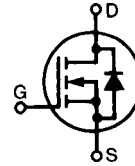


High Voltage MOSFET

IXTA 05N100
IXTP 05N100

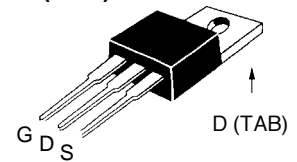
$V_{DSS} = 1000 \text{ V}$
 $I_{D25} = 750 \text{ mA}$
 $R_{DS(on)} = 17 \text{ } \Omega$

N-Channel Enhancement Mode
Avalanche Energy Rated

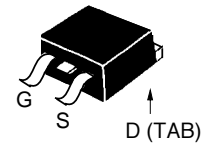


| Symbol | Test Conditions | Maximum Ratings | |
|---|---|-----------------|------------------|
| V_{DSS} | $T_J = 25^\circ\text{C}$ to 150°C | 1000 | V |
| V_{DGR} | $T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$ | 1000 | V |
| V_{GS} | Continuous | ± 20 | V |
| V_{GSM} | Transient | ± 30 | V |
| I_{D25} | $T_C = 25^\circ\text{C}$ | 750 | mA |
| I_{DM} | $T_C = 25^\circ\text{C}$, pulse width limited by T_{JM} | 3 | A |
| I_{AR} | | 1.0 | A |
| E_{AR} | $T_C = 25^\circ\text{C}$ | 5 | mJ |
| E_{AS} | $T_C = 25^\circ\text{C}$ | 100 | mJ |
| dv/dt | $I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$, $R_G = 47 \text{ } \Omega$ | 3 | V/ns |
| P_D | $T_C = 25^\circ\text{C}$ | 40 | W |
| T_J | | -55 ... +150 | $^\circ\text{C}$ |
| T_{JM} | | 150 | $^\circ\text{C}$ |
| T_{stg} | | -55 ... +150 | $^\circ\text{C}$ |
| M_d | Mounting torque | 1.13/10 | Nm/lb.in. |
| Weight | | 4 | g |
| Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s | | 300 | $^\circ\text{C}$ |

TO-220AB (IXTP)



TO-263 AA (IXTA)



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

Features

- International standard packages
- High voltage, Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Fast switching times

Applications

- Switch-mode and resonant-mode power supplies
- Flyback inverters
- DC choppers
- High frequency matching

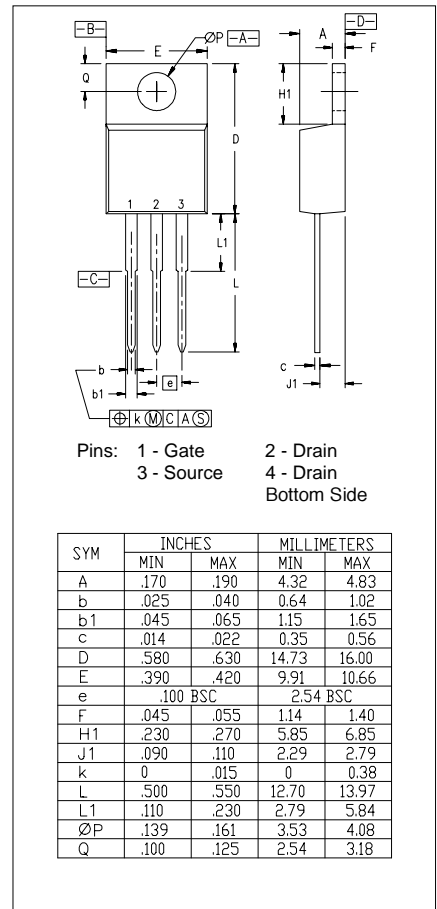
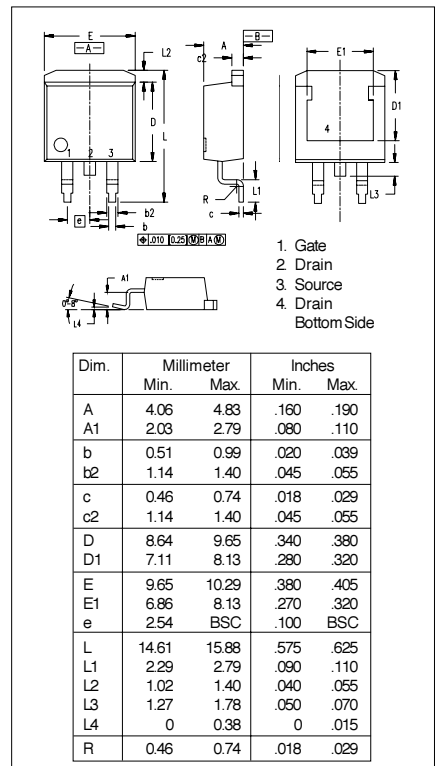
Advantages

- Space savings
- High power density

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|--|---|------|----------------------|
| | | min. | typ. | max. |
| V_{DSS} | $V_{GS} = 0 \text{ V}$, $I_D = 250 \text{ } \mu\text{A}$ | 1000 | | V |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D = 25 \text{ } \mu\text{A}$ | 2.5 | | 4.5 V |
| I_{GSS} | $V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$ | | | $\pm 100 \text{ nA}$ |
| I_{DSS} | $V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ | $T_J = 25^\circ\text{C}$ | | 25 μA |
| | | $T_J = 125^\circ\text{C}$ | | 500 μA |
| $R_{DS(on)}$ | $V_{GS} = 10 \text{ V}$, $I_D = 375 \text{ mA}$ Pulse test, $t \leq 300 \text{ } \mu\text{s}$, duty cycle $d \leq 2 \%$ | 15 | 17 | Ω |

| Symbol | Test Conditions | Characteristic Values | | |
|--------------|--|--|------|---------|
| | | $(T_J = 25^\circ\text{C}, \text{ unless otherwise specified})$ | | |
| | | min. | typ. | max. |
| g_{fs} | $V_{DS} = 20\text{ V}; I_D = 500\text{ mA}, \text{ pulse test}$ | 0.3 | 0.5 | S |
| C_{iss} | $V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$ | | 220 | pF |
| C_{oss} | | | 23 | pF |
| C_{rss} | | | 4 | pF |
| $t_{d(on)}$ | $V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 1\text{ A}$ $R_G = 47\Omega, \text{ (External)}$ | | 11 | ns |
| t_r | | | 19 | ns |
| $t_{d(off)}$ | | | 40 | ns |
| t_f | | | 28 | ns |
| $Q_{g(on)}$ | $V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 1\text{ A}$ | | 8.5 | nC |
| Q_{gs} | | | 2.5 | nC |
| Q_{gd} | | | 4.5 | nC |
| R_{thJC} | | | | 3.1 K/W |
| R_{thCK} | (IXTP) | | 0.50 | K/W |

| Symbol | Test Conditions | Characteristic Values | | |
|----------|--|--|------|--------|
| | | $(T_J = 25^\circ\text{C}, \text{ unless otherwise specified})$ | | |
| | | min. | typ. | max. |
| I_S | $V_{GS} = 0\text{ V}$ | | | 750 mA |
| I_{SM} | Repetitive; pulse width limited by T_{JM} | | | 3 A |
| V_{SD} | $I_F = I_S, V_{GS} = 0\text{ V},$ Pulse test, $t \leq 300\ \mu\text{s}, \text{ duty cycle } d \leq 2\%$ | | | 2 V |
| t_{rr} | $I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$ | | 710 | ns |

TO-220 AD Dimensions

TO-263 AA Outline


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