

High Voltage MOSFET

N-Channel, Enhancement Mode

IXTU 01N80

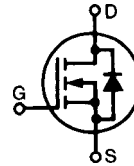
IXTY 01N80

$V_{DSS} = 800 \text{ V}$

$I_{D25} = 100 \text{ mA}$

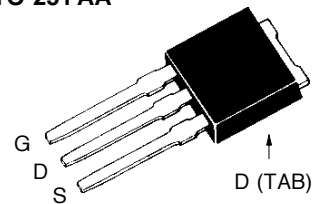
$R_{DS(on)} = 50 \text{ } \Omega$

Preliminary data sheet

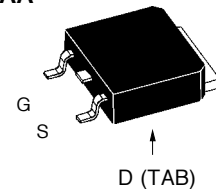


| Symbol | Test Conditions | Maximum Ratings 01N100 | |
|---------------|--|---------------------------|------------------|
| V_{DSS} | $T_J = 25^\circ\text{C}$ to 150°C | 800 | V |
| V_{DGR} | $T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$ | 800 | V |
| V_{GS} | Continuous | ± 20 | V |
| V_{GSM} | Transient | ± 30 | V |
| I_{D25} | $T_C = 25^\circ\text{C}$; $T_J = 25^\circ\text{C}$ to 150°C | 100 | mA |
| I_{DM} | $T_C = 25^\circ\text{C}$, pulse width limited by max. T_J | 400 | mA |
| P_D | $T_C = 25^\circ\text{C}$ | 25 | 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 (0.063 in) from case for 5 s | 300 | $^\circ\text{C}$ |
| Weight | | 0.8 | g |

TO-251 AA



TO-252 AA



G = Gate,
S = Source,

D = Drain,
TAB = Drain

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|---|---|------|---------------------------------------|
| | | min. | typ. | max. |
| V_{DSS} | $V_{GS} = 0 \text{ V}$, $I_D = 25 \text{ } \mu\text{A}$ | 800 | | V V |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D = 25 \text{ } \mu\text{A}$ | 2 | | 4.5 V |
| I_{GSS} | $V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$ | | | $\pm 50 \text{ nA}$ |
| I_{DSS} | $V_{DS} = 0.8 V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$ | | | 10 μA 200 μA |
| $R_{DS(on)}$ | $V_{GS} = 10 \text{ V}$, $I_D = I_{D25}$ Pulse test, $t \leq 300 \text{ ms}$, duty cycle $d \leq 2 \%$ | | | 50 Ω |

Features

- International standard packages
JEDEC TO-251 AA, TO-252 AA
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Fast switching times

Applications

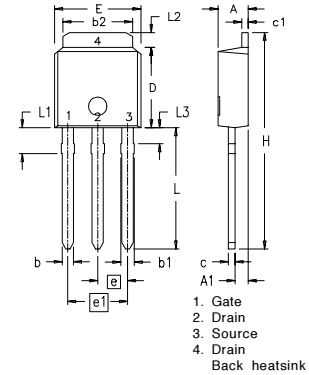
- Level shifting
- Triggers
- Solid state relays
- Current regulators

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|---|---|------|------|
| | | min. | typ. | max. |
| g_{fs} | $V_{DS} = 10\text{ V}; I_D = 0.5 I_{D25}$, pulse test | | 140 | mS |
| C_{iss} | $V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$ | | 60 | pF |
| C_{oss} | | | 8.0 | pF |
| C_{rss} | | | 2.0 | pF |
| $t_{d(on)}$ | $V_{GS} = 10\text{ V}, V_{DS} = 500\text{ V}, I_D = I_{D25}$ $R_G = 50\ \Omega$ (External) | | 12 | ns |
| t_r | | | 12 | ns |
| $t_{d(off)}$ | | | 28 | ns |
| t_f | | | 28 | ns |
| $Q_{g(on)}$ | $V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ | | 8 | nC |
| Q_{gs} | | | 1.8 | nC |
| Q_{gd} | | | 3 | nC |
| R_{thJC} | | | 3 | K/W |

Source-Drain Diode

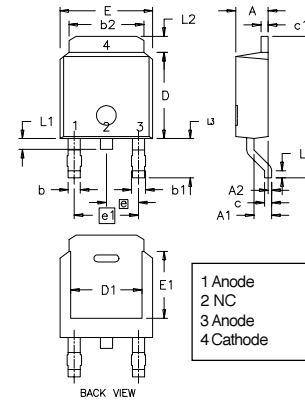
| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|----------|---|---|------|-------------------|
| | | min. | typ. | max. |
| V_{SD} | $I_F = 100\text{ mA}, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$ | | | 1.5 V |
| t_{rr} | $I_F = 0.75\text{ A}, -di/dt = 10\text{ A}/\mu\text{s}$, $V_{DS} = 25\text{ V}$ | | | 1.5 μs |

TO-251 AA Outline



| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|------|
| | Min. | Max. | Min. | Max. |
| A | 2.19 | 2.38 | .086 | .094 |
| A1 | 0.89 | 1.14 | 0.35 | .045 |
| b | 0.64 | 0.89 | .025 | .035 |
| b1 | 0.76 | 1.14 | .030 | .045 |
| b2 | 5.21 | 5.46 | .205 | .215 |
| c | 0.46 | 0.58 | .018 | .023 |
| c1 | 0.46 | 0.58 | .018 | .023 |
| D | 5.97 | 6.22 | .235 | .245 |
| E | 6.35 | 6.73 | .250 | .265 |
| e | 2.28 | BSC | .090 | BSC |
| e1 | 4.57 | BSC | .180 | BSC |
| H | 17.02 | 17.78 | .670 | .700 |
| L | 8.89 | 9.65 | .350 | .380 |
| L1 | 1.91 | 2.28 | .075 | .090 |
| L2 | 0.89 | 1.27 | .035 | .050 |
| L3 | 1.15 | 1.52 | .045 | .060 |

TO-252 AA



| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.19 | 2.38 | 0.086 | 0.094 |
| A1 | 0.89 | 1.14 | 0.035 | 0.045 |
| A2 | 0 | 0.13 | 0 | 0.005 |
| b | 0.64 | 0.89 | 0.025 | 0.035 |
| b1 | 0.76 | 1.14 | 0.030 | 0.045 |
| b2 | 5.21 | 5.46 | 0.205 | 0.215 |
| c | 0.46 | 0.58 | 0.018 | 0.023 |
| c1 | 0.46 | 0.58 | 0.018 | 0.023 |
| D | 5.97 | 6.22 | 0.235 | 0.245 |
| D1 | 4.32 | 5.21 | 0.170 | 0.205 |
| E | 6.35 | 6.73 | 0.250 | 0.265 |
| E1 | 4.32 | 5.21 | 0.170 | 0.205 |
| e | 2.28 | BSC | 0.090 | BSC |
| e1 | 4.57 | BSC | 0.180 | BSC |
| H | 9.40 | 10.42 | 0.370 | 0.410 |
| L | 0.51 | 1.02 | 0.020 | 0.040 |
| L1 | 0.64 | 1.02 | 0.025 | 0.040 |
| L2 | 0.89 | 1.27 | 0.035 | 0.050 |
| L3 | 2.54 | 2.92 | 0.100 | 0.115 |

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