{GS}$	Continuous	$\pm 20$	V	
$V_{GSM}$	Transient	$\pm 30$	V	
$I_{D25}$	$T_C = 25^\circ\text{C}$	26N50	23	A
		24N50	21	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , Pulse width limited by $T_{JM}$	26N50	92	A
		24N50	84	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	26N50	26	A
		24N50	24	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	30	mJ	
dv/dt	$I_S \leq I_{DM}$ , di/dt $\leq 100$ A/ $\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$ , $R_G = 2$ $\Omega$	5	V/ns	
$P_D$	$T_C = 25^\circ\text{C}$	230	W	
$T_J$		-55 ... +150	$^\circ\text{C}$	
$T_{JM}$		150	$^\circ\text{C}$	
$T_{stg}$		-55 ... +150	$^\circ\text{C}$	
$T_L$	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$	
$V_{ISOL}$	50/60 Hz, RMS $t = 1$ minute leads-to-tab	2500	V~	
Weight		3	g	

ISOPLUS 220LV™



G = Gate      D = Drain  
S = Source

### Features

- Silicon chip on Direct-Copper-Bond substrate
- High power dissipation
- Isolated mounting surface
- 2500V electrical isolation
- Low drain to tab capacitance (<35pF)
- Low  $R_{DS(on)}$  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)

See IXFH26N50 data sheet for IGBT characteristic curves

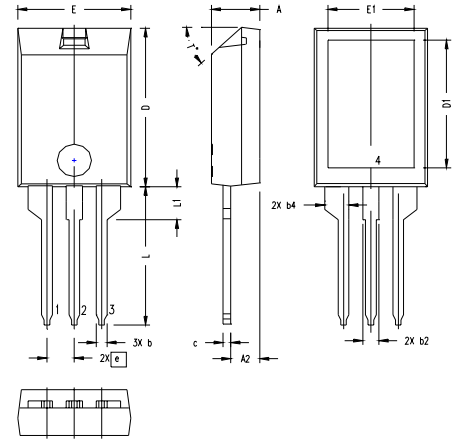
Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{DSS}$	$V_{GS} = 0$ V, $I_D = 250$ $\mu\text{A}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 4$ mA	2		V
$I_{GSS}$	$V_{GS} = \pm 20$ V <sub>DC</sub> , $V_{DS} = 0$			$\pm 100$ nA
$I_{DSS}$	$V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0$ V	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		200 $\mu\text{A}$ 1 mA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = I_T$ Notes 1 & 2	26N50 24N50		0.20 $\Omega$ 0.23 $\Omega$

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
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$ $R_G = 1\ \Omega$ (External),			16	ns
$t_r$				33	ns
$t_{d(off)}$				65	ns
$t_f$				30	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$			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
$t_{rr}$	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s},$ $V_R = 100\text{ V}$	$T_J = 25^\circ\text{C}$	1	1	250 ns
$Q_{RM}$		$T_J = 125^\circ\text{C}$			400 ns
		$T_J = 25^\circ\text{C}$			1 $\mu\text{C}$
$I_{RM}$		$T_J = 125^\circ\text{C}$			2 $\mu\text{C}$
	$T_J = 25^\circ\text{C}$	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.

### TO-220 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
T*			42.5°	47.5°

- NOTE:  
 1. Bottom heatsink (Pin 4) is electrically isolated from Pin 1, 2, or 3.  
 2. This drawing will meet dimensional requirement of JEDEC SS Product Outline TO-273 except D and D1 dimension.

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