

600V, 5A ULTRAFAST RECOVERY RECTIFIERS

Features

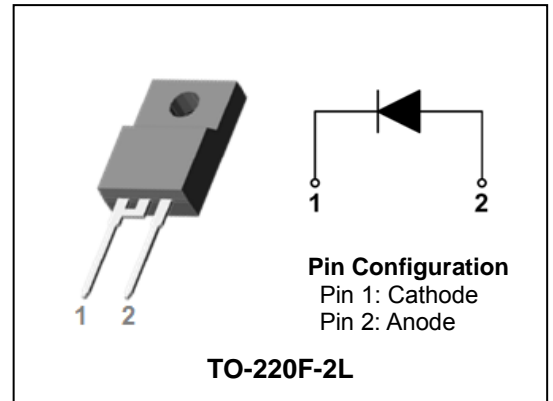
- High voltage and high reliability
- Ultrafast reverse recovery time
- High speed switching
- Low power loss and High efficiency
- Full lead (Pb)-free and RoHS compliant device

Applications

- General purpose
- Switching mode power supply
- Free-wheeling diode for motor application
- Power switching circuits
- DC-DC converter systems

Description

The SF5A600H is ideally as boost diode in discontinuous or critical mode power factor corrections. The device is also intended for use as a freewheeling diode in power supplies and other power switching applications.



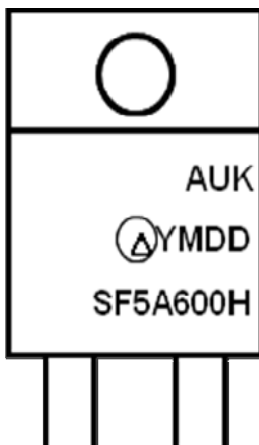
Product Characteristics

| | |
|----------------------------------|-------|
| $I_{F(AV)}$ | 5A |
| V_{RRM} | 600V |
| $V_{FM} @ T_j=125^\circ\text{C}$ | 1.75V |
| t_{rr} | 30ns |

Ordering Information

| Device | Marking Code | Package | Packaging |
|----------|--------------|------------|-----------|
| SF5A600H | SF5A600H | TO-220F-2L | Tube |

Marking Information



AUK = Manufacture Logo

Δ = Control Code of Manufacture

YMDD = Date Code Marking

- . Y = Year Code

- . M = Monthly Code

- . DD = Daily Code

SF5A600H = Specific Device Code

Absolute Maximum Ratings (Limiting Values)

| Characteristic | Symbol | Value | Unit |
|---|---------------------------------|-----------------|------|
| Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage | V_{RRM} V_{RWM} V_R | 600 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 5 | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 80 | A |
| Storage temperature range | T_{stg} | -45°C to +150°C | °C |
| Maximum operating junction temperature | T_J | 150 | °C |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|---------------|-------|------|
| Maximum thermal resistance junction to case | $R_{th(j-c)}$ | 4.0 | °C/W |

Electrical Characteristics

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit | |
|---------------------------|----------------|-------------------------------|---------------------|------|------|------|----|
| Peak forward voltage drop | $V_{FM}^{(1)}$ | $I_{FM} = 5A$ | $T_J = 25^\circ C$ | - | - | 1.90 | V |
| | | | $T_J = 125^\circ C$ | - | - | 1.75 | V |
| Reverse leakage current | $I_{RM}^{(1)}$ | $V_R = V_{RRM}$ | $T_J = 25^\circ C$ | - | - | 10 | uA |
| | | | $T_J = 125^\circ C$ | - | - | 200 | uA |
| Reverse recovery time | t_{rr} | $I_F = 1A, di/dt = -100 A/us$ | - | - | 30 | ns | |
| Junction capacitance | C_j | $V_R = 10V_{DC}, f=1MHz$ | - | - | 50 | pF | |

Note : (1) Pulse test : $t_p \leq 380 \mu s$, Duty cycle $\leq 2\%$

Rating & Electrical Characteristic Curves

Fig. 1) Typical Forward Characteristics

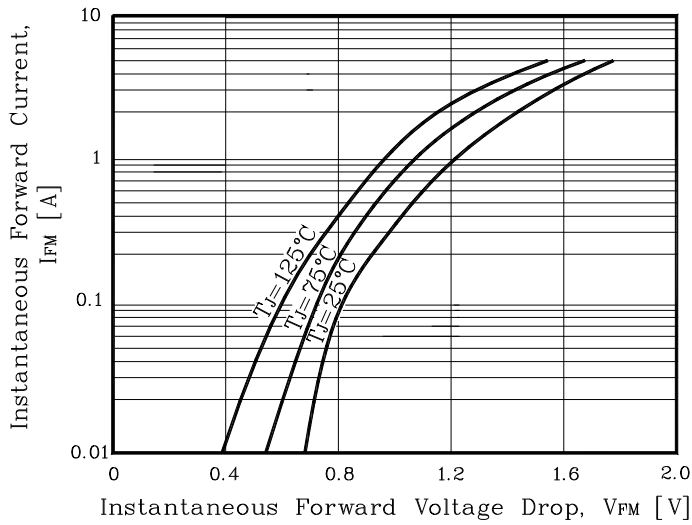


Fig. 2) Typical Reverse Characteristics

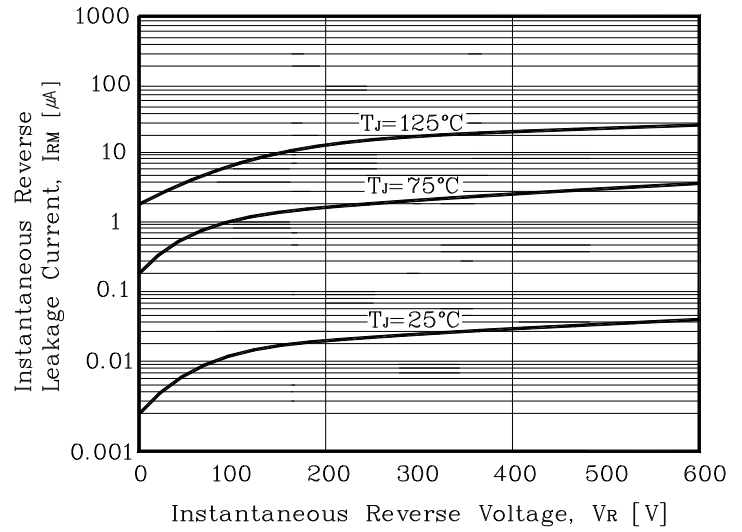


Fig. 3) Maximum Forward Derivative Curve

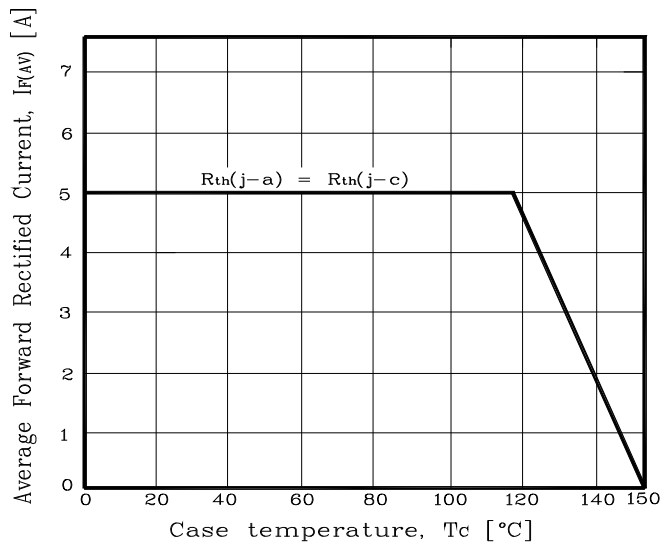


Fig. 4) Forward Power Dissipation

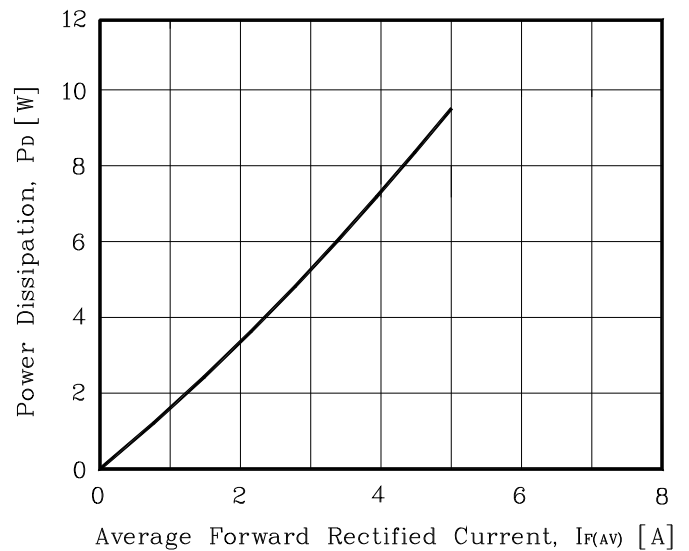


Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current

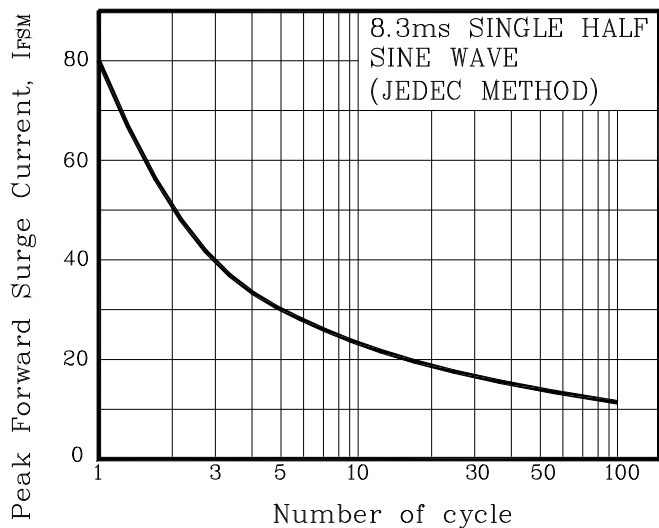
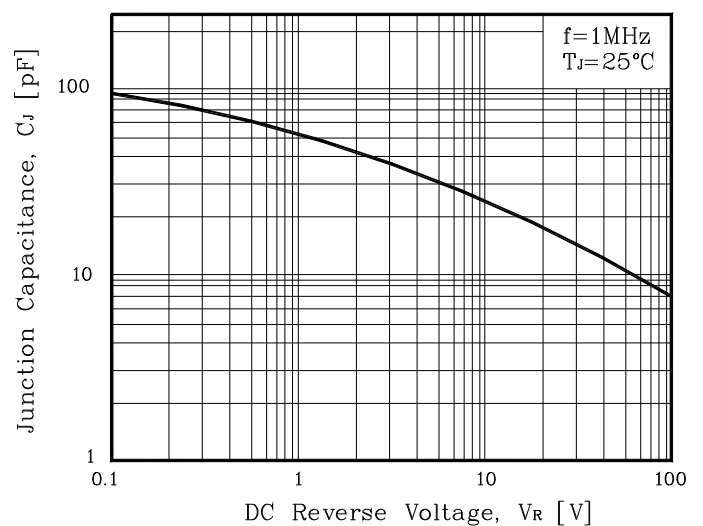
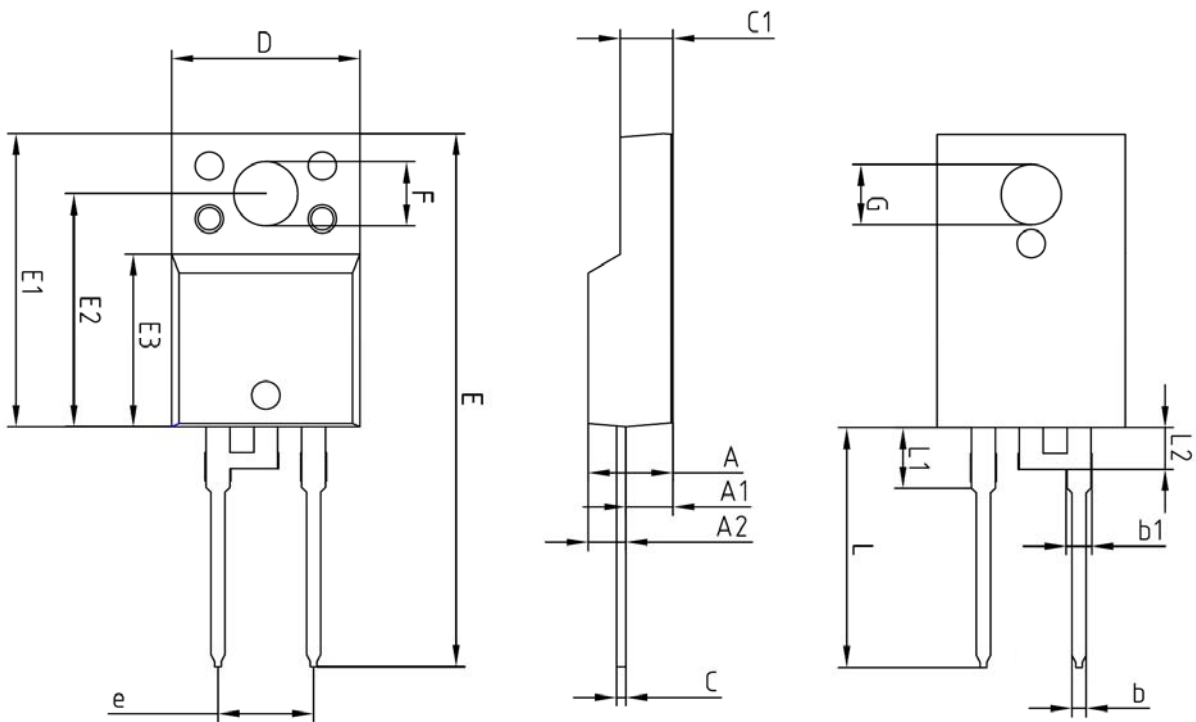


Fig. 6) Typical Junction Capacitance



Package Outline Dimension



| SYMBOL | MILLIMETERS | | | NOTE |
|--------|-------------|---------|---------|------|
| | MINIMUM | NOMINAL | MAXIMUM | |
| A | — | — | 4.60 | |
| A1 | 2.45 | 2.50 | 2.55 | |
| A2 | 1.95 | 2.00 | 2.05 | |
| b | 0.65 | 0.75 | 0.85 | |
| b1 | 1.07 | 1.27 | 1.47 | |
| C | 0.40 | 0.50 | 0.60 | |
| C1 | 2.70 | 2.80 | 2.90 | |
| D | 9.90 | 10.00 | 10.10 | |
| E | 28.00 | — | 28.60 | |
| E1 | 15.50 | 15.60 | 15.70 | |
| E2 | 12.30 | 12.40 | 12.50 | |
| E3 | 9.15 | 9.20 | 9.25 | |
| F | 3.30 | 3.40 | 3.50 | |
| G | 3.10 | 3.20 | 3.30 | |
| e | 5.08 BSC | | | |
| L | 12.40 | — | 13.00 | |
| L1 | 3.46 BSC | | | |
| L2 | 2.21 BSC | | | |

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