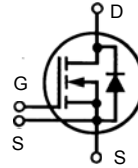


HiPerFET™ Power MOSFETs Single Die MOSFET

IXFN 36N100

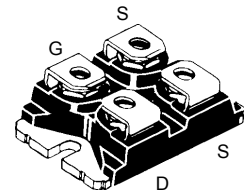
$V_{DSS} = 1000V$
 $I_{D25} = 36A$
 $R_{DS(on)} = 0.24\Omega$

N-Channel Enhancement Mode
 Avalanche Rated, High dv/dt, Low t_{rr}



| Symbol | Test Conditions | Maximum Ratings | |
|------------|---|------------------|------------------------|
| V_{DSS} | $T_J = 25^\circ C$ to $150^\circ C$ | 1000 | V |
| V_{DGR} | $T_J = 25^\circ C$ to $150^\circ C$; $R_{GS} = 1 M\Omega$ | 1000 | V |
| V_{GS} | Continuous | ± 20 | V |
| V_{GSM} | Transient | ± 30 | V |
| I_{D25} | $T_C = 25^\circ C$, Chip capability | 36 | A |
| I_{DM} | $T_C = 25^\circ C$, pulse width limited by T_{JM} | 144 | A |
| I_{AR} | $T_C = 25^\circ C$ | 36 | A |
| E_{AR} | $T_C = 25^\circ C$ | 64 | mJ |
| E_{AS} | $T_C = 25^\circ C$ | 4 | J |
| dv/dt | $I_S \leq I_{DM}$, $di/dt \leq 100 A/\mu s$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ C$, $R_G = 2 \Omega$ | 5 | V/ns |
| P_D | $T_C = 25^\circ C$ | 700 | W |
| T_J | | -55 ... +150 | $^\circ C$ |
| T_{JM} | | 150 | $^\circ C$ |
| T_{stg} | | -55 ... +150 | $^\circ C$ |
| V_{ISOL} | 50/60 Hz, RMS $t = 1$ min $I_{ISOL} \leq 1$ mA $t = 1$ s | 2500 3000 | V~ V~ |
| M_d | Mounting torque Terminal connection torque | 1.5/13 1.5/13 | Nm/lb.in. Nm/lb.in. |
| Weight | | 30 | g |

miniBLOC, SOT-227 B (IXFN)
 E153432



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

Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Features

- International standard packages
- miniBLOC, with Aluminium nitride isolation
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- Fast intrinsic Rectifier

Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls

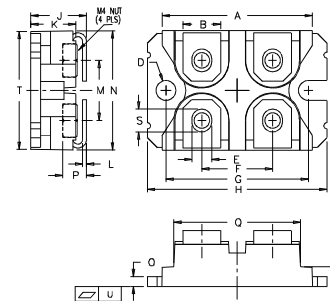
Advantages

- Easy to mount
- Space savings
- High power density

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ C$, unless otherwise specified) | | |
|--------------|--|---|------|---------------------|
| | | min. | typ. | max. |
| V_{DSS} | $V_{GS} = 0 V$, $I_D = 3$ mA | 1000 | | V |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D = 8$ mA | 3.0 | | 5.5 V |
| I_{GSS} | $V_{GS} = \pm 20 V_{DC}$, $V_{DS} = 0$ | | | ± 200 nA |
| I_{DSS} | $V_{DS} = V_{DSS}$, $T_J = 25^\circ C$ $V_{GS} = 0 V$, $T_J = 125^\circ C$ | | | 100 μA 2 mA |
| $R_{DS(on)}$ | $V_{GS} = 10 V$, $I_D = 0.5 \cdot I_{D25}$ Pulse test, $t \leq 300 \mu s$, duty cycle $d \leq 2\%$ | | | 0.24 Ω |

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|--|---|------|------|
| | | min. | typ. | max. |
| g_{fs} | $V_{DS} = 15\text{ V}; I_D = 0.5 \cdot I_{D25}$, pulse test | 18 | 40 | S |
| C_{iss} | $V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$ | | 9200 | pF |
| C_{oss} | | | 1200 | pF |
| C_{rss} | | | 300 | pF |
| $t_{d(on)}$ | $V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 1\ \Omega$ (External), | | 41 | ns |
| t_r | | | 55 | ns |
| $t_{d(off)}$ | | | 110 | ns |
| t_f | | | 30 | ns |
| $Q_{g(on)}$ | $V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ | | 380 | nC |
| Q_{gs} | | | 65 | nC |
| Q_{gd} | | | 185 | nC |
| R_{thJC} | | | 0.18 | K/W |
| R_{thCK} | | | 0.05 | K/W |

miniBLOC, SOT-227 B



M4 screws (4x) supplied

| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 31.50 | 31.88 | 1.240 | 1.255 |
| B | 7.80 | 8.20 | 0.307 | 0.323 |
| C | 4.09 | 4.29 | 0.161 | 0.169 |
| D | 4.09 | 4.29 | 0.161 | 0.169 |
| E | 4.09 | 4.29 | 0.161 | 0.169 |
| F | 14.91 | 15.11 | 0.587 | 0.595 |
| G | 30.12 | 30.30 | 1.186 | 1.193 |
| H | 38.00 | 38.23 | 1.496 | 1.505 |
| J | 11.68 | 12.22 | 0.460 | 0.481 |
| K | 8.92 | 9.60 | 0.351 | 0.378 |
| L | 0.76 | 0.84 | 0.030 | 0.033 |
| M | 12.60 | 12.85 | 0.496 | 0.506 |
| N | 25.15 | 25.42 | 0.990 | 1.001 |
| O | 1.98 | 2.13 | 0.078 | 0.084 |
| P | 4.95 | 5.97 | 0.195 | 0.235 |
| Q | 26.54 | 26.90 | 1.045 | 1.059 |
| R | 3.94 | 4.42 | 0.155 | 0.174 |
| S | 4.72 | 4.85 | 0.186 | 0.191 |
| T | 24.59 | 25.07 | 0.968 | 0.987 |
| U | -0.05 | 0.1 | -0.002 | 0.004 |

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|----------|---|---|------|---------------|
| | | min. | typ. | max. |
| I_S | $V_{GS} = 0\text{ V}$ | | | 36 A |
| I_{SM} | Repetitive; pulse width limited by T_{JM} | | | 144 A |
| V_{SD} | $I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$ | | | 1.3 V |
| t_{rr} | $I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ $T_J = 25^\circ\text{C}$ | | 180 | ns |
| Q_{RM} | | | 330 | ns |
| I_{RM} | | | 2 | μC |
| | | | 8 | A |

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

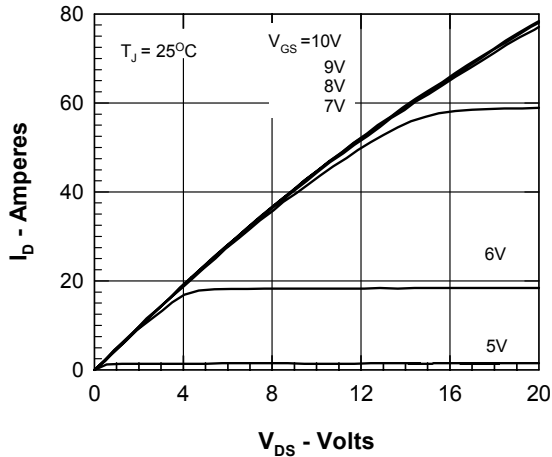


Figure 1. Output Characteristics at 25°C

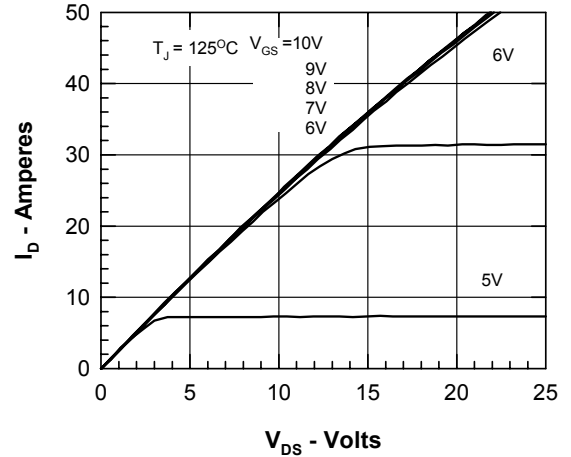


Figure 2. Output Characteristics at 125°C

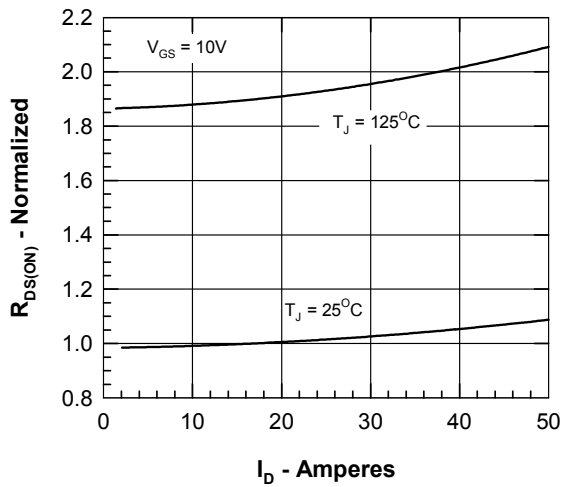


Figure 3. $R_{DS(on)}$ normalized to $0.5 I_{D25}$ value vs. I_D

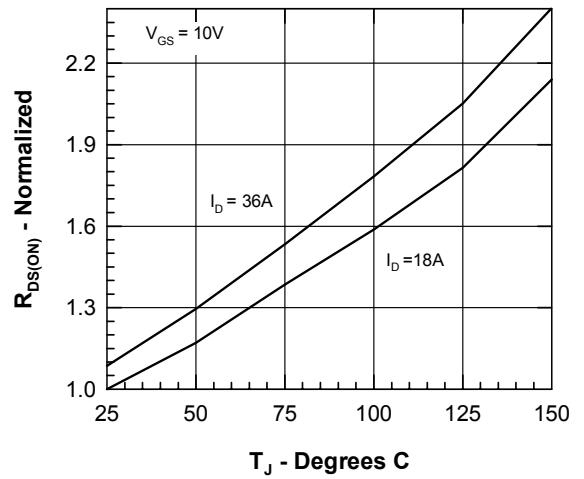


Figure 4. $R_{DS(on)}$ normalized to $0.5 I_{D25}$ value vs. T_J

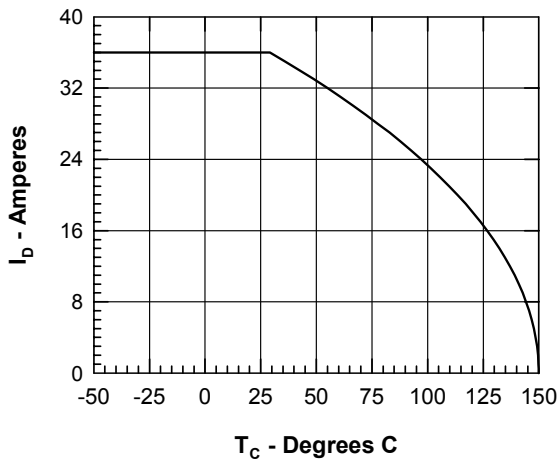


Figure 5. Drain Current vs. Case Temperature

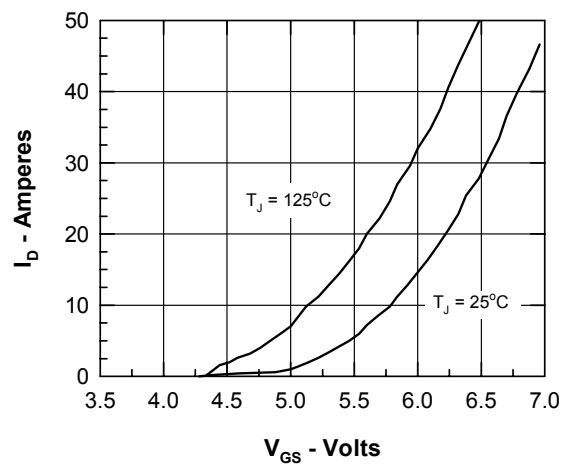


Figure 6. Admittance Curves

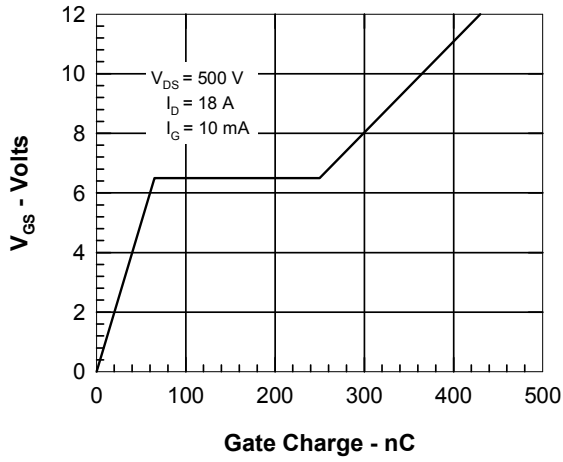


Figure 7. Gate Charge

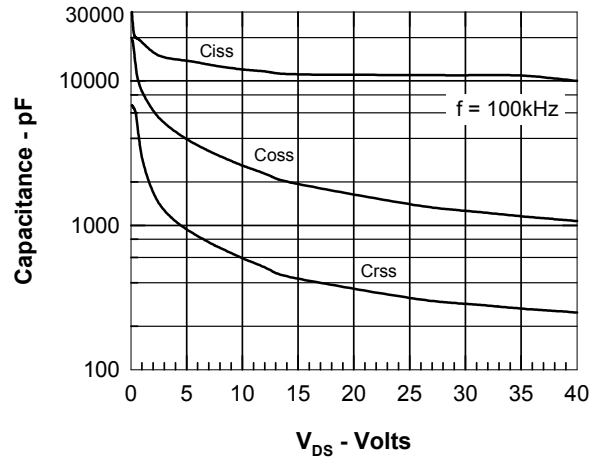


Figure 8. Capacitance Curves

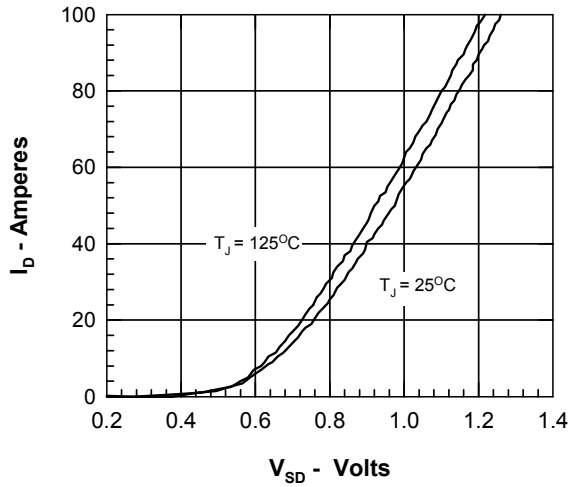


Figure 9. Forward Voltage Drop of the Intrinsic Diode

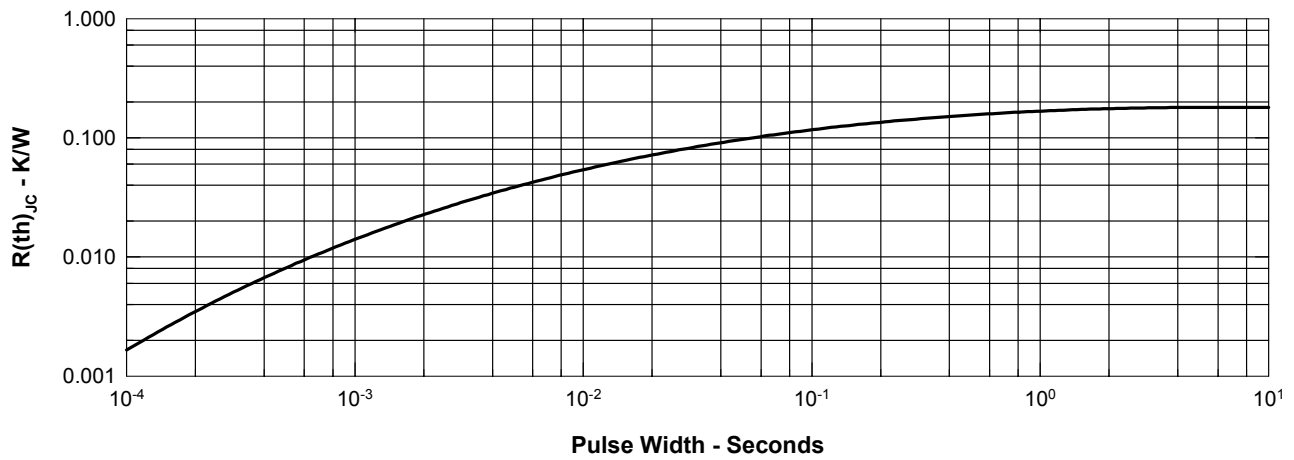


Figure 10. Transient Thermal Resistance

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 | 6,306,728B1 | 6,259,123B1 | 6,306,728B1 |
| 4,850,072 | 4,931,844 | 5,034,796 | 5,063,307 | 5,237,481 | 5,381,025 | 6,404,065B1 | 6,162,665 | 6,534,343 |