

SDM2F60G04FS

Ultra-Fast Soft Recovery Diode Module

General Description

Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems.

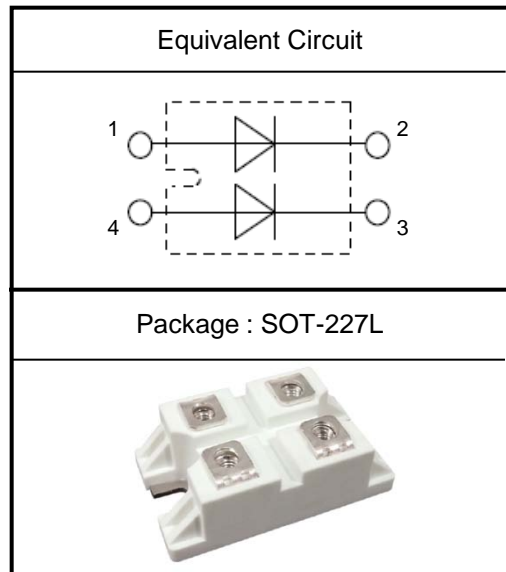
These diode modules are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses

Features

- Repetitive Reverse Voltage : $V_{RRM} = 400V$
- Low Forward Voltage Drop : $V_F(\text{typ.}) = 1.0V$
- Average Forward Current : $I_F(\text{AV.}) = 60A$ @ $T_C = 100^\circ C$
- Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 59 \text{ ns}$ @ $60A$
- Extensive Characterization of Recovery Parameters
- Reduced EMI and RFI
- Isolation Type Package

Applications

- Motor Drives, Free wheel use, High Power Converters, Welders.
- Various Switching and Telecommunication Power Supply.



Please see the package Out line information

Absolute Maximum Ratings @ $T_C=25^\circ C$ (Per Leg)

| Symbol | Parameter | Value | Unit | |
|-------------|---|---------------------|------------------|---|
| V_{RRM} | Repetitive Peak Reverse Voltage | 400 | V | |
| V_R | Reverse DC Voltage | 320 | V | |
| $I_{F(AV)}$ | Average Forward Current | $T_C = 25^\circ C$ | 120 | A |
| | | $T_C = 100^\circ C$ | 60 | |
| I_{FSM} | No Repetitive Surge Forward Current (1/2 cycle, sine) | 600 | A | |
| I^2t | I^2t For Fusing (60Hz, sine, $t=8.3ms$, $T_J = 25^\circ C$) | $16.7 * 10^3$ | A ² s | |
| T_J | Junction Temperature | -40 to +150 | $^\circ C$ | |
| T_{STG} | Storage Temperature | -40 to +125 | $^\circ C$ | |
| V_{ISOL} | Isolation Voltage (@ AC 1minutes) | 2500 | V | |

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise specified

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Unit | |
|----------|---------------------------------|--|---------------------------|-----|-----|------|----|
| V_R | Cathode Anode Breakdown Voltage | $I_R = 100\mu\text{A}$ | 400 | -- | -- | V | |
| I_R | Repetitive Peak Reverse Current | $V_R = 400\text{V}, T_C = 100^\circ\text{C}$ | -- | -- | 1 | mA | |
| V_{FM} | Maximum Forward Voltage | $I_F = 60\text{A}$ | $T_C = 25^\circ\text{C}$ | -- | 1.0 | 1.3 | V |
| | | | $T_C = 100^\circ\text{C}$ | -- | 0.9 | 1.1 | |
| t_{rr} | Reverse Recovery Time | $V_R = 30\text{V},$ $I_F = 1\text{A},$ $di/dt = -200\text{A}/\mu\text{s}$ | $T_C = 25^\circ\text{C}$ | -- | 40 | 55 | ns |
| t_{rr} | Reverse Recovery Time | $V_R = 200\text{V},$ $I_F = 60\text{A},$ $di/dt = 200\text{A}/\mu\text{s}$ | $T_C = 25^\circ\text{C}$ | -- | 59 | 85 | ns |
| | | | $T_C = 100^\circ\text{C}$ | -- | 96 | -- | |

Thermal Mechanical Specifications

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Unit |
|-----------------|------------------|------------------------------|--------------|-----|------|---------------------------|
| $R_{\theta JC}$ | Junction-to-Case | DC Current | -- | -- | 0.34 | $^\circ\text{C}/\text{W}$ |
| - | Torque | Mounting Torque | 1.45 | | | N·m |
| - | Torque | Terminal Torque | 1.45 | | | N·m |
| L x W x H | Dimensions | Typical, see outline drawing | 50 x 30 x 17 | | | mm |
| m | Mass | | -- | 30 | -- | g |

Characterization curves

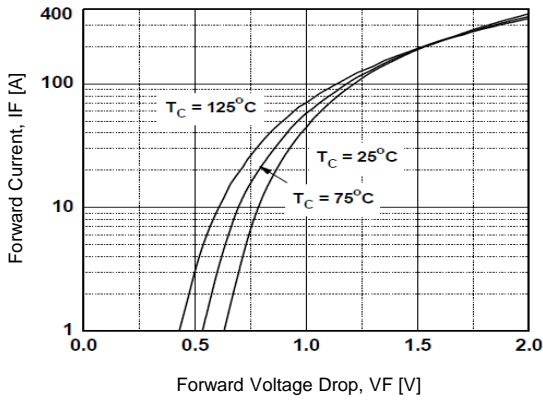


Fig1. Typical Forward Voltage Drop vs. Instantaneous Forward Current

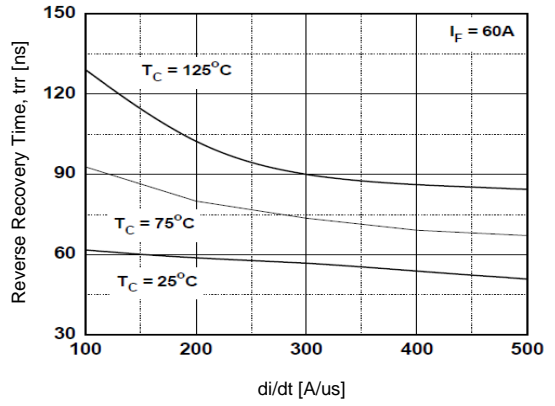


Fig2. Typical Reverse Recovery Time vs. $-di/dt$

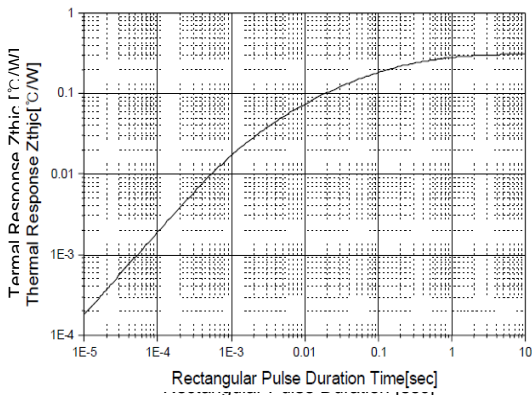


Fig3. Transient Thermal Impedance($Z_{th(jc)}$) Characteristics

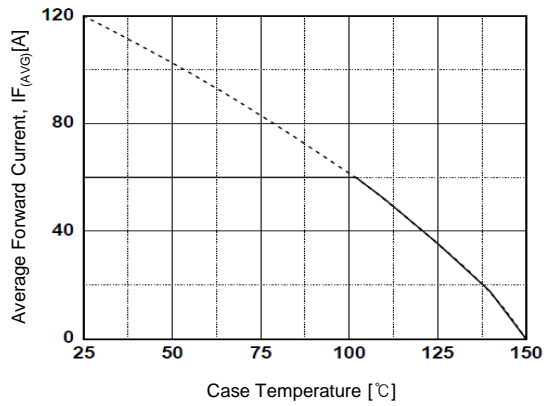


Fig4. Forward Current Derating Curve

Package Out line Information

SOT-227L



Dimensions in mm

