星合电子
XINGHE ELECTRONICS

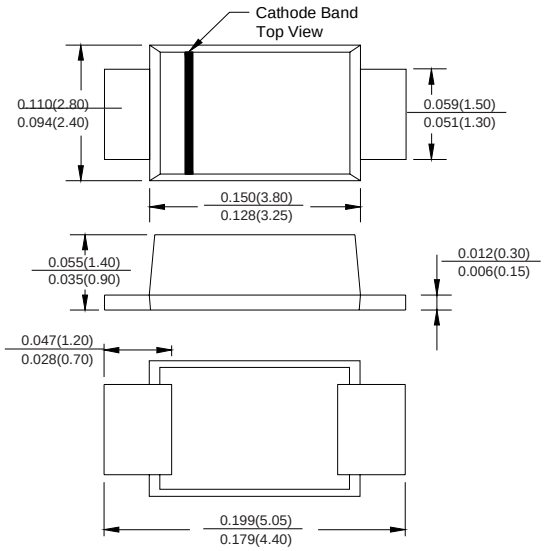
# US1AF THRU US1MF

## 1.0A SURFACE MOUNT ULTRA-FAST RECTIFIER

### Features

- Glass Passivated Die Construction
- Diffused Junction
- Ultra-Fast Recovery Time for High Efficiency
- Low Forward Voltage Drop, High Current Capability, and Low Power Loss
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- Plastic Material: UL Flammability Classification Rating 94V-0


**SMAF**




Dimensions in inches and (millimeters)

### MECHANICAL DATA

- Case: SMAF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight:27mg 0.00086oz

### Maximum Ratings and Electrical Characteristics

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| Characteristic | Symbol | US1AF | US1BF | US1DF | US1GF | US1JF | US1KF | US1MF | Unit |
|---|---|---|---|---|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Average Rectified Output Current @ $T_T$ = 75°C | $I_O$ | 1.0 | | | | | | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method) | $I_{FSM}$ | 30 | | | | | | | A |
| Forward Voltage Drop @ $I_F$ = 1.0A | $V_{FM}$ | 1.0 | | | 1.3 | 1.7 | | | V |
| Peak Reverse Current @ $T_A$ = 25°C<br>at Rated DC Blocking Voltage @ $T_A$ = 100°C | $I_{RM}$ | 5.0<br>100 | | | | | | | μA |
| Reverse Recovery Time (Note 2) | $t_{rr}$ | 50 | | | | 75 | | | ns |
| Typical Junction Capacitance (Note 1) | $C_j$ | 20 | | | | 10 | | | pF |
| Typical Thermal Resistance, Junction to Terminal | $R_{\theta JT}$ | 30 | | | | | | | °C/W |
| Operating and Storage Temperature Range | $T_j$, $T_{STG}$ | -65 to +150 | | | | | | | °C |

Notes: 1. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
2. Measured with $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A.

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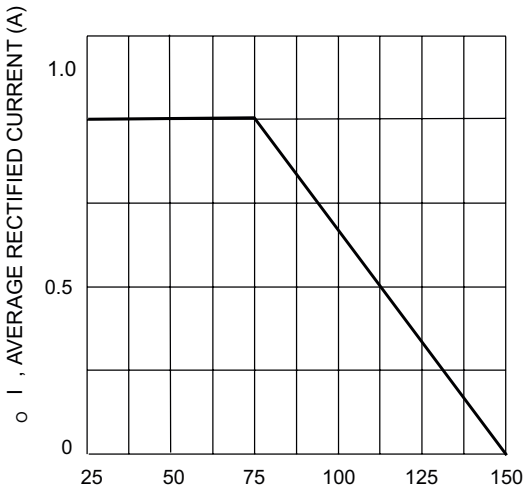



Fig. 1 Forward Current Derating Curve

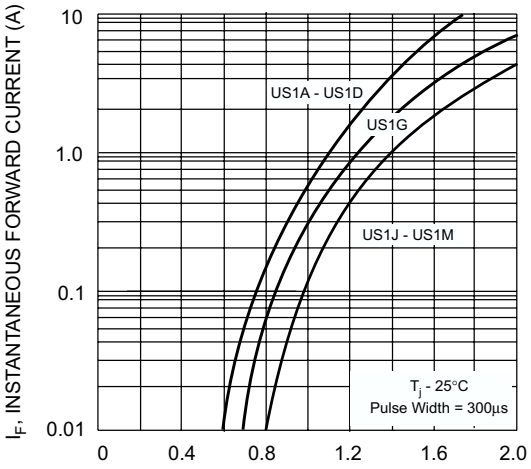



Fig. 2 Typical Forward Characteristics

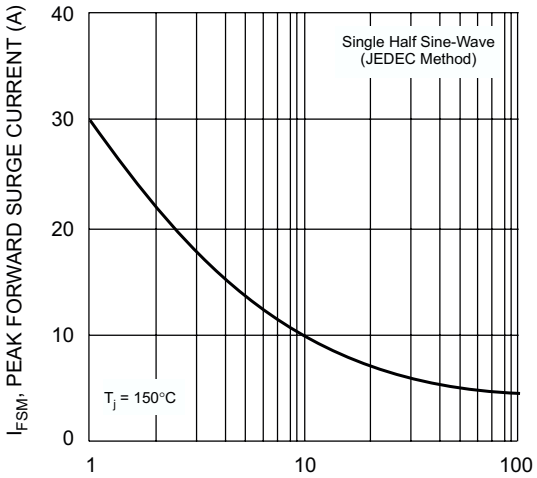



Fig. 3 Forward Surge Current Derating Curve

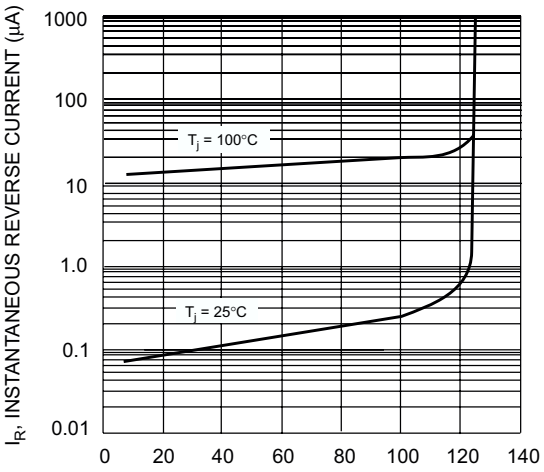
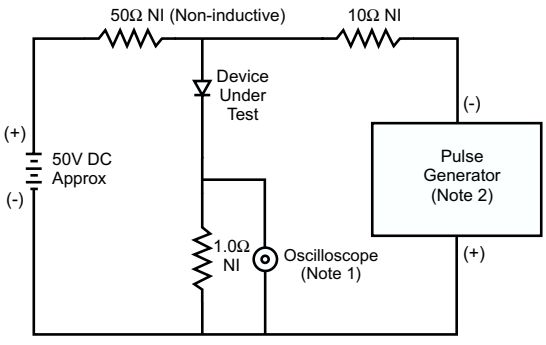



Fig. 4 Typical Reverse Characteristics




Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.

2. Rise Time = 10ns max. Input Impedance = 50Ω.

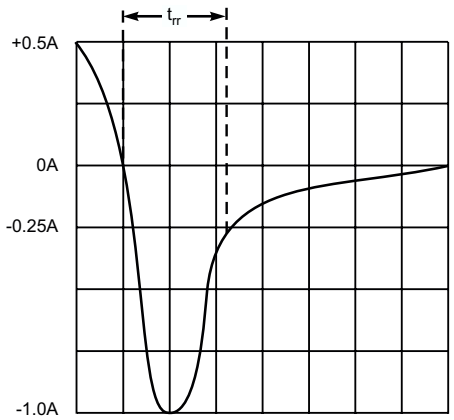



Fig. 5 Reverse Recovery Time Characteristic and Test Circuit