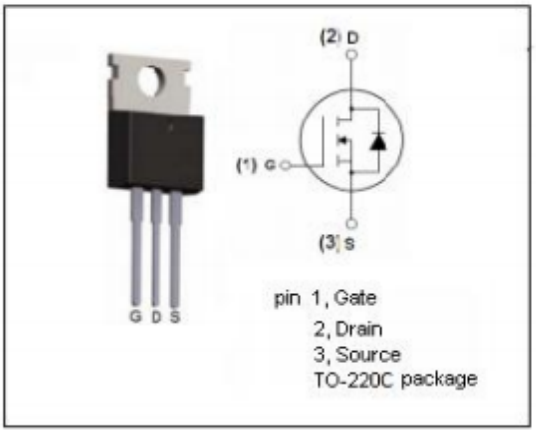
# N-Channel MOSFET Transistor IRF530N

## • FEATURES

- Low $R_{DS(on)}$
- $V_{GS}$ Rated at ±20V
- Silicon Gate for Fast Switching Speed
- Rugged
- Low Drive Requirements




## • DESCRITION

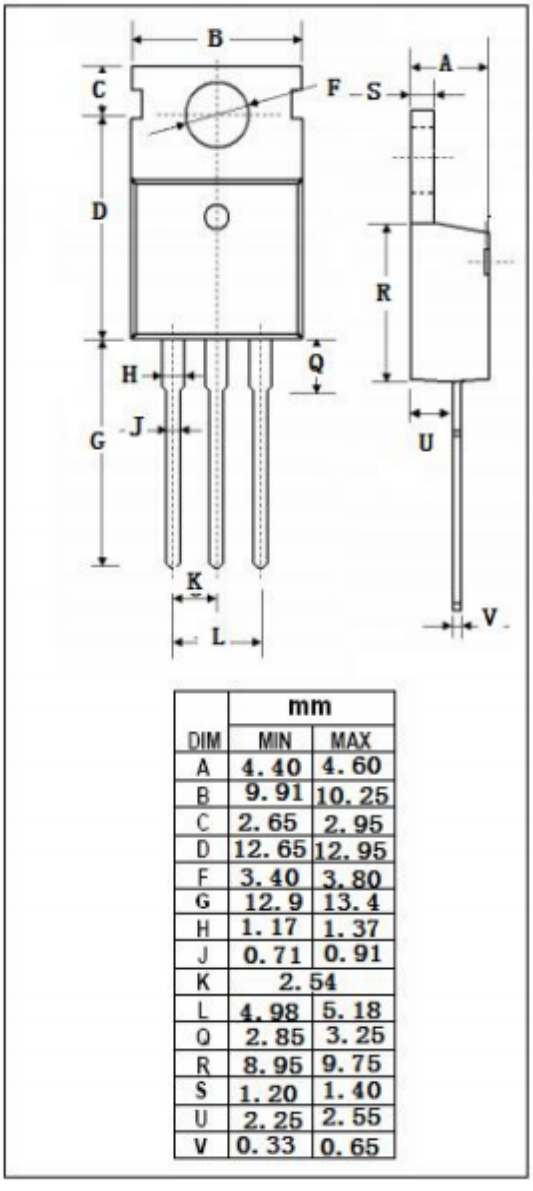
- Designed especially for high voltage,high speed applications, such as off-line switching power supplies , UPS,AC and DC motor controls,relay and solenoid drivers.

## • ABSOLUTE MAXIMUM RATINGS($T_a$=25℃)

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| $V_{DSS}$ | Drain-Source Voltage | 100 | V |
| $V_{GS}$ | Gate-Source Voltage-Continuous | ±20 | V |
| $I_D$ | Drain Current-Continuous | 17 | A |
| $I_{DM}$ | Drain Current-Single Plused | 68 | A |
| $P_D$ | Total Dissipation @$T_C$=25℃ | 79 | W |
| $T_j$ | Max. Operating Junction Temperature | -55~175 | ℃ |
| $T_{stg}$ | Storage Temperature | -55~175 | ℃ |

## • THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 1.9 | ℃/W |
| $R_{th\ j\text{-}a}$ | Thermal Resistance,Junction to Ambient | 60 | ℃/W |




| DIM | mm MIN | MAX |
|---|---|---|
| A | 4.40 | 4.60 |
| B | 9.91 | 10.25 |
| C | 2.65 | 2.95 |
| D | 12.65 | 12.95 |
| F | 3.40 | 3.80 |
| G | 12.9 | 13.4 |
| H | 1.17 | 1.37 |
| J | 0.71 | 0.91 |
| K | 2.54 | |
| L | 4.98 | 5.18 |
| Q | 2.85 | 3.25 |
| R | 8.95 | 9.75 |
| S | 1.20 | 1.40 |
| U | 2.25 | 2.55 |
| V | 0.33 | 0.65 |

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## ELECTRICAL CHARACTERISTICS

**$T_C$=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$= 0; $I_D$= 0.25mA | 100 | | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$= $V_{GS}$; $I_D$= 1.0mA | 2 | | 4 | V |
| $R_{DS(on)}$ | Drain-Source On-Resistance | $V_{GS}$= 10V; $I_D$=9A | | | 0.11 | Ω |
| $I_{GSS}$ | Gate-Body Leakage Current | $V_{GS}$= ±20V;$V_{DS}$= 0 | | | ±100 | nA |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$= 100V; $V_{GS}$=0 | | | 10 | uA |
| $V_{SD}$ | Forward On-Voltage | $I_S$= 17A; $V_{GS}$=0 | | | 1.2 | V |
| Ciss | Input Capacitance | $V_{DS}$=25V,$V_{GS}$=0V, F=1.0MHz | | 633 | | pF |
| Coss | Output Capacitance | | | 103 | | pF |
| Crss | Reverse Transfer Capacitance | | | 61 | | pF |

## • SWITCHING CHARACTERISTICS ($T_C$=25℃)

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Td(on) | Turn-on Delay Time | $V_{DD}$=50V $V_{GS}$=10V $R_{GS}$=2.7Ω $R_{GEN}$=5.6Ω | | 6 | | ns |
| Tr | Rise Time | | | 36 | | ns |
| Td(off) | Turn-off Delay Time | | | 18 | | ns |
| Tf | Fall Time | | | 12 | | ns |