

- 特点: ■低栅极电荷 ■低Crss ■开关速度快 ■符合ROHS规范
- FEATURES: ■LOW GATE CHARGE ■LOW Crss ■FAST SWITCHING ■ROHS COMPLIANT
- 应用 ■高频开关电源 ■电子镇流器等开关电路
- APPLICATION: ■High efficiency switch mode power supplies ■Electronic ballast ECT.
- 绝对最大额定值 (TC=25℃)

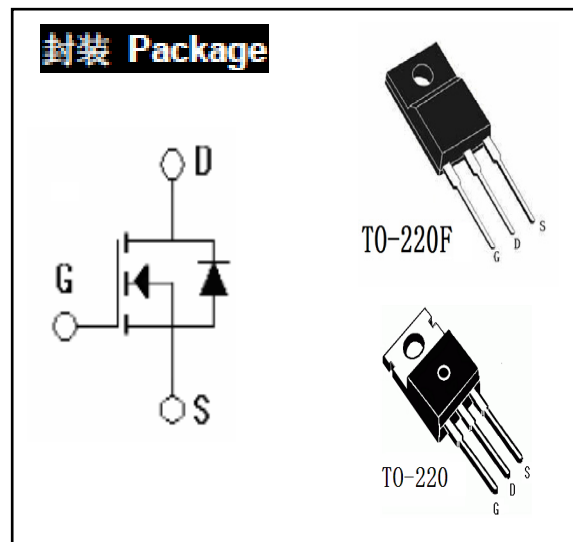
●Absolute Maximum Ratings (Tc=25℃)

| 参数名称<br>PARAMETER                  | 符号<br>SYMBOL | 额定值<br>VALUE | 单位<br>UNIT |
|------------------------------------|--------------|--------------|------------|
| 漏极-源极电压<br>Drain-Source Voltage    | VDSS         | 600          | V          |
| 连续漏极电流<br>Drain Current-continuous | ID           | 12           | A          |
| 最大脉冲漏极电流<br>Drain Current-pulse    | IDM          | 48           | A          |
| 最高栅源电压<br>Gate-Source Voltage      | VGSS         | ±30          | V          |
| 耗散功率<br>Power Dissipation          | PD           | 51           | W          |
| 最高结温<br>Junction Temperature       | Tj           | 150          | ℃          |
| 贮存温度<br>Storage Temperature        | TsTg         | -55-150      | ℃          |

电特性 (TC=25℃)

Electronic Characteristics(Tc=25℃)

| 参数名称<br>CHARACTERISTICS                       | 符号<br>SYMBOL | 测试条件<br>TEST CONDITION        | 最小值<br>MIN | 典型值<br>Typ | 最大值<br>MAX | 单位<br>UNIT |
|-----------------------------------------------|--------------|-------------------------------|------------|------------|------------|------------|
| 漏极-源极击穿电压<br>Drain-Source Voltage             | BVDSS        | ID=250uA;VGS=0V               | 600        |            |            | V          |
| 零栅压下漏极漏电流<br>Zero Gate Voltage Drain Current  | IDSS         | VDS=600V,VGS=0V<br>(TC=25℃)   |            |            | 1.0        | uA         |
| 正向栅极体漏电流<br>Gate-body leakage current.forward | IGSSF        | VDS=0V,VGS=30V                |            |            | 100        | nA         |
| 反向栅极体漏电流<br>Gate-body leakage current.reverse | IGSSR        | VDS=0V,VGS=-30V               |            |            | -100       | nA         |
| 阈值电压<br>Gate Threshold Voltage                | VGS(th)      | VDS=VGS,ID=250uA              | 3.0        |            | 5.0        | V          |
| 静态导通电阻<br>Static Drain-Source On-Resistance   | RDS(ON)      | VGS=10V,ID=6 A                |            | 0.56       | 0.65       | Ω          |
| 正向跨导<br>Forward Transconductance              | Gfs          | VDS=40V,ID=6 A                |            | 13         |            | S          |
| 输入电容<br>Input capacitance                     | Ciss         | VDS=25V<br>VGS=0V<br>f=1.0MHZ |            | 1790       | 2401       | pF         |
| 输出电容<br>Output capacitance                    | Coss         |                               |            | 175        | 229        | pF         |
| 反向传输电容<br>Reverse transfer capacitance        | Crss         |                               |            | 23         | 31         | pF         |



电特性

Electronic Characteristics

|                                                          |       |       |      |
|----------------------------------------------------------|-------|-------|------|
| 单脉冲雪崩能量（注2）<br>Single Pulsed Avalanche Energy            | EAS   | 800.0 | MJ   |
| 雪崩电流（注1）<br>Avalanche Current（注 1）                       | IAR   | 12    | A    |
| 重复雪崩能量（注1）<br>Repetitive Avalanche Current (note1)       | EAR   | 25    | MJ   |
| 二极管反向恢复最大电压变化速率（注3）<br>Peak Diode Recovery dv/dt(note 3) | dv/dt | 4.5   | v/ns |

开关特征 Swiching Characteristics

|                          |         |                                     |   |     |     |    |
|--------------------------|---------|-------------------------------------|---|-----|-----|----|
| 延迟时间 Turn-On delay time  | td(on)  | VDD=300V, ID=12A, RG=25 Ω<br>(注4,5) | - | 78  | 102 | ns |
| 上升时间 Turn-On rise time   | tf      |                                     | - | 133 | 175 | ns |
| 延迟时间 Turn-Off delay time | td(off) |                                     | - | 233 | 305 | ns |
| 下降时间 Turn-Off rise time  | tf      |                                     | - | 104 | 160 | ns |
| 栅极电荷总量 Total Gate Charge | Qg      | VDS=480V, ID=12A, VGS=10V<br>(注4,5) | - | 39  | 52  | nc |
| 栅-源电荷 Gate-Source charge | Qgs     |                                     | - | 8.5 | -   | nc |
| 栅-漏电荷 Gate-Drain charge  | Qgd     |                                     | - | 20  | -   | nc |

漏-源二极管特征及最大额定值 Drain-Source Diode Characteristics and Maximum Ratings

|                                                                   |      |                                             |   |      |      |     |
|-------------------------------------------------------------------|------|---------------------------------------------|---|------|------|-----|
| 正向最大连续电流<br>Maximum continuous Drain-Source Diode Forward Current | IS   |                                             | - | -    | 12   | A   |
| 正向最大脉冲电流<br>Maximum Pulsed Drain-Source Diode Forward Current     | ISM  |                                             | - | -    | 48   | A   |
| 正向压降<br>Drain-Source Diode Forward Voltage                        | VSDF | VGS=0V, IS=12.0A                            | - | -    | 1.39 | V   |
| 反向恢复时间<br>Reverse recovery time                                   | Trr  | VGS=0V, IS=12.0A<br>diF/dt=100A/us (note 4) | - | 418  | -    | ns  |
| 反向恢复电荷<br>Reverse recovery charge                                 | Qrr  |                                             | - | 4.85 | -    | μ C |

热特征 Thermal Characteristic

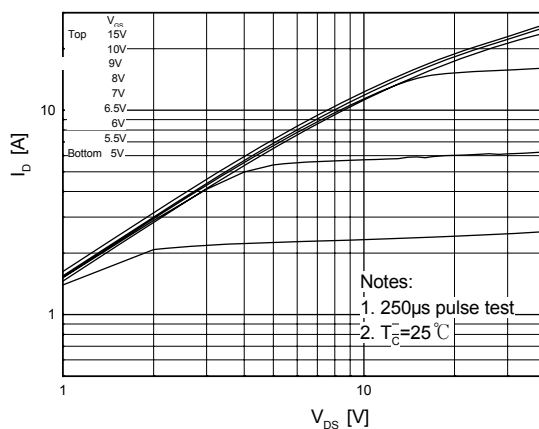
| 项目 Parameter                                      | 符号 Symbol | 最大 (Max)    |           | 单位 (Unit) |
|---------------------------------------------------|-----------|-------------|-----------|-----------|
|                                                   |           | T0-220( 铁封) | T0-220F塑封 |           |
| 结到管壳的热阻<br>Thermal Resistance,Junction to case    | Rth(j-c)  | 0.5         | 2.45      | ℃ /W      |
| 结到环境的热阻<br>Thermal Resistance,Junction to Ambient | Rth(j-a)  | 62.5        | 62.5      | ℃ /W      |

注释：

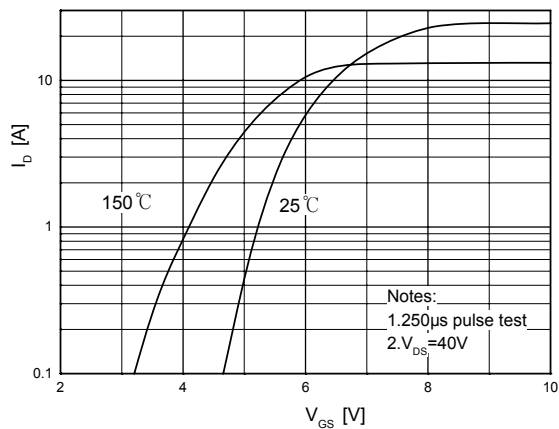
- 1、脉冲宽度由最高结温限制
- 2、L=14.5mH, IAS=12.0, VDD=50V, RG=25 Ω， 起始结温TJ=25℃
- 3、ISO《12.0A, di/dt《300A/us, VDD《BVDSS,起始结温Tj=25℃
- 4、脉冲测试：脉冲宽度《300us, 占空比《2%
- 5、基本与工作温度无关

## 特征曲线 ELECTRICAL CHARACTERISTICS (curves)

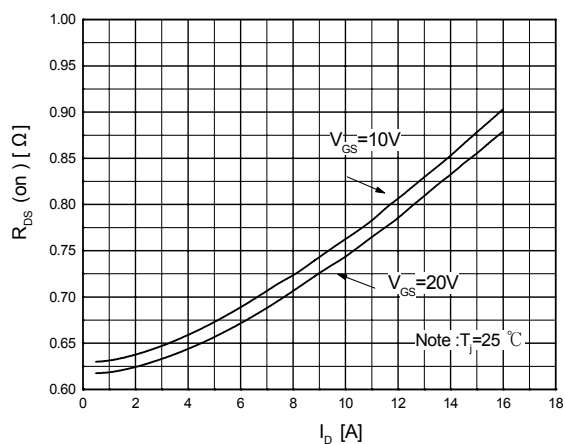
### On-Region Characteristics



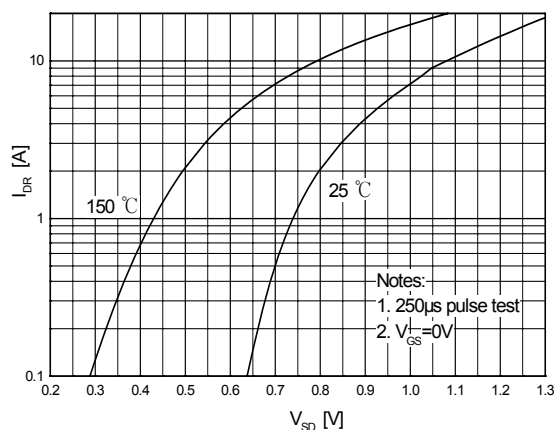
### Transfer Characteristics



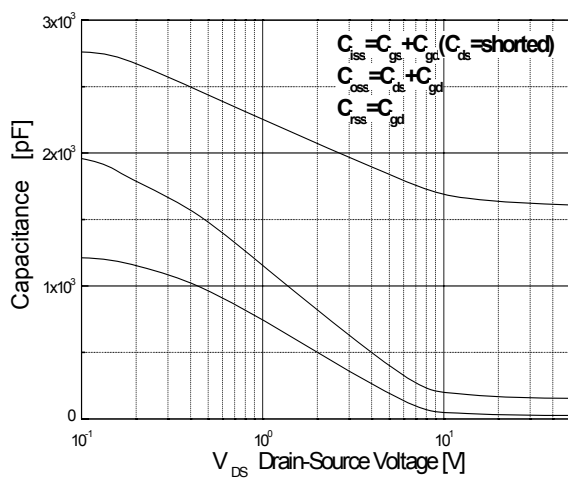
### On-Resistance Variation vs. Drain Current and Gate Voltage



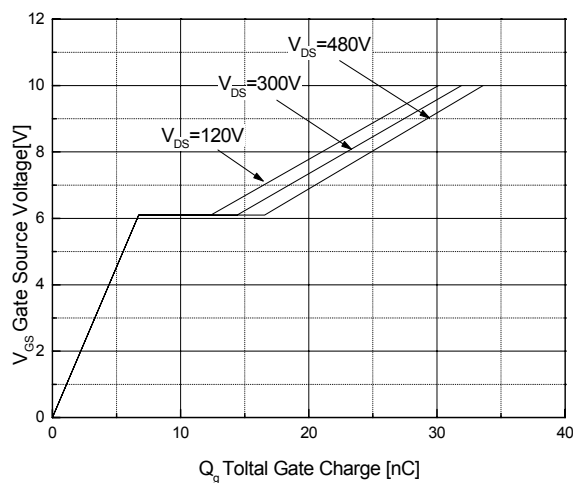
### Body Diode Forward Voltage Variation vs. Source Current and Temperature



### Capacitance Characteristics

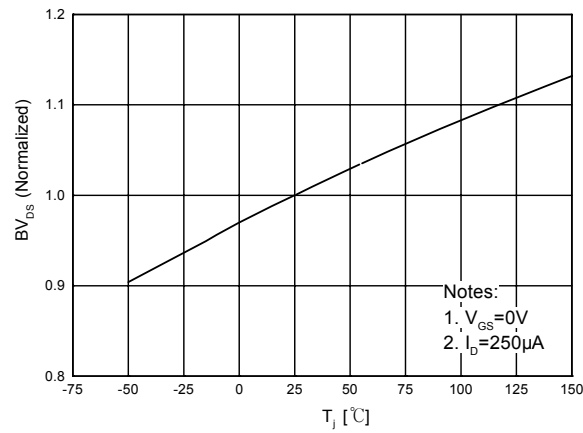


### Gate Charge Characteristics

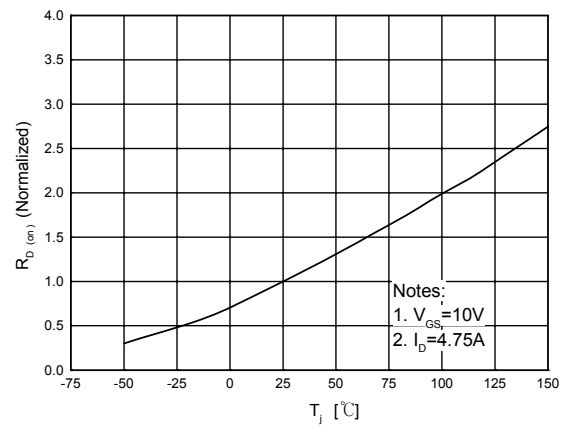


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

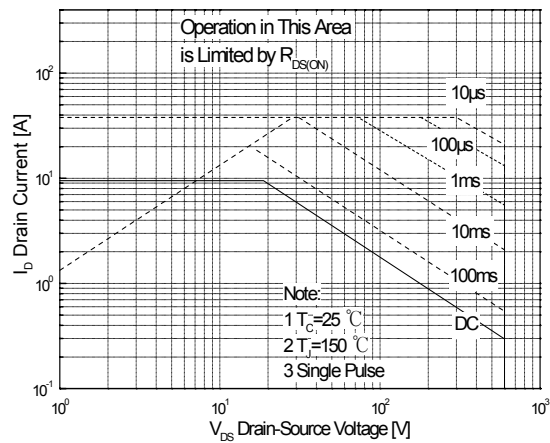
Breakdown Voltage Variation  
vs. Temperature



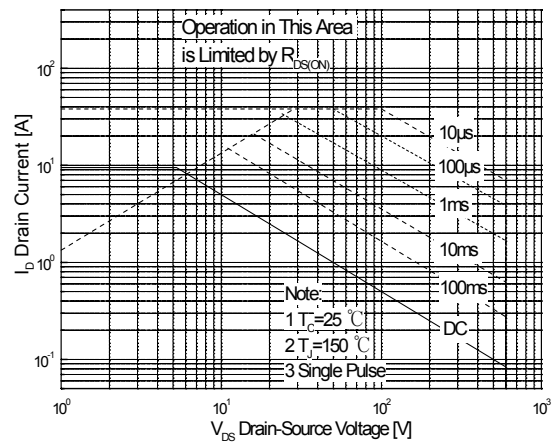
On-Resistance Variation  
vs. Temperature



Maximum Safe Operating Area  
For TO-220



Maximum Safe Operating Area  
For TO-220F



Maximum Drain Current  
vs. Case Temperature

