

15A, 1200V Hyperfast Single Diode

Description

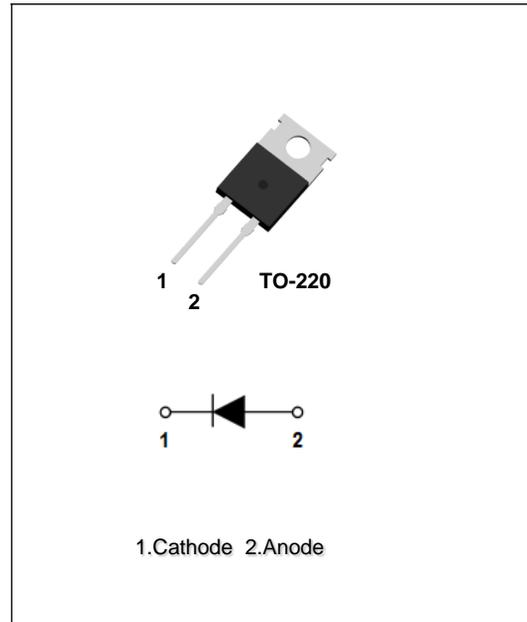
The AKF15H120ST is an hyperfast single diode, its typical reverse recovery time is 38ns. This device is designed for freewheel diode in motor and power switching applications, and specially suited for use in inverter welding.

Features

- Hyperfast Soft Recovery: $t_{rr}=38\text{ns}$
- Typical Forward Voltage: $V_F=2.8\text{V}$ @ $I_F=15\text{A}$
- Reverse Voltage: $V_{RRM}=1200\text{V}$
- Avalanche Energy Rated

Applications

- General Rectifier
- Output Rectifier in Switching Power Supply & Welder
- FWD for Motor Application



Absolute Maximum Ratings

 per diode at $T_c=25\text{ }^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Ratings | Unit |
|-------------|---|----------|------------------|
| V_{RRM} | Peak Repetitive Reverse Voltage | 1200 | V |
| V_{RWM} | Working Peak Reverse Voltage | 1200 | V |
| V_R | DC Blocking Voltage | 1200 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current | 15 | A |
| | per device at $T_c=120\text{ }^\circ\text{C}$ | | |
| I_{FSM} | Non-repetitive Peak Surge Current | 150 | A |
| T_J | Operating Junction Temperature Range | -65~+175 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature Range | -65~+175 | $^\circ\text{C}$ |

Thermal Characteristics

| Symbol | Parameter | Ratings | Unit |
|---------------|--------------------------------------|---------|---------------------------|
| $R_{th(J-C)}$ | Thermal Resistance, Junction to case | 1.2 | $^\circ\text{C}/\text{W}$ |

Electrical Characteristics per diode @ $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------|-------------------------|--|------|------|------|---------------|
| V_F | Forward Voltage Drop | $I_F=15\text{A}$ | - | 2.8 | - | V |
| | | $I_F=15\text{A}, T_C=125^\circ\text{C}$ | - | 2.2 | - | V |
| I_R | Reverse Leakage Current | $V_R=1200\text{V}$ | - | - | 10 | μA |
| t_{rr} | Reverse Recovery Time | $I_F=15\text{A}, di/dt=-200\text{A}/\mu\text{s}$ | - | 38 | - | ns |
| W_{AVL} | Avalanche Energy | $L=5\text{mH}$ | - | 80 | - | mJ |

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

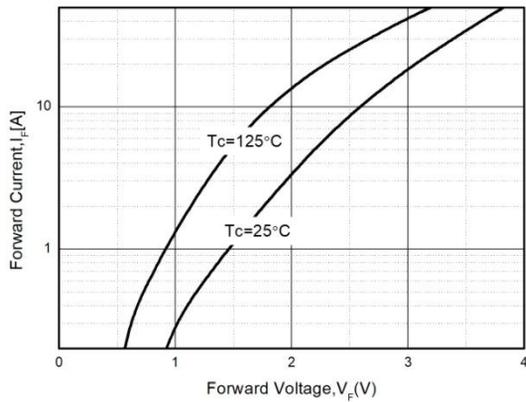


Fig. 2. Typical Characteristics: V_R vs. I_R

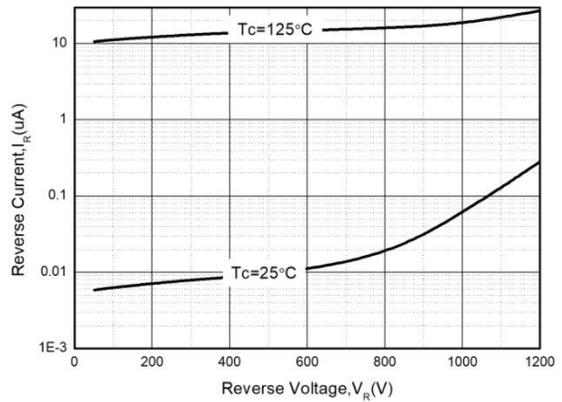


Fig. 3. Typical Reverse Recovery Time vs. di/dt

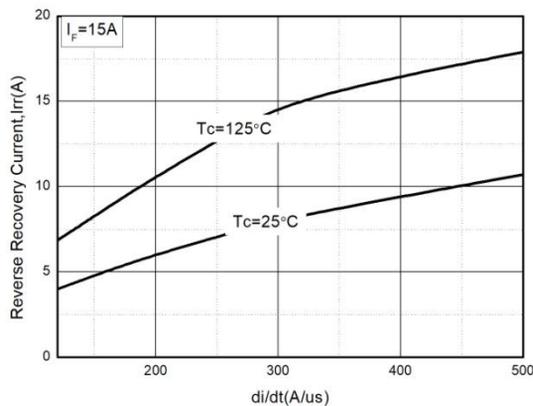
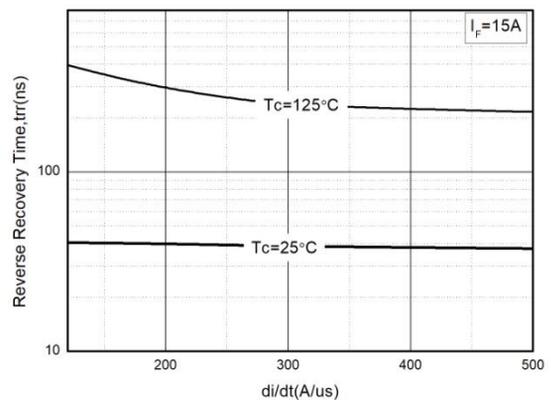


Fig. 4. Typical Reverse Recovery Time vs. di/dt



Package Dimensions

TO-220

(Dimensions in Millimeters)

