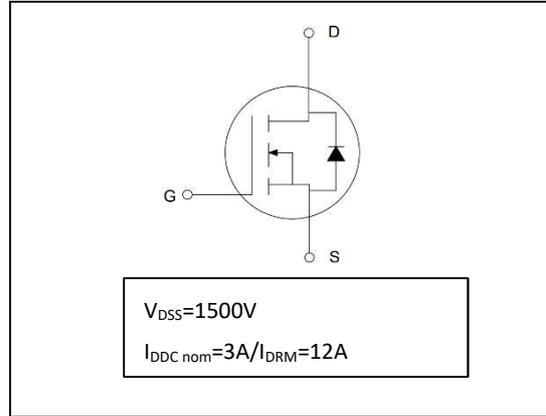
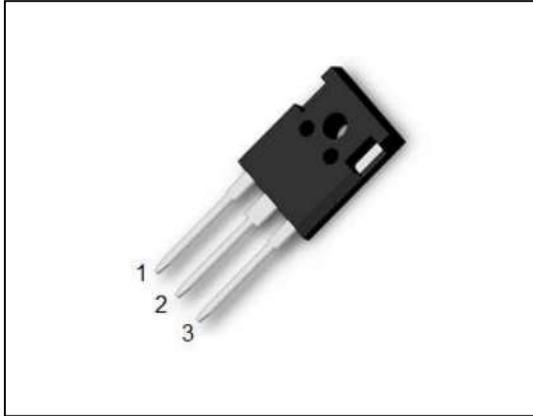


### 1500V 3A N-Channel MOS Discrete

### 1500V 3A MOSFET N-沟道 MOS 单管



#### Features:

- Fast Switching
- Low ON Resistance
- Low Gate Charge Minimize Switching loss
- Fast Recovery Body Diode

#### 产品特性:

- 开关速度快
- 低 $R_{DS(ON)}$
- 低门级电荷最小化开关损耗
- 快恢复体二极管

#### Typical Applications:

- Adaptor
- Charger
- SMPS Standby Power

#### 典型应用:

- 适配器
- 充电器
- 开关电源

### MOSFET

#### Maximum Rated Values / 最大额定值

| Item                                     | Symbol   | Conditions   | Value    | Units |
|--|----------|--|----------|-------|
| 漏极-源极电压<br>Drain-source voltage          | $V_{DS}$ | $T_{vj}=25^{\circ}\text{C}$                          | 1500     | V     |
| 漏极电流<br>Drain Current                    | $I_D$    |  | 3        | A     |
| 脉冲漏极电流<br>Pulsed drain current           | $I_{DM}$ | Limited by $T_{vjmax}$ . Maximum duty cycle $D=0.75$ | 12       | A     |
| 功率损耗<br>Power dissipation                | $P_D$    | $T_{vj}=25^{\circ}\text{C}$                          | 125      | W     |
| 栅极峰值电压<br>Maximum gate-source voltage    | $V_{GS}$ |  | $\pm 30$ | V     |
| 单脉冲雪崩耐量<br>Single Pulse Avalanche Energy | $E_{AS}$ | Pulse width $t_p$ limited by $T_{j,max}$             | 130      | mJ    |

#### Characteristic Values / 特征值

| Item  | Symbol                        | Cond | Conditions   | Min. | Typ.           | Max. | Units              |
|---|-------------------------------|------|--|------|----------------|------|--------------------|
| 漏极-源极击穿电压<br>Drain-Source Breakdown Voltage         | $BV_{DSS}$                    |      | $V_{GS}=0V, I_D=250\mu A, T_{vj}=25^{\circ}\text{C}$       | 1500 |                |      |                    |
| 漏极-源极通态电阻<br>Drain-source on resistance             | $R_{DS(on)}$                  |      | $I_D=1.5A, V_{GS}=10V, T_{vj}=25^{\circ}\text{C}$          |      | 5.5            | 8.2  | m $\Omega$         |
| 栅极阈值电压<br>Gate threshold voltage                    | $V_{GS(th)}$                  |      | $I_C=0.25mA, V_{DS}=V_{GS}, T_{vj}=25^{\circ}\text{C}$     | 2.5  |                | 4.5  | V                  |
| 跨导<br>Transconductance                              | $g_{fs}$                      |      | $V_{DS} = 20 V, I_{DS} = 1.5A, T_{vj}=25^{\circ}\text{C}$  |      | 5              |      | S                  |
| 栅极电荷<br>Gate charge                                 | $Q_G$<br>$Q_{GS}$<br>$Q_{GD}$ |      | $V_{GS}=20V, I_D=1.5A, V_{DS}=750V$                        |      | 62<br>23<br>19 |      | nC                 |
| 输入电容<br>Input capacitance                           | $C_{iss}$                     |      | $f=1MHz, T_{vj}=25^{\circ}\text{C}, V_{DS}=25V, V_{GS}=0V$ |      | 1740           |      | pF                 |
| 输出电容<br>Output capacitance                          | $C_{oss}$                     |      | $f=1MHz, T_{vj}=25^{\circ}\text{C}, V_{DS}=25V, V_{GS}=0V$ |      | 102            |      | pF                 |
| 反向传输电容<br>Reverse transfer capacitance              | $C_{rss}$                     |      | $f=1MHz, T_{vj}=25^{\circ}\text{C}, V_{DS}=25V, V_{GS}=0V$ |      | 13             |      | pF                 |
| 漏极电流<br>Drain current                               | $I_{DSS}$                     |      | $V_{DS}=1500V, V_{GS}=0V, T_{vj}=25^{\circ}\text{C}$       |      |                | 10   | $\mu A$            |
| 栅极-源极漏电流<br>Gate-source leakage current             | $I_{GSS}$                     |      | $V_{DS}=0V, V_{GS}=\pm 30V, T_{vj}=25^{\circ}\text{C}$     | -100 |                | 100  | nA                 |
| 开通延迟时间(电感负载)<br>Turn-on delay time, inductive load  | $t_{d(on)}$                   |      |  |      | 33             |      | ns                 |
| 上升时间(电感负载)<br>Rise time, inductive load             | $t_r$                         |      |  |      | 16             |      | ns                 |
| 关断延迟时间(电感负载)<br>Turn-off delay time, inductive load | $t_{d(off)}$                  |      | $I_D=3A,$<br>$V_{DD}=750V$                                 |      | 58             |      | ns                 |
| 下降时间(电感负载)<br>Fall time, inductive load             | $t_f$                         |      | $V_{GS}=10V,$<br>$R_G=5\Omega,$                            |      | 28             |      | ns                 |
| 结-外壳热阻<br>Thermal resistance, junction to case      | $R_{thJC}$                    |      | $T_{vj}=25^{\circ}\text{C}$                                |      | 1              |      | K/W                |
| 结-环境热阻<br>Thermal resistance, junction to ambient   | $R_{thJA}$                    |      |  |      | 40             |      | K/W                |
| 工作温度<br>Temperature under switching conditions      | $T_{vjop}$                    |      |  | -40  |                | 150  | $^{\circ}\text{C}$ |

### Body diode /体二极管

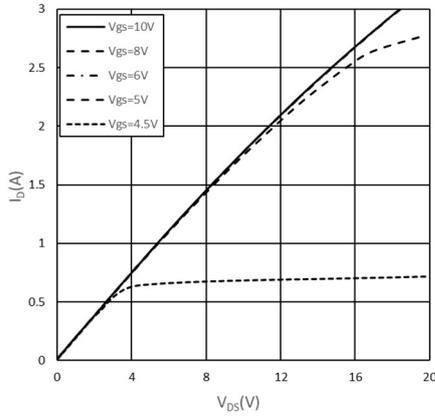
#### Maximum Rated Values /最大额定值

| Item   | Symbol    | Conditions   | Min. | Typ. | Max. | Units |
|--|-----------|--|------|------|------|-------|
| 连续反向漏极电流<br>Continuous reverse drain current | $I_{SDC}$ | $V_{GS} = 0\text{ V}, T_C = 25^\circ\text{C}$                                |      |      | 3    | A     |
| 正向重复峰值电流<br>Peak repetitive forward current  | $I_{SM}$  | $V_{GS} = 0\text{ V}, \text{Pulse width } t_p \text{ limited by } T_{vjmax}$ |      |      | 12   | A     |

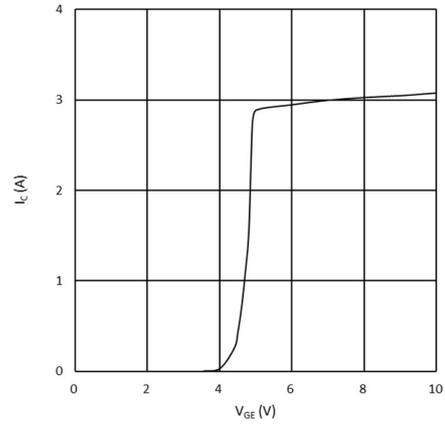
#### Characteristic Values / 特征值

| Item   | Symbol     | Conditions   | Min. | Typ. | Max. | Units            |
|--|------------|--|------|------|------|------------------|
| 正向电压<br>Forward voltage                        | $V_{SD}$   | $I_{SD}=3\text{ A}, V_{GS}=0\text{ V}$<br>$T_{vj}=25^\circ\text{C}$                                    |      |      | 1.5  | V                |
| 反向恢复时间<br>Reverse Recovery Time                | $T_{rr}$   | $I_{SD}=3\text{ A}$<br>$dI_F/dt=100\text{ A}/\mu\text{s}, V_{GS}=0\text{ V}$<br>$T_j=25^\circ\text{C}$ |      | 225  |      | ns               |
| 反向恢复电荷<br>Reverse Recovery Charge              | $Q_{rr}$   |  |      | 1.1  |      | $\mu\text{C}$    |
| 工作温度<br>Temperature under switching conditions | $T_{vjop}$ |  | -40  |      | 150  | $^\circ\text{C}$ |

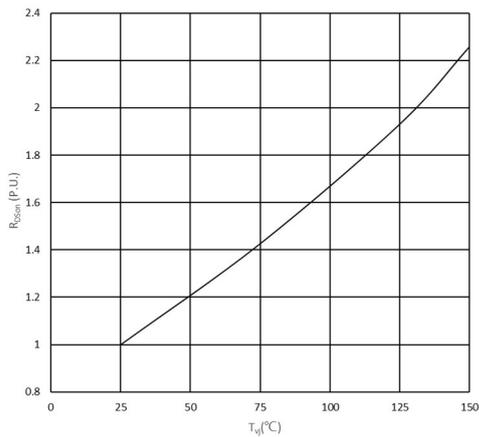
输出特性 MOSFET  
Output characteristic MOSFET  
 $I_{DS}=f(V_{DS}), T_{vj}=25^{\circ}\text{C}$



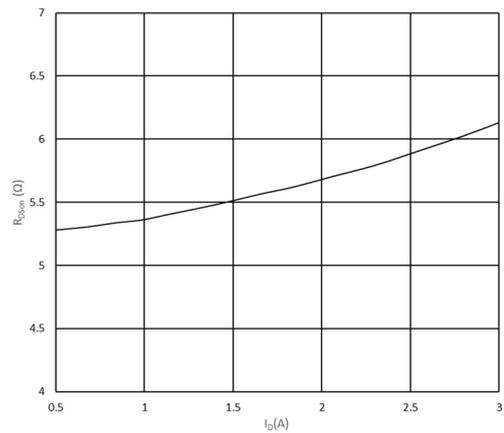
传输特性 MOSFET  
Transfer characteristic MOSFET  
 $I_{DS}=f(V_{GS}), V_{DS}=20\text{V}, T_{vj}=25^{\circ}\text{C}$



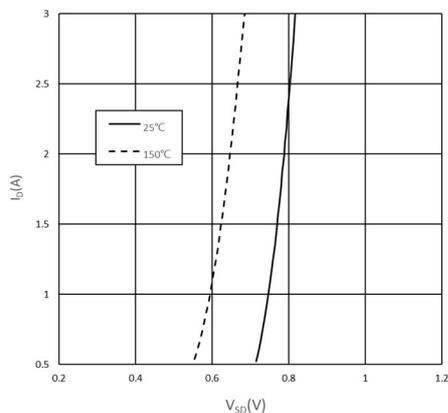
归一化漏源通态电阻  
Normalized Drain-source on resistance  
 $R_{DSon}(P.U.)=f(T_{vj})$   
 $I_{DS}=1.3\text{A}, V_{GS}=10\text{V}$



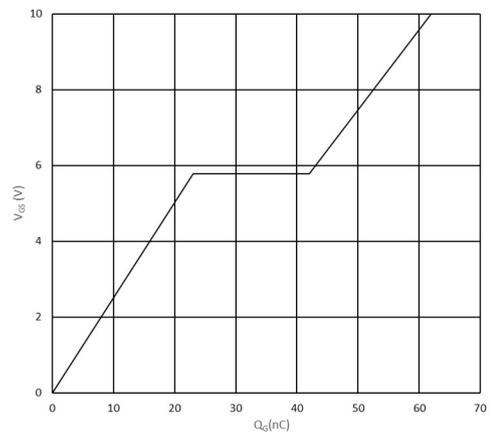
漏源通态电阻  
Normalized Drain-source on resistance  
 $R_{DSon}=f(I_{DS}), T_{vj}=25^{\circ}\text{C}$   
 $V_{GS}=10\text{V}$

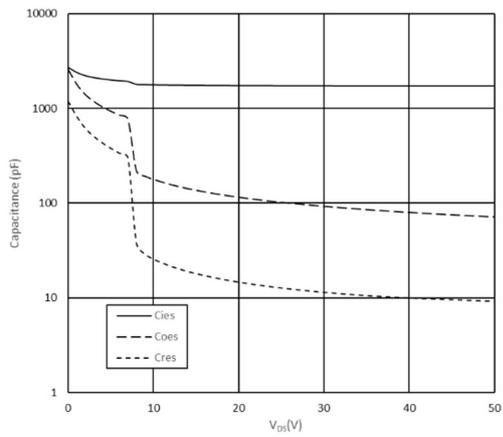
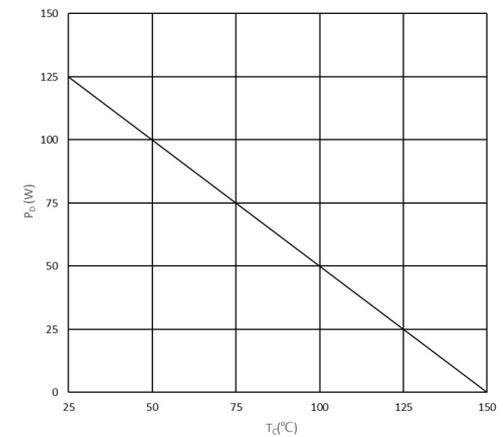
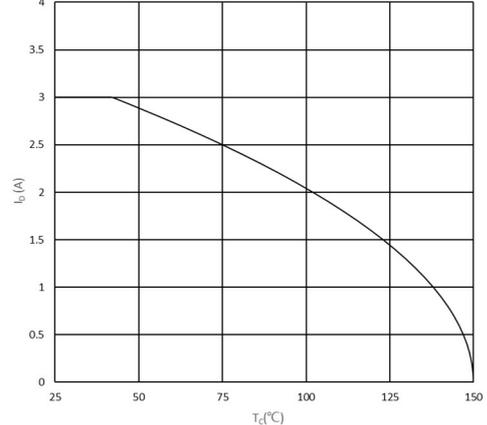
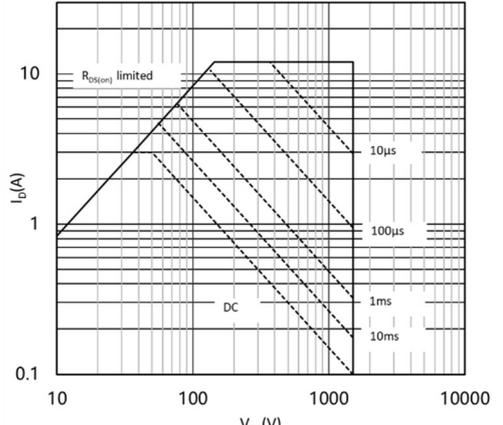
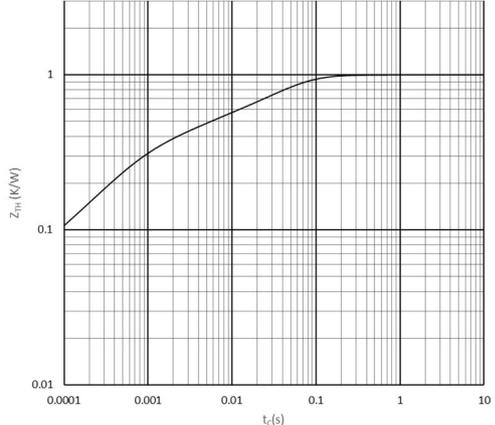


正向偏压特性, 二极管  
Forward characteristic of Diode  
 $I_{DS}=f(V_{DS})$

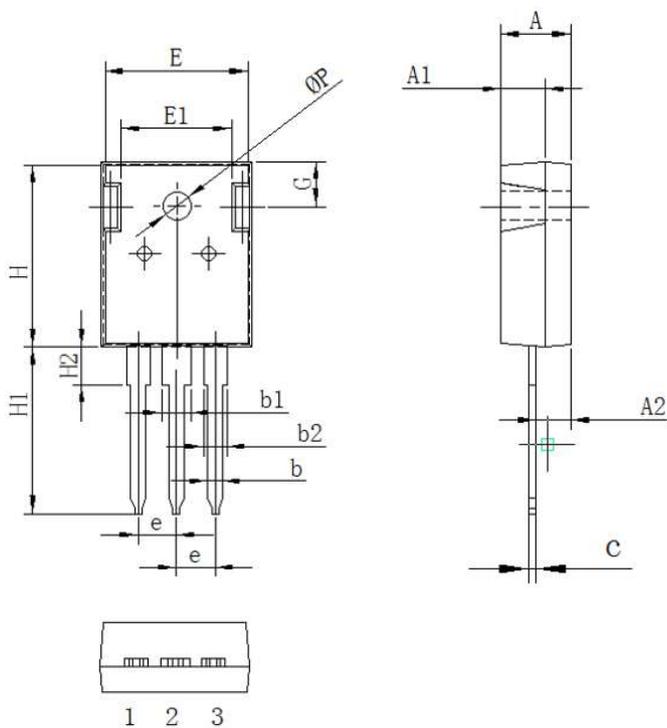


栅极电荷特性 MOSFET  
Gate charge characteristic MOSFET  
 $V_{GS}=f(Q_g)$   
 $V_{DS}=750\text{V}, I_{DS}=3\text{A}, T_{vj}=25^{\circ}\text{C}$



|   |  |
|---|--|
| <p>电容特性 MOSFET<br/>Capacity characteristic MOSFET<br/><math>C=f(V_{DS})</math><br/><math>V_{GS}=0V, T_{vj}=25^{\circ}C, f=1MHz</math></p>   | <p>耗散功率<br/>Maximum Power Dissipation<br/><math>P_D=f(T_c)</math></p>  |
|  <p>The graph shows capacitance in pF on a logarithmic y-axis (1 to 10000) versus drain-source voltage <math>V_{DS}</math> in V on a linear x-axis (0 to 50). Three curves are shown: <math>C_{ies}</math> (solid line), <math>C_{oes}</math> (dashed line), and <math>C_{res}</math> (dotted line). <math>C_{ies}</math> starts at ~2000 pF and drops to ~100 pF. <math>C_{oes}</math> starts at ~1000 pF and drops to ~10 pF. <math>C_{res}</math> starts at ~1000 pF and drops to ~10 pF.</p> |  <p>The graph shows power dissipation <math>P_D</math> in W on a linear y-axis (0 to 150) versus case temperature <math>T_c</math> in <math>^{\circ}C</math> on a linear x-axis (25 to 150). The curve is a straight line starting at (25, 125) and ending at (150, 0).</p>  |
| <p>连续漏极电流<br/>Maximum Drain Current<br/><math>I_D=f(T_c)</math></p>   | <p>正向安全工作区<br/>Forward Biased Safe Operating Area(FBSOA)</p>   |
|  <p>The graph shows maximum drain current <math>I_D</math> in A on a linear y-axis (0 to 4) versus case temperature <math>T_c</math> in <math>^{\circ}C</math> on a linear x-axis (25 to 150). The curve starts at (25, 3) and decreases to (150, 0).</p>   |  <p>The graph shows the Forward Biased Safe Operating Area (FBSOA) with drain current <math>I_D</math> in A on a logarithmic y-axis (0.1 to 10) and drain-source voltage <math>V_{DS}</math> in V on a logarithmic x-axis (10 to 10000). Curves are shown for pulse widths of 10 <math>\mu s</math>, 100 <math>\mu s</math>, 1 ms, and 10 ms. A horizontal line at <math>I_D \approx 10</math> A is labeled <math>R_{DS(on)}</math> limited. A horizontal line at <math>I_D \approx 0.5</math> A is labeled DC.</p> |
| <p>瞬态热阻抗 MOSFET<br/>Transient thermal impedance MOSFET<br/><math>Z_{thJC}=f(t)</math></p>   |  |
|  <p>The graph shows transient thermal impedance <math>Z_{thJC}</math> in K/W on a logarithmic y-axis (0.01 to 1) versus time <math>t_c</math> in s on a logarithmic x-axis (0.0001 to 10). The curve starts at (0.0001, 0.1) and rises to (1, 1).</p>  |  |

### Package outlines / 封装尺寸



| Symbol   | 单位 mm |      |      |
|----------|-------|------|------|
|          | Min   | Nom  | Max  |
| A        | 4.8   | 5.00 | 5.20 |
| A1       | 3.3   | 3.5  | 3.7  |
| A2       | 2.20  | 2.40 | 2.60 |
| b        | 1.00  | 1.2  | 1.40 |
| 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        | 15.2  | 15.7 | 16.2 |
| E1       | 10.2  | 10.7 | 11.2 |
| H        | 20.8  | 21   | 21.2 |
| H1       | 19.5  | 20.0 | 20.5 |
| H2       | 4.00  | 4.20 | 4.40 |
| G        | 5.60  | 5.80 | 600  |
| $\Phi P$ | 3.50  | 3.70 | 3.90 |