

60A/600V 快恢复二极管 60A/600V Fast Recovery Diodes

■特征 Features

- 超快恢复时间
Ultrafast Recovery Times
- 软恢复特性
Softer Recovery Characteristics
- 低正向电压
Low Forward Voltage
- 低反向漏电流
Low reverse leakage current

■应用范围 Applications

- 续流二极管
Free Wheeling Diode
- UPS 不间断电源
Uninterruptible Power System
- 开关式电源
Switching mode power supply
- PFC 功率因数校正
Power Factor Correction
- 转换器
Converters
- 逆变器
Inverters

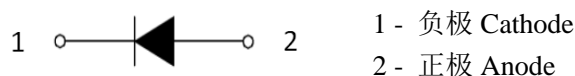
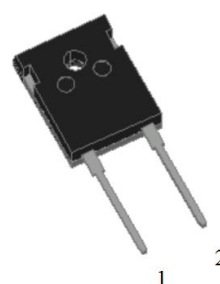
■机械参数 Mechanical Data

- 安装扭矩: 8.0kgf.cm
Mounting torque: 8.0kgf.cm max
- 重量: 约 6.4 克
Weight : About 6.4grams

■最大额定值 Maximum Ratings @ Ta = 25°C unless otherwise noted

| 特征/测试条件 Characteristic / Test Conditions | 符号 SYMBOL | 额定值 Rated value | 单位 UNIT |
|--|--------------|--------------------|------------|
| 反向重复峰值电压 Maximum recurrent peak reverse voltage | VRRM | 600 | V |
| 最大平均正向电流, TC=100°C Maximum Average Forward Current, TC=100°C | IF(AV) | 60 | A |
| 最大正向浪涌电流, 10ms 正弦半波 Peak surge forward current, 10ms single half sine-wave superimposed on rated load | IFSM | 600 | A |
| 功率损耗 Power Dissipation | PD | 300 | W |
| 结温 Junction Temperature | TJ | -55 ~ +175 | °C |
| 存储温度 Storage Temperature Range | TSTG | -55 ~ +150 | °C |
| 耐焊接热, 高温持续 10 秒 Resistance to Soldering Heat, Lead Temperature for 10 Sec | TL | 260 | °C |

| 关键参数 KEY PARAMETERS | | |
|------------------------|-------------|------------|
| 参数 PARAMETER | 数值 VALUE | 单位 UNIT |
| IF(AV) | 60 | A |
| VF | 1.4 | V |
| VRRM | 600 | V |
| TRR | 50 | ns |
| Package | TO-247 | |



■ 电性特性 Electrical Characteristics @ Ta = 25°C unless otherwise noted

| 特征/测试条件 Characteristic / Test Conditions | 符号 SYMBOL | 典型值 TYP | 最大值 MAX | 单位 UNIT | |
|--|--------------|---------------|------------|------------|----|
| 正向峰值电压 Peak Forward Voltage | VF | IF=60Aj=25°C | 1.4 | 1.8 | V |
| | | IF=60Aj=150°C | 1.1 | / | V |
| VR=VRRM, 脉冲测试, 单个二极管的额定值 VR=VRRM, Pulse measurement Rating of per diode | IR | Tj=25°C | / | 5 | μA |
| | | Tj=150°C | / | 500 | |
| 反向恢复时间 Reverse Recovery Time | TRR | 50 | 60 | ns | |

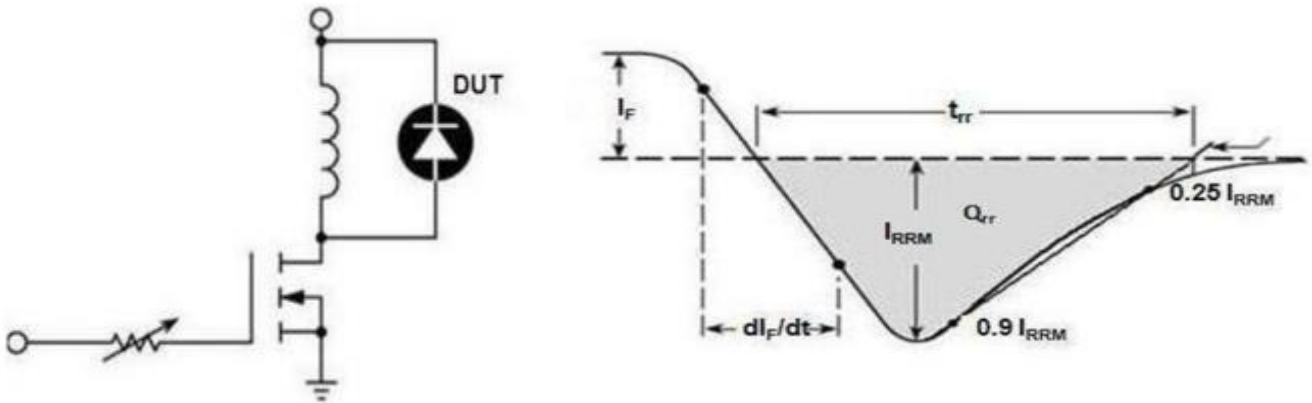
■ 电性特性 Electrical Characteristics @ Ta = 25°C unless otherwise noted

| 符号 SYMBOL | 特征/测试条件 Characteristic / Test Conditions | 典型值 TYP | 最大值 MAX | 单位 UNIT |
|--------------|--|------------|------------|------------|
| TRR | 反向恢复时间 Reverse Recovery Time | 50 | / | ns |
| IRRM | 最大反向恢复电流 Maximum Reverse Recovery Current | 7 | / | A |
| QRR | 反向恢复电荷 Reverse Recovery Charge | 200 | / | nc |
| TRR | 反向恢复时间 Reverse Recovery Time | 120 | / | ns |
| IRRM | 最大反向恢复电流 Maximum Reverse Recovery Current | 15 | / | A |
| QRR | 反向恢复电荷 Reverse Recovery Charge | 1300 | / | nc |

■ 热特性 Thermal Characteristics @ Ta = 25°C unless otherwise noted

| 特征/测试条件 Characteristic / Test Conditions | 符号 SYMBOL | 典型值 TYP | 最大值 MAX | 单位 UNIT |
|--|--------------|------------|------------|------------|
| 结到管壳的热阻, 有散热片 Junction to case Thermal Resistance, with heat sink | RθJC | 0.5 | / | °C/W |

■ 反向恢复测试方法 Diode Reverse Recovery Test Circuit and Waveform



■ 特性曲线 Characteristic Curve

FIG.1 . Derating Curve For Output Rectified Current

图 1. 电流降额曲线

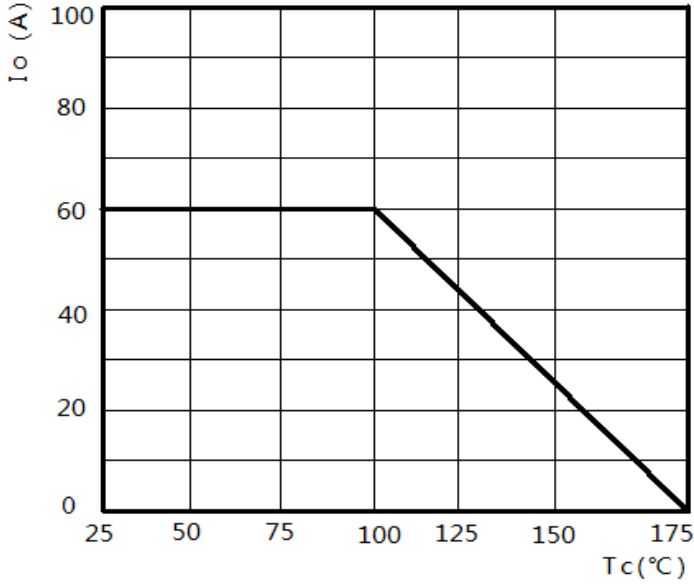


FIG.2 . Maximum Non-Repetitive Peak Forward Surge Current Per Bridge Element

图 2. 最大正向不重复峰值浪涌电流

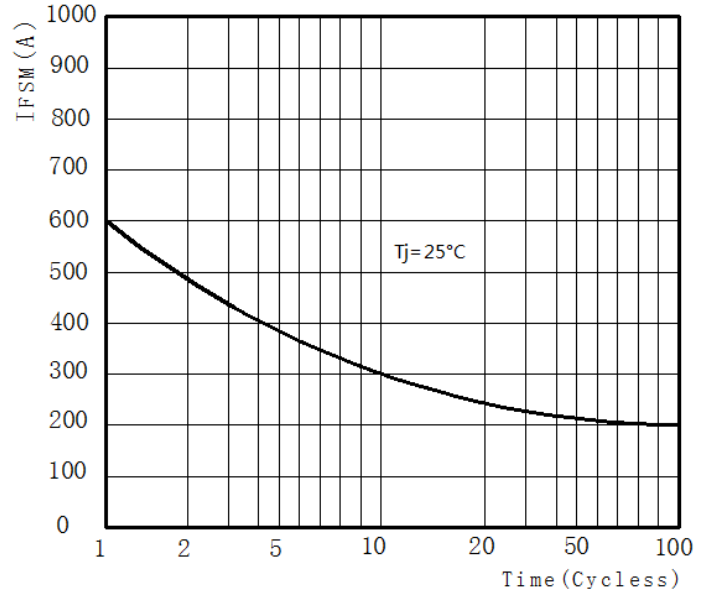


FIG3. Typical Reverse Characteristics Per Bridge Element

图 3. 典型反向特性

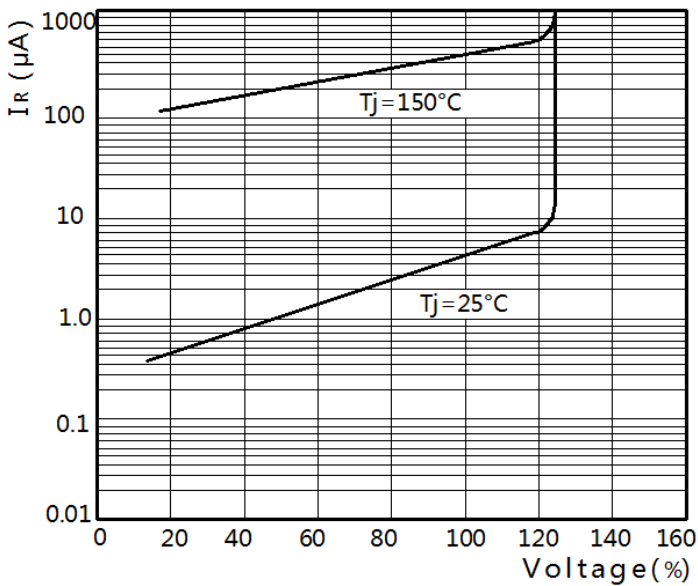


FIG4. Typical Forward Characteristics Per Bridge Element

图 4. 典型正向特性

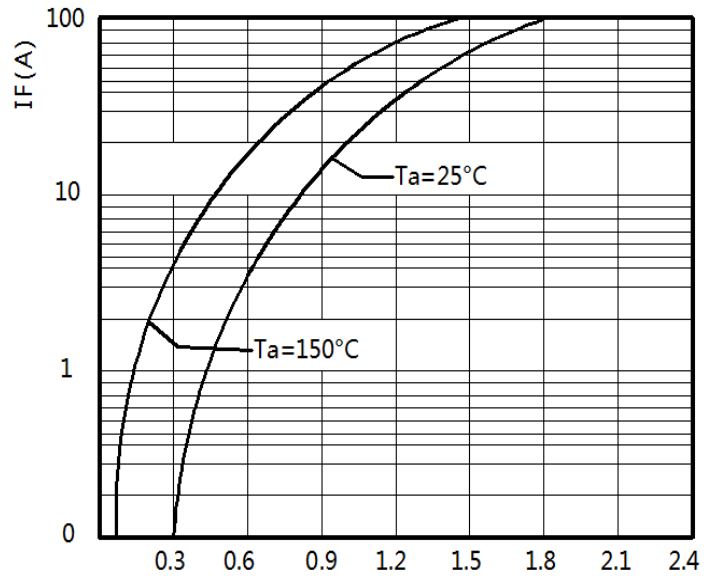


FIG.5 . Reverse Recovery Time VS diF /dt

图 5. 反向恢复时间

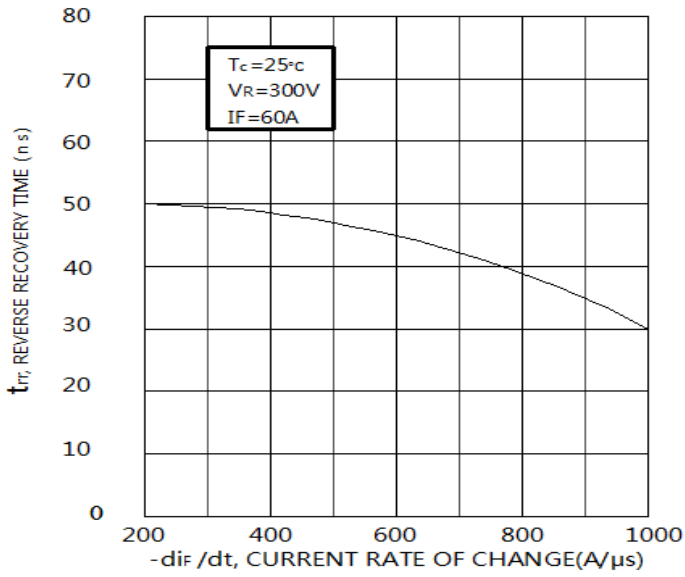


FIG.6 . Reverse Recovery Current VS diF /dt

图 6. 反向恢复电流

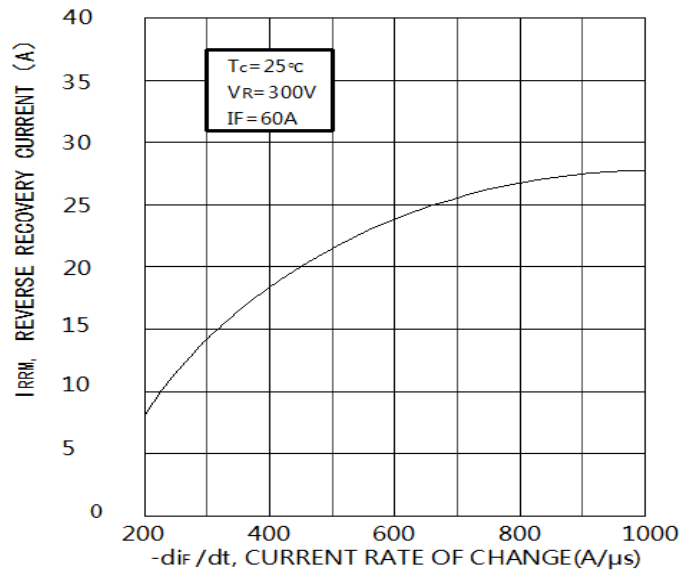
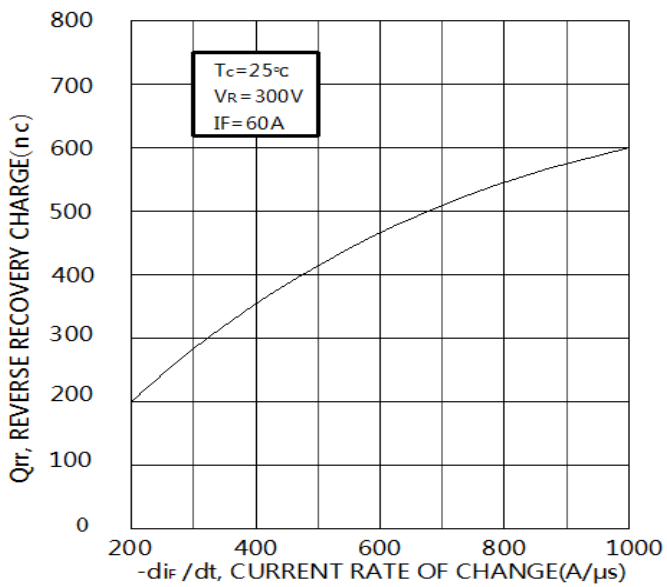
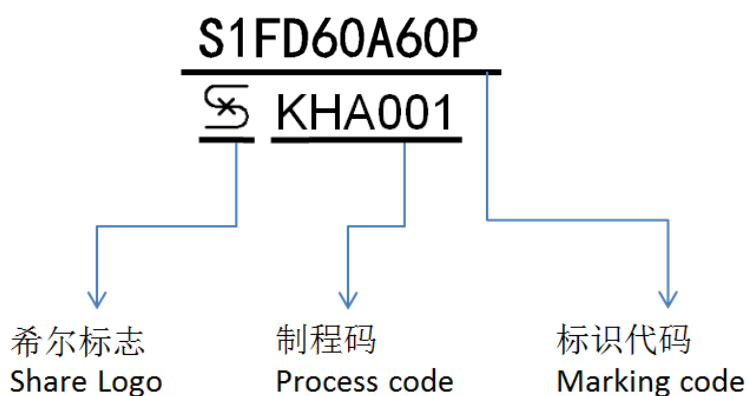


FIG7. Reverse Recovery Charge vs diF/dt

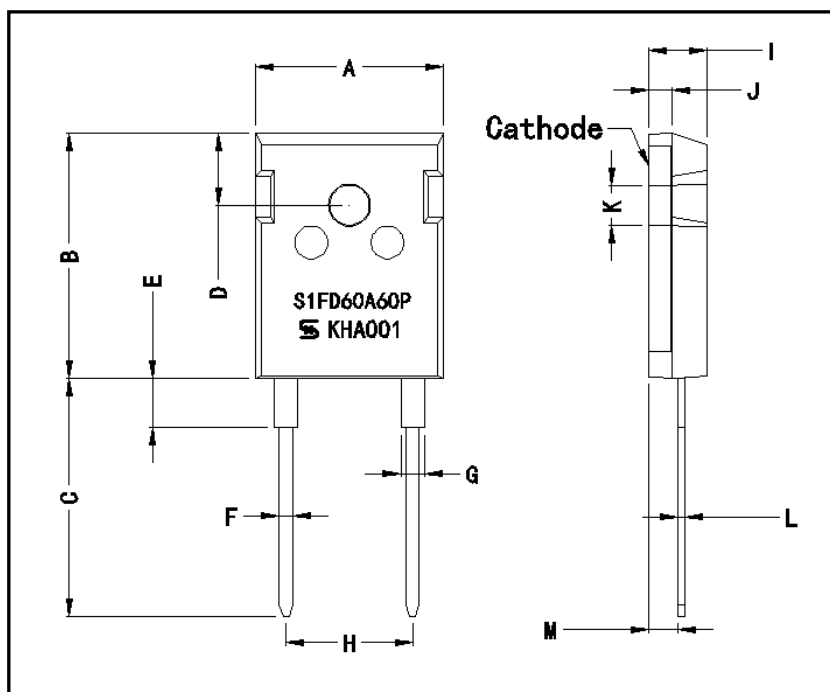
图 7. 反向重复峰值电流



■ 标记图 Marking Diagram



■ 尺寸图 Dimension Drawing



| Dim. | Unit(mm) | | Unit(inch) | |
|------|----------|-------|------------|------|
| | min | max | min | max |
| A | 15.70 | 16.30 | 0.62 | 0.64 |
| B | 20.70 | 21.30 | 0.81 | 0.84 |
| C | 19.50 | 20.50 | 0.77 | 0.81 |
| D | 5.70 | 6.70 | 0.22 | 0.26 |
| E | 4.00 | 4.40 | 0.16 | 0.17 |
| F | 1.00 | 1.40 | 0.04 | 0.06 |
| G | 1.70 | 2.30 | 0.07 | 0.09 |
| H | 10.5 | 11.1 | 0.20 | 0.23 |
| I | 4.70 | 5.30 | 0.19 | 0.21 |
| J | 1.70 | 2.30 | 0.07 | 0.09 |
| K | 3.20 | 3.80 | 0.13 | 0.15 |
| L | 0.50 | 0.70 | 0.02 | 0.03 |
| M | 2.20 | 2.60 | 0.09 | 0.10 |

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