# Ultrafast Recovery Power Rectifier

## General Description

The SFN10A400 is ideally as boost diode in discontinuous or critical mode power factor corrections. The planar structure and the platinum doper life time control guarantee the best overall performance, ruggedness reliability characteristics. The device is also intended for use as a freewheeling diode in power supplies and other power switching applications.


**TO-220F-2L**

## Features and Benefits

- Low forward drop voltage
- Ultrafast recovery time and high speed switching
- Full lead (Pb)-free device and RoHS compliant device

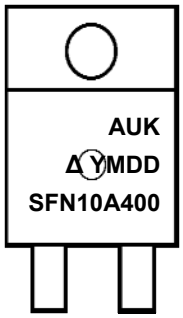
## Applications

- Switching power supply
- Power inverters
- Power conversion system

## Ordering Information

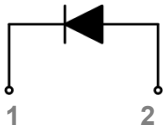
| Part Number | Marking Code | Package | Packaging |
|---|---|---|---|
| SFN10A400 | SFN10A400 | TO-220F-2L | Tube |

## Marking Information




**AUK = Manufacture Logo**
**Δ = Control Code of Manufacture**
**YMDD = Date Code Marking**
**-. Y = Year Code**
**-. M = Monthly Code**
**-. DD = Daily Code**
**SFN10A400 = Specific Device Code**

## Pinning Information

| Pin | Description | Simplified Outline | Graphic Symbol |
|---|---|---|---|
| 1 | Cathode |  |  |
| 2 | Anode | | |

## Absolute Maximum Ratings (Limiting values at 25°C, unless otherwise specified)

| Characteristic | Symbol | Ratings | Unit |
|---|---|---|---|
| Maximum repetitive reverse voltage<br>Maximum working peak reverse voltage<br>Maximum DC blocking voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 400 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 10 | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per 1 chip | $I_{FSM}$ | 120 | A |
| Storage temperature range | $T_{stg}$ | -45 to +150 | ℃ |
| Maximum operating junction temperature | $T_J$ | 150 | |

## Thermal Characteristics

| Characteristic | Symbol | Ratings | Unit |
|---|---|---|---|
| Maximum thermal resistance | $R_{th(j-c)}$ | 4 | °C/W |
| | $R_{th(j-a)}$ | 62.5 | |

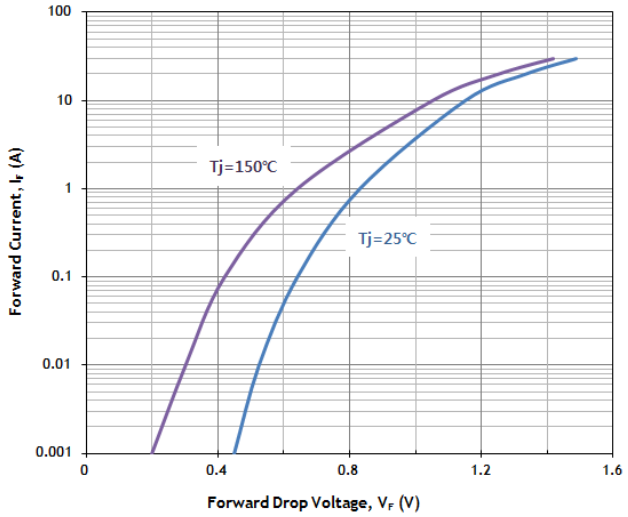
## Electrical Characteristics

| Characteristic | Symbol | Test Condition | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Peak forward voltage drop | $V_{FM}$ (1) | $I_{FM}$ = 10A | $T_j$=25℃ | - | 1.15 | 1.4 | V |
| | | | $T_j$=125℃ | - | - | 1.2 | |
| Reverse leakage current | $I_{RM}$ | $V_R = V_{RRM}$ | $T_j$=25℃ | - | - | 5 | uA |
| | | | $T_j$=125℃ | - | - | 200 | |
| Reverse recovery time | $t_{rr}$ | $I_F$ = 1A, di/dt = -100 A/us | | - | 21 | 25 | ns |
| Junction capacitance | $C_j$ | $V_R$ = 10$V_{DC}$, f=1MHz | | - | 43 | - | pF |

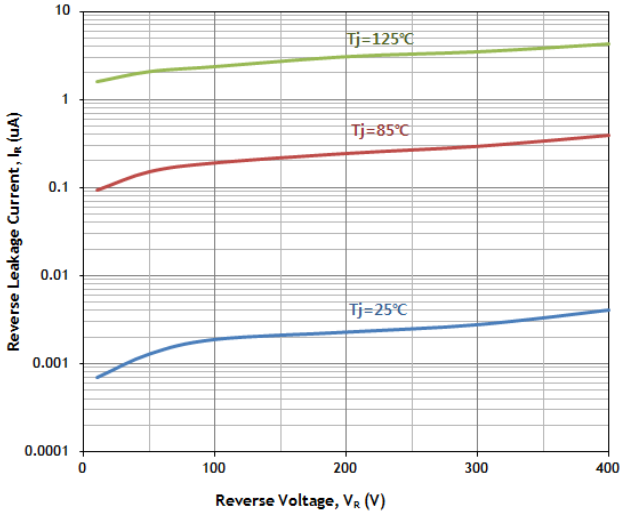
[1] Pulse test: $t_P \leq 380us$, Duty cycle≤2%

## Rating and Electrical Characteristics Curves

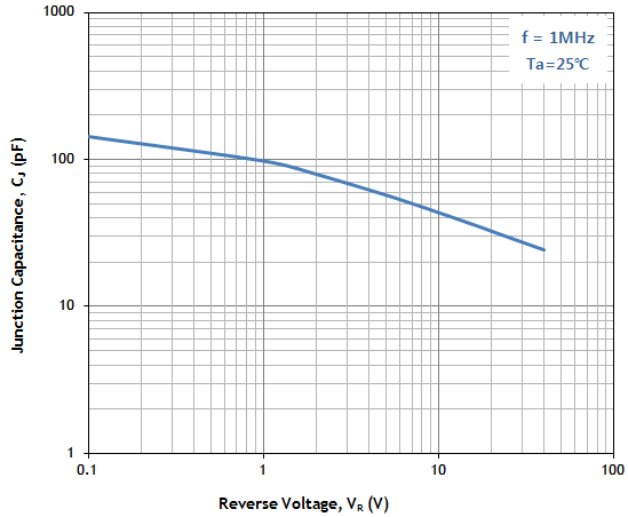
### Fig. 1) Typical Forward Characteristics



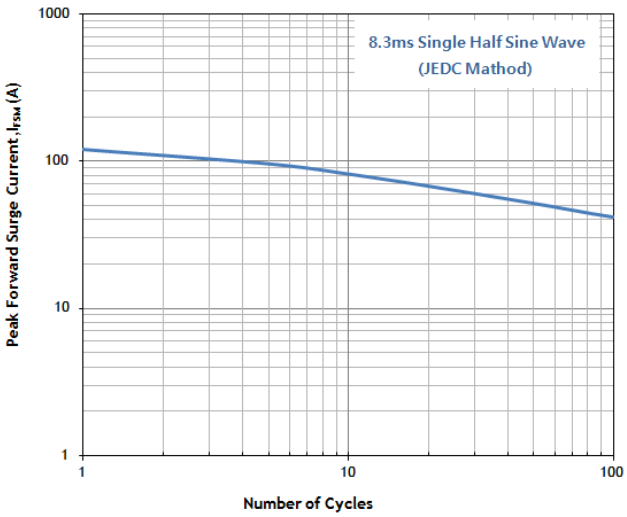

### Fig. 2) Typical Reverse Characteristics



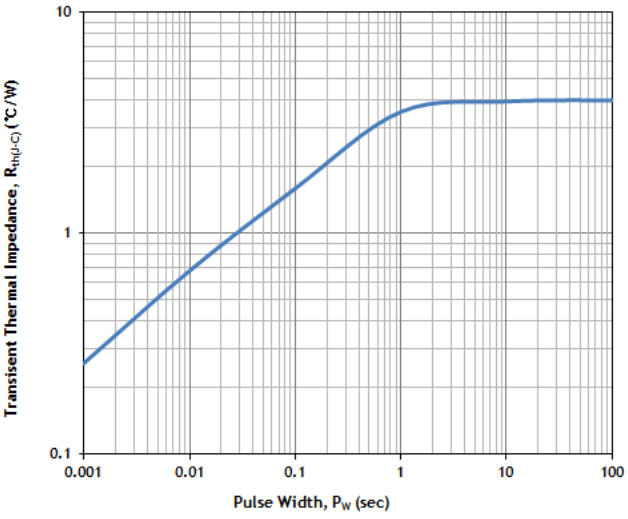

### Fig. 3) Typical Junction Capacitance Characteristics



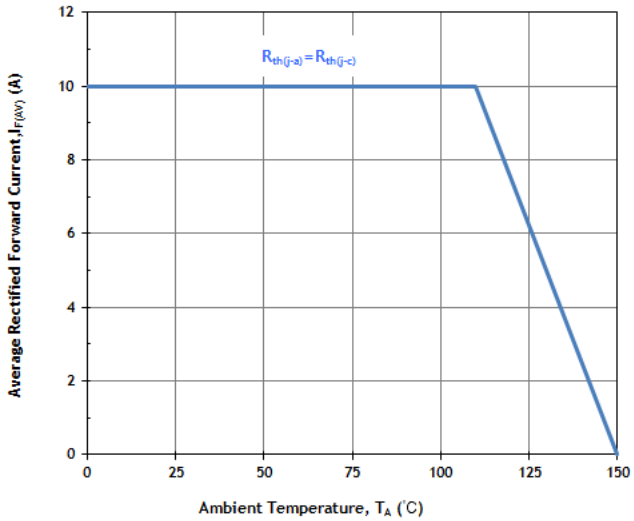

### Fig. 4) Peak Forward Surge Current Characteristics



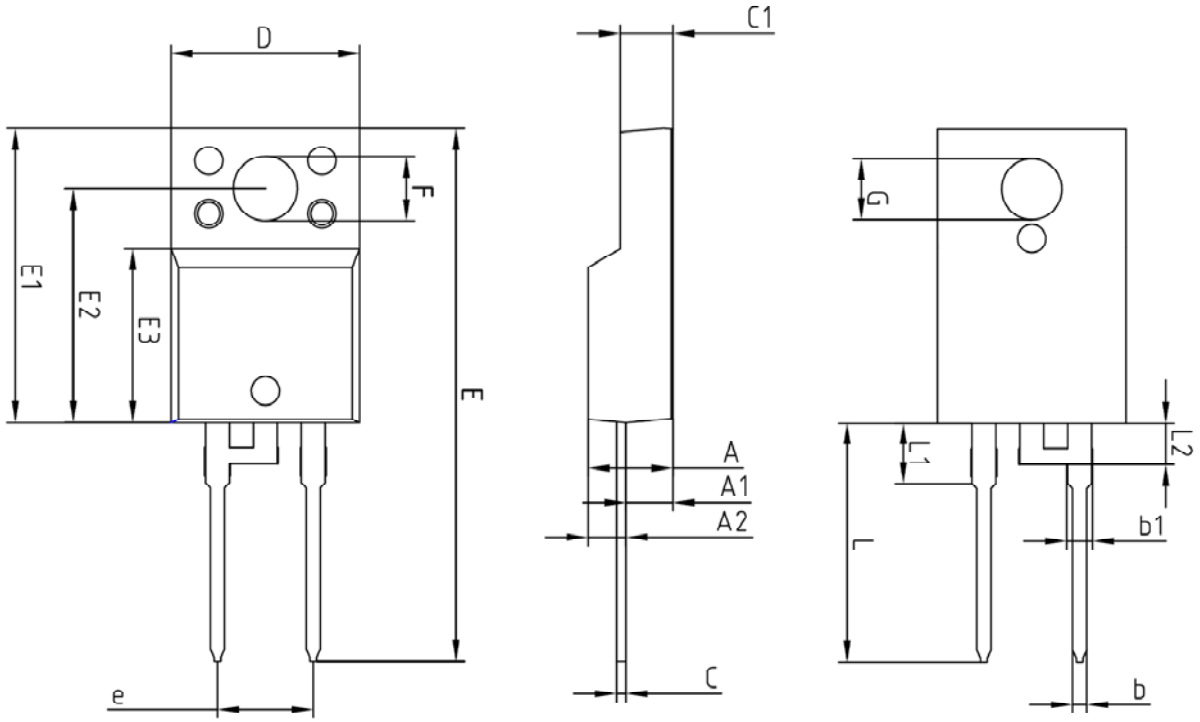

### Fig. 5) Thermal Impedance Characteristics




### Fig. 6) Average Forward Current Characteristics



## Package Outline Dimensions




| 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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