

N-Channel Depletion Mode MOSFET



| Type | V_{DSS} max. | $R_{DS(on)}$ max. | Chip type | Chip size dimensions | | Source - bond wire recommended | Equivalent device data sheet |
|-----------------|-------------------|----------------------|--------------|-------------------------|---------|--------------------------------------|------------------------------------|
| | V | Ω | | mm | mils | | |
| IXTD 02N50D-1M | 500 | 30 | 1M | 1.96 x 1.68 | 77 x 66 | 3 mil x 1 | IXTP 02N50D |
| IXTD 01N100D-1M | 1000 | 110 | 1M | 1.96 x 1.68 | 77 x 66 | 3 mil x 1 | IXTP 01N100D |

Depletion Mode MOSFETs

Depletion mode MOSFETs, unlike the regular enhancement type MOSFETs, requires a negative gate bias to turn it off. Consequently they remain on at or above zero gate bias voltage but otherwise have similar MOSFET characteristics. Their $R_{ds(on)}$ and breakdown voltage have a positive temperature coefficient, increasing the gate bias voltage increases the gate channel conductivity and so decreases $R_{ds(on)}$ to some extent and there is a usable intrinsic diode. IXYS Corporation's IXTP01N100D is a depletion mode MOSFET rated at $V_{DSS} = 1000$ Volts and $I_D = 100$ mA and its $R_{DS(on)} = 110$ Ohms at $V_{GS} = 0$ Volt. The other depletion mode MOSFET, IXTP02N05D, is rated at $V_{DSS} = 500$ Volts, $I_D = 200$ mA, while its $R_{DS(on)} = 30$ Ohms. The minimum required gate bias to turn them off is -5 Volts. They are both housed in TO-220 package and can dissipate 25 Watts at $T_C = 25^\circ\text{C}$.



P-Channel Power MOSFET

| Type | V_{DSS} max. | $R_{DS(ON)}$ max. | Chip type | Chip size dimensions | | Source - bond wire recommended | Equivalent device data sheet |
|--------------|-------------------|----------------------|--------------|-------------------------|-----------|--------------------------------------|------------------------------------|
| | V | Ω | | mm | mils | | |
| IXTD36P10-5B | 100 | 0.08 | 5B | 6.58 x 6.58 | 259 x 259 | 12 mil x 3 | IXTH36P10 |
| IXTD50P10-7B | | 0.06 | 7B | 8.84 x 7.18 | 348 x 283 | 15 mil x 3 | IXTH50P10 |
| IXTD16P20-5B | 200 | 0.22 | 5B | 6.58 x 6.58 | 259 x 259 | 12 mil x 3 | IXTH16P20 |
| IXTD24P20-7B | | 0.16 | 7B | 8.84 x 7.18 | 348 x 283 | 15 mil x 3 | IXTH24P20 |
| IXTD8P50-5B | 500 | 1.20 | 5B | 6.58 x 6.58 | 259 x 259 | 12 mil x 3 | IXTH7P50 |
| IXTD11P50-7B | | 0.75 | 7B | 8.84 x 7.18 | 348 x 283 | 15 mil x 3 | IXTH11P50 |
| IXTD10P60-7B | | 1.05 | 7B | 8.84 x 7.18 | 348 x 283 | 15 mil x 3 | IXTH10P60 |