

## isc N-Channel MOSFET Transistor

## IXTK46N50L

## • FEATURES

- Drain Source Voltage-  
:  $V_{DS} = 500V(\text{Min})$
- Static Drain-Source On-Resistance  
:  $R_{DS(on)} = 160m\Omega (\text{Max})@V_{GS}=10V$
- Fast Switching
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## • APPLICATIONS

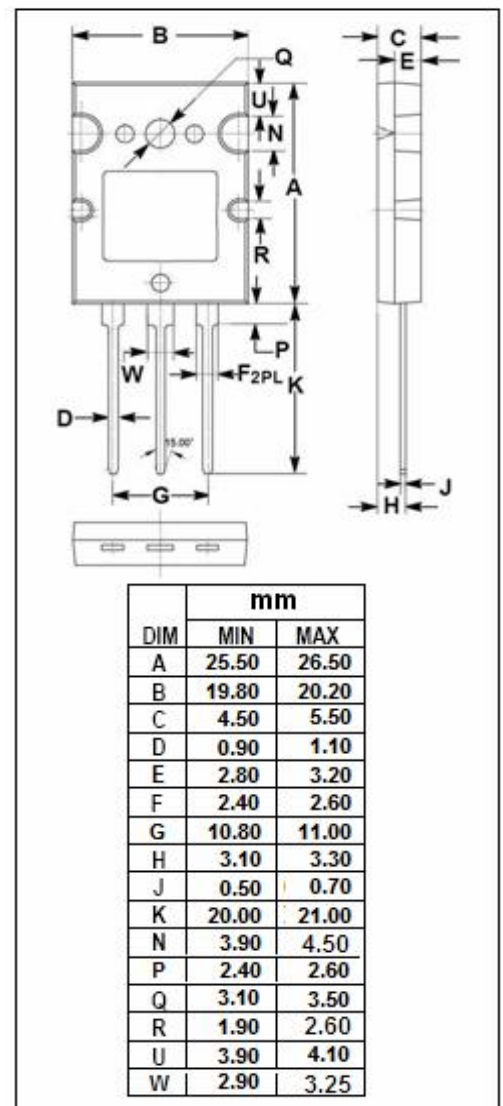
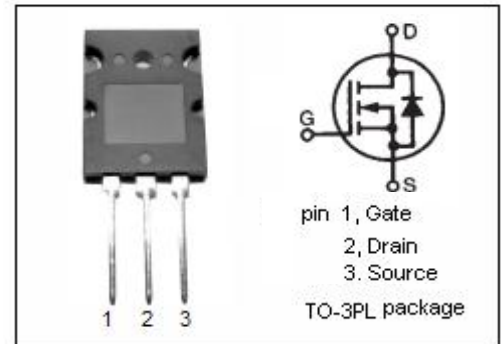
- Switch-Mode and Resonant-Mode Power Supplies
- DC-DC Converters
- AC and DC Motor Drives

• ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                                  | VALUE    | UNIT             |
|-----------|--------------------------------------------|----------|------------------|
| $V_{DS}$  | Drain-Source Voltage                       | 500      | V                |
| $V_{GS}$  | Gate-Source Voltage-Continuous             | $\pm 30$ | V                |
| $I_D$     | Drain Current-Continuous                   | 46       | A                |
| $I_{DM}$  | Drain Current-Single Plused                | 100      | A                |
| $P_D$     | Total Dissipation @ $T_c=25^\circ\text{C}$ | 700      | W                |
| $T_j$     | Max. Operating Junction Temperature        | -55~150  | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature                        | -55~150  | $^\circ\text{C}$ |

## • THERMAL CHARACTERISTICS

| SYMBOL       | PARAMETER                            | MAX  | UNIT               |
|--------------|--------------------------------------|------|--------------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case | 0.18 | $^\circ\text{C/W}$ |



**isc N-Channel MOSFET Transistor****IXTK46N50L****• ELECTRICAL CHARACTERISTICS** $T_c=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                       | CONDITIONS                                                                                | MIN | TYPE | MAX        | UNIT             |
|---------------|---------------------------------|-------------------------------------------------------------------------------------------|-----|------|------------|------------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage  | $V_{GS}=0; I_D=1\text{mA}$                                                                | 500 |      |            | V                |
| $V_{GS(th)}$  | Gate Threshold Voltage          | $V_{DS}=V_{GS}; I_D=3\text{mA}$                                                           | 3   |      | 6          | V                |
| $R_{DS(on)}$  | Drain-Source On-Resistance      | $V_{GS}=10\text{V}; I_D=23\text{A}$                                                       |     |      | 160        | $\text{m}\Omega$ |
| $I_{GSS}$     | Gate-Body Leakage Current       | $V_{GS}=\pm 30\text{V}; V_{DS}=0$                                                         |     |      | $\pm 200$  | nA               |
| $I_{DSS}$     | Zero Gate Voltage Drain Current | $V_{DS}=500\text{V}; V_{GS}=0$<br>$V_{DS}=500\text{V}; V_{GS}=0; T_J=125^{\circ}\text{C}$ |     |      | 50<br>1000 | $\mu\text{A}$    |
| $V_{SD}$      | Diode Forward On-voltage        | $I_F=46\text{A}; V_{GS}=0$                                                                |     |      | 1.5        | V                |

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