

HiPerFET™ MOSFETs ISOPLUS220™

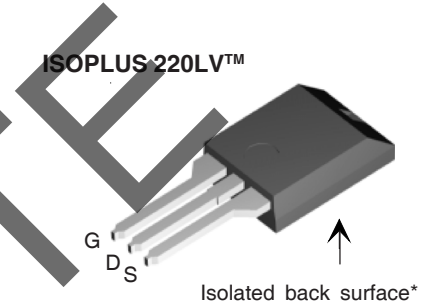
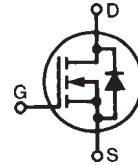
IXFC 26N50
IXFC 24N50

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 Ω |
| 500 V | 21 A | 0.23 Ω |

t_{rr} ≤ 250 ns



| Symbol | Test Conditions | Maximum Ratings | |
|-------------------|---|------------------------|------|
| V _{DSS} | T _J = 25°C to 150°C | 500 | V |
| V _{DGR} | T _J = 25°C to 150°C; R _{GS} = 1 MΩ | 500 | V |
| V _{GS} | Continuous | ±20 | V |
| V _{GSM} | Transient | ±30 | V |
| I _{D25} | T _C = 25°C | 26N50: 23 24N50: 21 | A |
| I _{DM} | T _C = 25°C, Pulse width limited by T _{JM} | 26N50: 92 24N50: 84 | A |
| I _{AR} | T _C = 25°C | 26N50: 26 24N50: 24 | A |
| E _{AR} | T _C = 25°C | 30 | mJ |
| dv/dt | I _S ≤ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} T _J ≤ 150°C, R _G = 2 Ω | 5 | V/ns |
| P _D | T _C = 25°C | 230 | W |
| T _J | | -55 ... +150 | °C |
| T _{JM} | | 150 | °C |
| T _{stg} | | -55 ... +150 | °C |
| T _L | 1.6 mm (0.062 in.) from case for 10 s | 300 | °C |
| V _{ISOL} | 50/60 Hz, RMS t = 1 minute leads-to-tab | 2500 | V~ |
| Weight | | 3 | g |

G = Gate
S = Source
D = Drain

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°C, unless otherwise specified) | | |
|---------------------|--|--|------|------------------|
| | | min. | typ. | max. |
| V _{DSS} | V _{GS} = 0 V, I _D = 250μA | 500 | | V |
| V _{GS(th)} | V _{DS} = V _{GS} , I _D = 4mA | 2 | | V |
| I _{GSS} | V _{GS} = ±20 V _{DC} , V _{DS} = 0 | | | ±100 nA |
| I _{DSS} | V _{DS} = 0.8•V _{DSS} V _{GS} = 0 V | T _J = 25°C T _J = 125°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 |

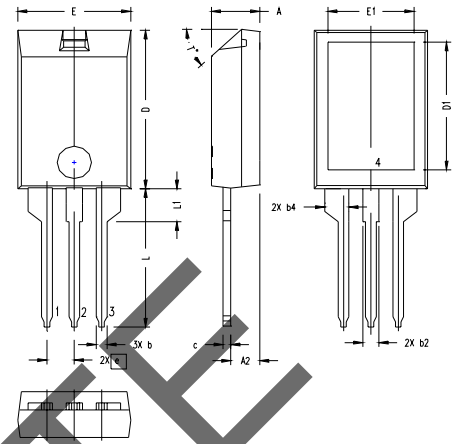
| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | Characteristic Values | | |
|--------------|--|---|-----------------------|------|------|
| | | | min. | typ. | max. |
| g_{fs} | $V_{DS} = 15\text{ V}; I_D = I_T$ | Note 1 | 11 | 21 | S |
| C_{iss} | $V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$ | | | 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 | μC |
| | $T_J = 25^\circ\text{C}$ | 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.