

HiPerFET™ MOSFETs ISOPLUS220™

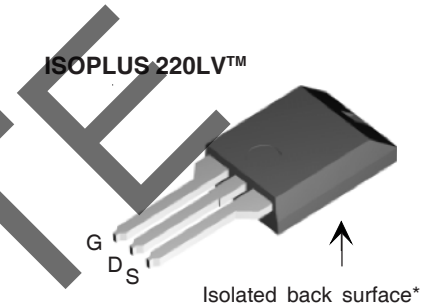
Electrically Isolated Back Surface

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

IXFC 26N50
IXFC 24N50

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

$t_{rr} \leq 250$ ns



G = Gate
S = Source
D = Drain

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1$ M Ω	500	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	26N50: 23 24N50: 21	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse width limited by T_{JM}	26N50: 92 24N50: 84	A
I_{AR}	$T_C = 25^\circ\text{C}$	26N50: 26 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/ μs , $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$, $R_G = 2$ Ω	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

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, $I_D = 250$ μA	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4$ mA	2		V
I_{GSS}	$V_{GS} = \pm 20$ V _{DC} , $V_{DS} = 0$			± 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 μA 1 mA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = I_T$ Notes 1 & 2	26N50 24N50		0.20 Ω 0.23 Ω

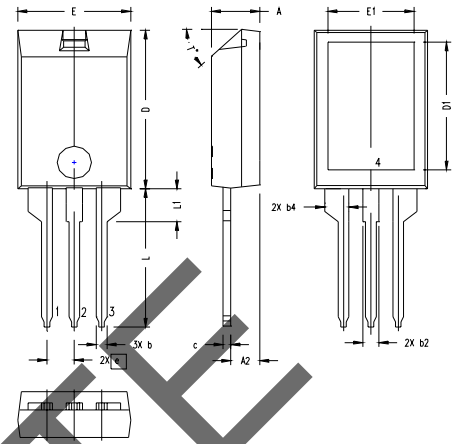
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
			min.	typ.	max.
g_{fs}	$V_{DS} = 15\text{ V}; I_D = I_T$	Note 1	11	21	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$			4200	pF
C_{oss}				450	pF
C_{rss}				135	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$ $R_G = 1\ \Omega$ (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

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)				
		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
Q_{RM}				$T_J = 125^\circ\text{C}$	400	ns
				$T_J = 25^\circ\text{C}$	1	1
I_{RM}				$T_J = 125^\circ\text{C}$	2	
	$T_J = 25^\circ\text{C}$	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.