

### ◆ Features:

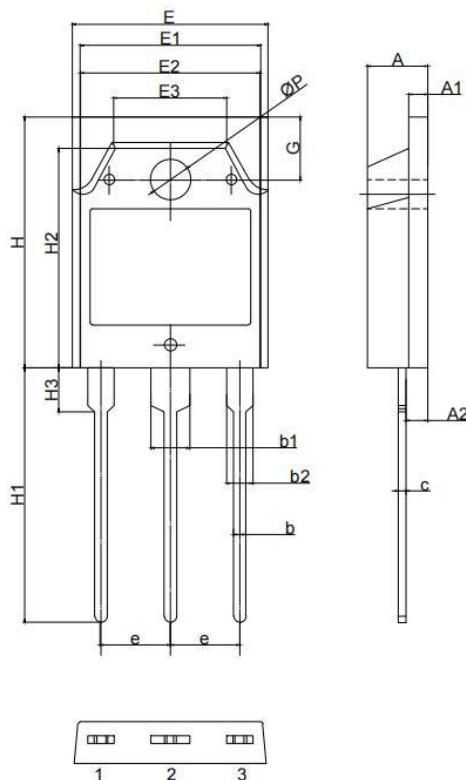
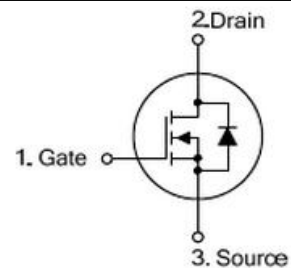
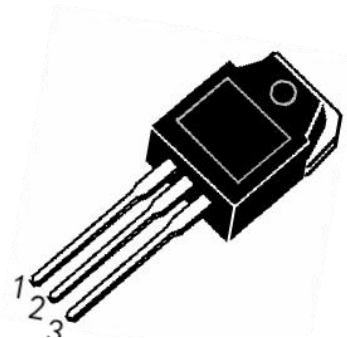
- ✧ Fast switching speed  
开关速度快
- ✧ High input impedance and low level drive  
高输入阻抗和低电平驱动
- ✧ Avalanche energy tested  
雪崩能量测试
- ✧ Improved dv/dt capability, high ruggedness  
提高 dv/dt 能力, 高耐用性

### ◆ Applications

- ✧ High efficiency switch mode power supplies  
高效率开关电源
- ✧ Power factor correction  
功率因数校正
- ✧ Electronic lamp ballast  
电子整流器



### TO-3PNB



| TO-3PNB尺寸表/mm |       |       |       |
|---------------|-------|-------|-------|
| Symbol        | Min   | Nom   | Max   |
| A             | 4.60  | 4.80  | 5.00  |
| A1            | 1.30  | 1.50  | 1.60  |
| A2            | 1.40  | 1.50  | 1.60  |
| b             | 0.80  | 1.00  | 1.20  |
| b1            | 2.90  | 3.10  | 3.30  |
| b2            | 1.90  | 2.10  | 2.30  |
| c             | 0.50  | 0.60  | 0.70  |
| e             | 5.25  | 5.45  | 5.65  |
| E             | 15.20 | 15.60 | 16.00 |
| E1            | 13.20 | 13.40 | 13.60 |
| E2            | 13.10 | 13.50 | 13.50 |
| E3            | 9.10  | 9.30  | 9.50  |
| H             | 19.80 | 20.00 | 20.20 |
| H1            | 20.10 | 20.30 | 20.50 |
| H2            | 18.50 | 18.70 | 18.90 |
| H3            | 3.20  | 3.50  | 3.80  |
| G             | 4.80  | 5.00  | 5.20  |
| ØP            | 3.00  | 3.20  | 3.40  |

### ◆ Absolute Maximum Ratings (Tc=25°C)

| Symbol           | Parameters                                       | Ratings     | Unit |
|------------------|--------------------------------------------------|-------------|------|
| V <sub>DSS</sub> | Drain-Source Voltage<br>漏源电压                     | <b>900</b>  | V    |
| V <sub>GS</sub>  | Gate-Source Voltage-Continuous<br>栅源电压           | <b>±30</b>  | V    |
| I <sub>D</sub>   | Drain Current-Continuous (Note 2)<br>漏极持续电流      | <b>11.4</b> | A    |
| I <sub>DM</sub>  | Drain Current-Single Plused (Note 1)<br>漏极单次脉冲电流 | <b>45.6</b> | A    |
| P <sub>D</sub>   | Power Dissipation (Note 2)<br>功率损耗               | <b>300</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>V</sub> DSS            | Drain-Source Breakdown<br>Voltage Current (Note 1)<br>漏极击穿电压 | <b>900</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>3.0</b> | --          | <b>5.0</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>0.75</b> | <b>0.96</b> | Ω     | V <sub>GS</sub> =10V, I <sub>D</sub> =6.5A               |
| I <sub>GSS</sub>              | Gate-Body Leakage Current<br>栅极漏电流                           | --         | --          | <b>±10</b>  | μA    | V <sub>GS</sub> =±30V, 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> =900V, V <sub>GS</sub> =0                |
| g <sub>fs</sub>               | Forward Trans conductance<br>正向跨导                            | --         | <b>12.5</b> | --          | S     | V <sub>DS</sub> =40V, I <sub>D</sub> =6.5A               |

**FQA11N90-OSEN****900V N-Channel MOSFET**

| Switching Characteristics |                                                                          |    |      |      |      |                                                                                   |
|---------------------------|--------------------------------------------------------------------------|----|------|------|------|-----------------------------------------------------------------------------------|
| T <sub>d (on)</sub>       | Turn-On Delay Time<br>开启延迟时间                                             | -- | 71   | --   | ns   | V <sub>DD</sub> =450V,<br>I <sub>D</sub> =11.4A,<br>R <sub>G</sub> =25Ω           |
| T <sub>r</sub>            | Rise Time<br>上升时间                                                        | -- | 133  | --   | ns   |                                                                                   |
| T <sub>d (off)</sub>      | Turn-Off Delay Time<br>关闭延迟时间                                            | -- | 170  | --   | ns   |                                                                                   |
| T <sub>f</sub>            | Fall Time<br>下降时间                                                        | -- | 94   | --   | ns   |                                                                                   |
| Q <sub>g</sub>            | Total Gate Charge<br>栅极总电荷                                               | -- | 77   | --   | nC   | V <sub>DS</sub> =720V ,<br>V <sub>GS</sub> =10V<br>I <sub>D</sub> =11.4A (Note 2) |
| Q <sub>gs</sub>           | Gate-Source Charge<br>栅源极电荷                                              | -- | 19   | --   | nC   |                                                                                   |
| Q <sub>gd</sub>           | Gate-Drain Charge<br>栅漏极电荷                                               | -- | 42   | --   | nC   |                                                                                   |
| Dynamic Characteristics   |                                                                          |    |      |      |      |                                                                                   |
| C <sub>iss</sub>          | Input Capacitance<br>输入电容                                                | -- | 3600 | --   | pF   | V <sub>DS</sub> =25V, V <sub>GS</sub> =0,<br>f=1MHz                               |
| C <sub>oss</sub>          | Output Capacitance<br>输出电容                                               | -- | 280  | --   | pF   |                                                                                   |
| C <sub>rss</sub>          | Reverse Transfer Capacitance<br>反向传输电容                                   | -- | 38   | --   | pF   |                                                                                   |
| I <sub>S</sub>            | Continuous Drain-Source Diode<br>Forward Current (Note 2)<br>二极管导通正向持续电流 | -- | --   | 11.4 | A    |                                                                                   |
| V <sub>SD</sub>           | Diode Forward On-Voltage<br>二极管正向导通电压                                    | -- | --   | 1.3  | V    | I <sub>S</sub> =11.4A, V <sub>GS</sub> =0                                         |
| R <sub>th(j-c)</sub>      | Thermal Resistance, Junction to<br>Case<br>结到外壳的热阻                       | -- | --   | 0.25 | °C/W |                                                                                   |

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

Note 2: Pulse test: PW ≤ 300us , duty cycle ≤ 2%.