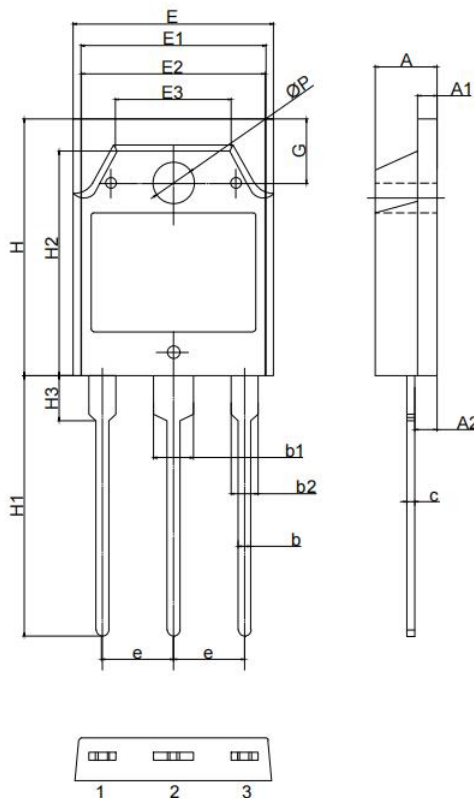
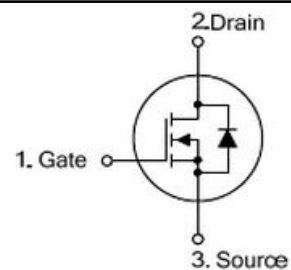
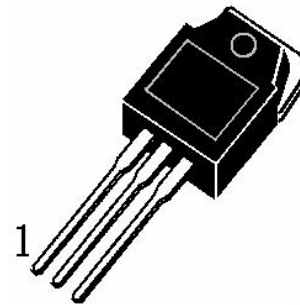


### ◆ Features:

- ✧ 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-3PN**


| 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  |

**FQA70N10****100V 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>100</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>70</b>  | A    |
| I <sub>DM</sub>  | Drain Current-Single Plused (Note 1)<br>漏极单次脉冲电流 | <b>280</b> | A    |
| P <sub>D</sub>   | Power Dissipation (Note 2)<br>功率损耗               | <b>214</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)

| Symbo<br>l                       | Parameters                                                  | Min        | Typ       | Max         | Units | Conditions                                                          |
|----------------------------------|-------------------------------------------------------------|------------|-----------|-------------|-------|---------------------------------------------------------------------|
| <b>Static Characteristics</b>    |                                                             |            |           |             |       |                                                                     |
| B <sub>VDSS</sub>                | Drain-Source Breakdown<br>VoltageCurrent (Note 1)<br>漏极击穿电压 | <b>100</b> | --        | --          | V     | I <sub>D</sub> =250uA, V <sub>GS</sub> =0V,<br>T <sub>J</sub> =25°C |
| V <sub>GS(th)</sub>              | Gate Threshold Voltage<br>栅极开启电压                            | <b>2</b>   | --        | <b>4</b>    | V     | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA            |
| R <sub>DS(on)</sub>              | Drain-Source On-Resistance<br>漏源导通电阻                        | --         | <b>19</b> | --          | mΩ    | V <sub>GS</sub> =10V, I <sub>D</sub> =35A                           |
| I <sub>GSS</sub>                 | Gate-Body Leakage Current<br>栅极漏电流                          | --         | --        | <b>±100</b> | nA    | V <sub>GS</sub> =±25V, 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> =100V, V <sub>GS</sub> =0                           |
| g <sub>fs</sub>                  | Forward Transconductance<br>正向跨导                            | --         | <b>48</b> | --          | S     | V <sub>DS</sub> =40V, I <sub>D</sub> =35A                           |
| <b>Switching Characteristics</b> |                                                             |            |           |             |       |                                                                     |

**FQA70N10****100V N-CHANNEL MOSFET**

|                         |                                                                          |    |      |      |      |                                                                                |
|-------------------------|--------------------------------------------------------------------------|----|------|------|------|--------------------------------------------------------------------------------|
| T <sub>d (on)</sub>     | Turn-On Delay Time<br>开启延迟时间                                             | -- | 30   | --   | ns   | V <sub>DS</sub> =50V,<br>I <sub>D</sub> =70A,<br>R <sub>G</sub> =25Ω (Note 2)  |
| T <sub>r</sub>          | Rise Time<br>上升时间                                                        | -- | 470  | --   | ns   |                                                                                |
| T <sub>d (off)</sub>    | Turn-Off Delay Time<br>关闭延迟时间                                            | -- | 4131 | --   | ns   |                                                                                |
| T <sub>f</sub>          | Fall Time<br>下降时间                                                        | -- | 160  | --   | ns   |                                                                                |
| Q <sub>g</sub>          | Total Gate Charge<br>栅极总电荷                                               | -- | 84   | --   | nC   | V <sub>DS</sub> =80V,<br>V <sub>GS</sub> =10V,<br>I <sub>D</sub> =70A (Note 2) |
| Q <sub>gs</sub>         | Gate-Source Charge<br>栅源极电荷                                              | -- | 15   | --   | nC   |                                                                                |
| Q <sub>gd</sub>         | Gate-Drain Charge<br>栅漏极电荷                                               | -- | 43   | --   | nC   |                                                                                |
| Dynamic Characteristics |                                                                          |    |      |      |      |                                                                                |
| C <sub>iss</sub>        | Input Capacitance<br>输入电容                                                | -- | 2500 | --   | 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                                               | -- | 722  | --   | pF   |                                                                                |
| C <sub>rss</sub>        | Reverse Transfer Capacitance<br>反向传输电容                                   | -- | 148  | --   | 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 | -- | --   | 70   | A    |                                                                                |
| V <sub>SD</sub>         | Diode Forward On-Voltage<br>二极管正向导通电压                                    | -- | --   | 1.5  | V    | I <sub>S</sub> =70A, V <sub>GS</sub> =0                                        |
| R <sub>th(j-c)</sub>    | Thermal Resistance, Junction to Case<br>结到外壳的热阻                          | -- | --   | 0.58 | °C/W |                                                                                |

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

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