

isc N-Channel MOSFET Transistor
IXFH15N100Q3
• FEATURES

- Drain Source Voltage-
: $V_{DSS}=1000V(\text{Min})$
- Static Drain-Source On-Resistance
: $R_{DS(on)}=1.0\ \Omega(\text{Max})$
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

• APPLICATIONS

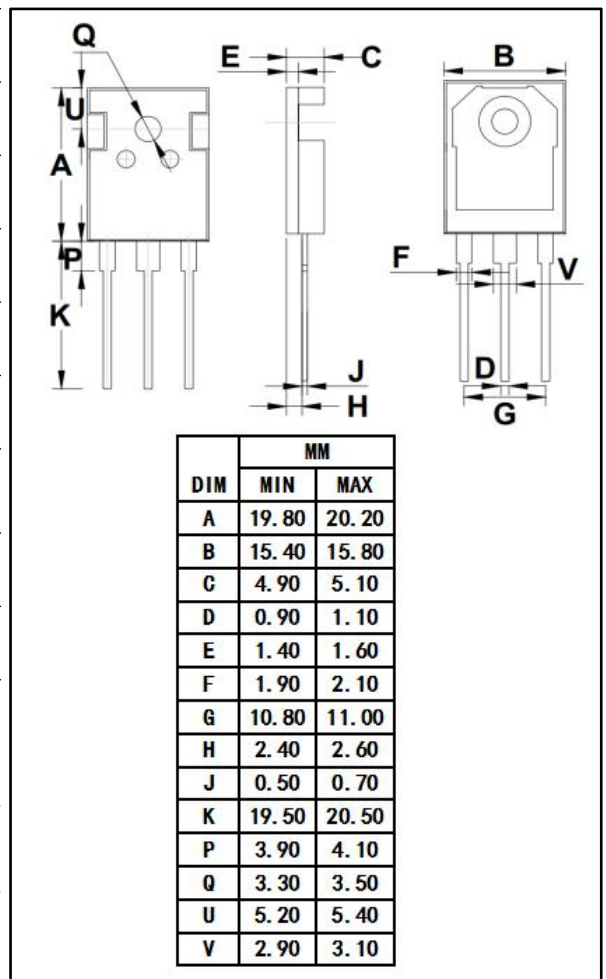
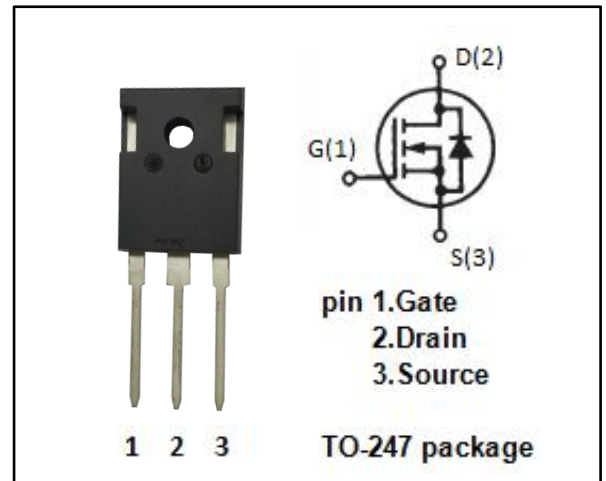
- Switching applications

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--------------------------------|----------|------------------|
| V_{DSS} | Drain-Source Voltage | 1000 | V |
| V_{GSS} | Gate-Source Voltage | ± 30 | V |
| I_D | Drain Current-Continuous | 15 | A |
| I_{DM} | Drain Current-Single Pulsed | 45 | A |
| P_D | Total Dissipation | 690 | W |
| E_{AS} | $T_c=25^\circ\text{C}$ | 1.0 | J |
| T_j | Operating Junction Temperature | -55~150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature | -55~150 | $^\circ\text{C}$ |

• THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|----------------|------------------------------------|------|---------------------------|
| $R_{th(ch-c)}$ | Channel-to-case thermal resistance | 0.19 | $^\circ\text{C}/\text{W}$ |



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ELECTRICAL CHARACTERISTICS

 T_C=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------------|--------------------------------|---|------|-----|------|------|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V; I _D = 1mA | 1000 | - | - | V |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =±30V; I _D =2.5mA | 2.5 | - | 4.5 | V |
| R _{DS(on)} | Drain-Source On-Resistance | V _{GS} = 10V; I _D =7.5A | - | - | 1.0 | Ω |
| I _{GSS} | Gate-Source Leakage Current | V _{GS} = ±30V; V _{DS} = 0V | - | - | ±0.1 | μA |
| I _{DSS} | Drain-Source Leakage Current | V _{DS} = 1000V; V _{GS} =0V; @T _C =25°C | - | - | 25 | μA |

Dynamic Characteristics

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|------------------|------------------------------|---|-----|------|-----|------|
| C _{iss} | Input Capacitance | V _{GS} = 0V, V _{DS} = 25V, f = 1.0MHz | - | 3750 | - | pF |
| C _{oss} | Output Capacitance | | - | 240 | - | |
| C _{rss} | Reverse Transfer Capacitance | | - | 30 | - | |

Resistive Switching Characteristics

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------------|---------------------|--|-----|-----|-----|------|
| Q _g | Total Gate Charge | V _{DD} = 48V, I _D = 60A, V _{GS} = 10V | - | 73 | - | nC |
| Q _{gs} | Gate-Source Charge | | - | 16 | - | |
| Q _{gd} | Gate-Drain Charge | | - | 27 | - | |
| t _{d(on)} | Turn-on Delay Time | V _{DD} = 40V, I _D = 60A, R _G = 25Ω | - | 35 | - | ns |
| t _r | Turn-on Rise Time | | - | 36 | - | |
| t _{d(off)} | Turn-off Delay Time | | - | 44 | - | |
| t _f | Turn-off Fall Time | | - | 35 | - | |

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Drain - Source Body Diode Characteristics

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|----------|---------------------------|--|-----|-----|-----|------|
| I_{SD} | Continuous Source Current | $T_c = 25\text{ }^\circ\text{C}$ | - | - | 15 | A |
| I_{SM} | Pulsed Source Current | | - | - | 45 | |
| V_{SD} | Diode Forward Voltage | $I_{SD} = 15\text{A}; V_{GS} = 0\text{V}$ | - | - | 1.4 | V |
| t_{rr} | Reverse Recovery Time | $I_F = 15\text{A},$ $di_F/dt = 100\text{A}/\mu\text{s}$ | - | 850 | - | ns |
| Q_{rr} | Reverse Recovery Charge | | - | 4.4 | - | uC |

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