

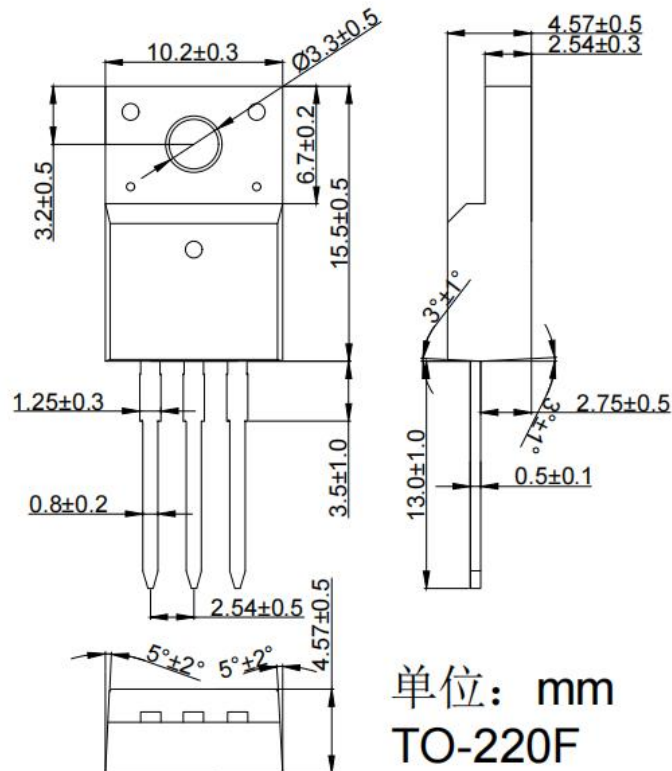
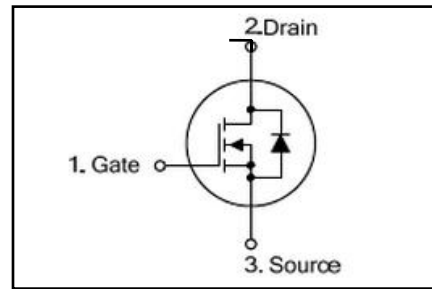
LOW Voltage N-CHANNEL MOSFET

◆ Features:

- ◇ Fast switching speed  
开关速度快
- ◇ Low gate charge  
低门充电
- ◇ High power and current handling capability  
高功率和电流处理能力
- ◇ RoHS compliant  
符合 RoHS 标准

◆ Applications

- ◇ DC to DC converters  
直流到直流转换
- ◇ Synchronous Rectification  
同步整流



**LOW Voltage N-CHANNEL MOSFET**
**◆ Absolute Maximum Ratings (Tc=25°C)**

| Symbol           | Parameters                                       | Ratings    | Unit |
|------------------|--|------------|------|
| V <sub>DSS</sub> | Drain-Source Voltage<br>漏源电压                     | <b>30</b>  | V    |
| V <sub>GS</sub>  | Gate-Source Voltage-Continuous<br>栅源电压           | <b>±20</b> | V    |
| I <sub>D</sub>   | Drain Current-Continuous (Note 2)<br>漏极持续电流      | <b>50</b>  | A    |
| I <sub>DM</sub>  | Drain Current-Single Plused (Note 1)<br>漏极单次脉冲电流 | <b>200</b> | A    |
| P <sub>D</sub>   | Power Dissipation (Note 2)<br>功率损耗               | <b>33</b>  | W    |
| T <sub>j</sub>   | Max.Operating junction temperature<br>最大结温       | <b>150</b> | °C   |

**◆ Electrical characteristics (Tc=25°C unless otherwise noted)**

| Symbol                        | Parameters   | Min        | Typ        | Max         | Units | Conditions   |
|-------------------------------|--|------------|------------|-------------|-------|--|
| <b>Static Characteristics</b> |  |            |            |             |       |  |
| B <sub>VDSS</sub>             | Drain-Source Breakdown<br>Voltage Current (Note 1)<br>漏极击穿电压 | <b>30</b>  | --         | --          | V     | I <sub>D</sub> =250μA, V <sub>GS</sub> =0V               |
| V <sub>GS(th)</sub>           | Gate Threshold Voltage<br>栅极开启电压                             | <b>1.0</b> | --         | <b>2.5</b>  | V     | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA |
| R <sub>DS(on)</sub>           | Drain-Source On-Resistance<br>漏源导通电阻                         | --         | <b>6.0</b> | <b>7.5</b>  | mΩ    | V <sub>GS</sub> =10V, I <sub>D</sub> =20A                |
| I <sub>GSS</sub>              | Gate-Body Leakage Current<br>栅极漏电流                           | --         | --         | <b>±100</b> | nA    | V <sub>GS</sub> =±20V, V <sub>DS</sub> =0                |
| I <sub>DSS</sub>              | Zero Gate Voltage Drain Current<br>零栅极电压漏极电流                 | --         | --         | <b>1</b>    | μA    | V <sub>DS</sub> =30V, V <sub>GS</sub> =0                 |
| g <sub>fs</sub>               | Forward Trans conductance<br>正向跨导                            | --         | <b>34</b>  | --          | S     | V <sub>DS</sub> =5V, I <sub>D</sub> =30A                 |

| Switching Characteristics |  |    |             |             |               |   |
|---------------------------|--|----|-------------|-------------|---------------|---|
| $T_{d(on)}$               | Turn-On Delay Time<br>开启延迟时间   | -- | <b>8.5</b>  | --          | ns            | $V_{GS}=4.5V,$<br>$V_{DS}=25V, I_D=20A,$<br>$R_G=1\Omega$ |
| $T_r$                     | Rise Time<br>上升时间  | -- | <b>28</b>   | --          | ns            |   |
| $T_{d(off)}$              | Turn-Off Delay Time<br>关闭延迟时间  | -- | <b>25</b>   | --          | ns            |   |
| $T_f$                     | Fall Time<br>下降时间  | -- | <b>11</b>   | --          | ns            |   |
| $Q_g$                     | Total Gate Charge<br>栅极总电荷   | -- | <b>20</b>   | --          | nC            | $V_{DS}=20, V_{GS}=4.5V,$<br>$I_D=20A$                    |
| $Q_{gs}$                  | Gate-Source Charge<br>栅源极电荷  | -- | <b>2.5</b>  | --          | nC            |   |
| $Q_{gd}$                  | Gate-Drain Charge<br>栅漏极电荷   | -- | <b>10</b>   | --          | nC            |   |
| Dynamic Characteristics   |  |    |             |             |               |   |
| $C_{iss}$                 | Input Capacitance<br>输入电容  | -- | <b>1700</b> | --          | pF            | $V_{DS}=25V, V_{GS}=0,$<br>$f=1MHz$                       |
| $C_{oss}$                 | Output Capacitance<br>输出电容   | -- | <b>315</b>  | --          | pF            |   |
| $C_{rss}$                 | Reverse Transfer Capacitance<br>反向传输电容                                   | -- | <b>125</b>  | --          | pF            |   |
| $I_S$                     | Continuous Drain-Source Diode<br>Forward Current (Note 2)<br>二极管导通正向持续电流 | -- | --          | <b>50</b>   | A             |   |
| $V_{SD}$                  | Diode Forward On-Voltage<br>二极管正向导通电压                                    | -- | --          | <b>1.2</b>  | V             | $I_S=20A, V_{GS}=0$                                       |
| $R_{th(j-c)}$             | Thermal Resistance, Junction to<br>Case<br>结到外壳的热阻                       | -- | --          | <b>2.08</b> | $^{\circ}C/W$ |   |

Note 1: Repetitive Rating : Pulse width limited by maximum junction temperature

Note 2: Pulse test: PW  $\leq$  300us , duty cycle  $\leq$  2%.