

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

**Part Number:** FFPF08S60STU  
**Manufacturer:** onsemi  
**Package:** TO-220-2 Full Pack  
**Availability:** Please confirm with sales

**Product Page:**

<https://antrexco.com/product/details/onsemi/ffpf08s60stu.html>

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This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.



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November 2014



# FFPF08S60S

## 8 A, 600 V, STEALTH™ II Diode

### Features

- Stealth Recovery  $t_{rr} = 30$  ns (@  $I_F = 8$  A)
- Max Forward Voltage,  $V_F = 3.4$  V (@  $T_C = 25^\circ\text{C}$ )
- 600 V Reverse Voltage and High Reliability
- RoHS Compliant

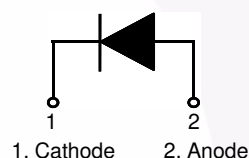
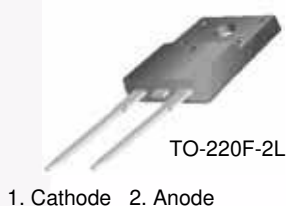
### Applications

- General Purpose
- SMPS
- Boost Diode in Continuous Mode Power Factor Corrections
- Power Switching Circuits

### Description

The FFPF08S60S is STEALTH™ II diode with soft recovery characteristics. It is silicon nitride passivated ion-implanted epitaxial planar construction. This device is intended for use as freewheeling of boost diode in switching power supplies and other power switching applications. Their low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.

### Pin Assignments



### Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                                                       | Value        | Unit             |
|----------------|-----------------------------------------------------------------|--------------|------------------|
| $V_{RRM}$      | Peak Repetitive Reverse Voltage                                 | 600          | V                |
| $V_{RWM}$      | Working Peak Reverse Voltage                                    | 600          | V                |
| $V_R$          | DC Blocking Voltage                                             | 600          | V                |
| $I_{F(AV)}$    | Average Rectified Forward Current @ $T_C = 95^\circ\text{C}$    | 8            | A                |
| $I_{FSM}$      | Non-repetitive Peak Surge Current<br>60Hz Single Half-Sine Wave | 80           | A                |
| $T_J, T_{STG}$ | Operating Junction and Storage Temperature                      | - 65 to +175 | $^\circ\text{C}$ |

### Thermal Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol          | Parameter                                    | Max | Unit               |
|-----------------|----------------------------------------------|-----|--------------------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 3.4 | $^\circ\text{C/W}$ |

### Package Marking and Ordering Information

| Part Number | Top Mark | Package    | Reel Size | Tape Width | Quantity |
|-------------|----------|------------|-----------|------------|----------|
| FFPF08S60S  | F08S60S  | TO-220F-2L | -         | -          | 50       |

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

| Parameter                   | Conditions                                                                  |                         | Min. | Typ. | Max | Unit |
|-----------------------------|-----------------------------------------------------------------------------|-------------------------|------|------|-----|------|
| V <sub>F</sub> <sup>1</sup> | I <sub>F</sub> = 8 A                                                        | T <sub>C</sub> = 25 °C  | -    | 2.1  | 2.6 | V    |
|                             | I <sub>F</sub> = 8 A                                                        | T <sub>C</sub> = 125 °C | -    | 1.6  | -   | V    |
| I <sub>R</sub> <sup>1</sup> | V <sub>R</sub> = 600 V                                                      | T <sub>C</sub> = 25 °C  | -    | -    | 100 | μA   |
|                             | V <sub>R</sub> = 600 V                                                      | T <sub>C</sub> = 125 °C | -    | -    | 500 | μA   |
| t <sub>rr</sub>             | I <sub>F</sub> =1 A, di <sub>F</sub> /dt = 100 A/μs, V <sub>R</sub> = 30 V  | T <sub>C</sub> = 25 °C  | -    | -    | 25  | ns   |
| t <sub>rr</sub>             | I <sub>F</sub> =8 A, di <sub>F</sub> /dt = 200 A/μs, V <sub>R</sub> = 390 V | T <sub>C</sub> = 25 °C  | -    | 19   | 30  | ns   |
| I <sub>rr</sub>             |                                                                             |                         | -    | 2.2  | -   | A    |
| S factor                    |                                                                             |                         | -    | 0.6  | -   | -    |
| Q <sub>rr</sub>             |                                                                             |                         | -    | 21   | -   | nC   |
| t <sub>rr</sub>             | I <sub>F</sub> =8 A, di <sub>F</sub> /dt = 200 A/μs, V <sub>R</sub> = 390 V | T <sub>C</sub> = 125 °C | -    | 58   | -   | ns   |
| I <sub>rr</sub>             |                                                                             |                         | -    | 4.3  | -   | A    |
| S factor                    |                                                                             |                         | -    | 1.3  | -   | -    |
| Q <sub>rr</sub>             |                                                                             |                         | -    | 125  | -   | nC   |
| W <sub>AVL</sub>            | Avalanche Energy (L = 40 mH)                                                |                         | 20   | -    | -   | mJ   |

### Notes:

1. Pulse : Test Pulse width =  $300\text{ }\mu\text{s}$ , Duty Cycle = 2%

## Test Circuit and Waveforms

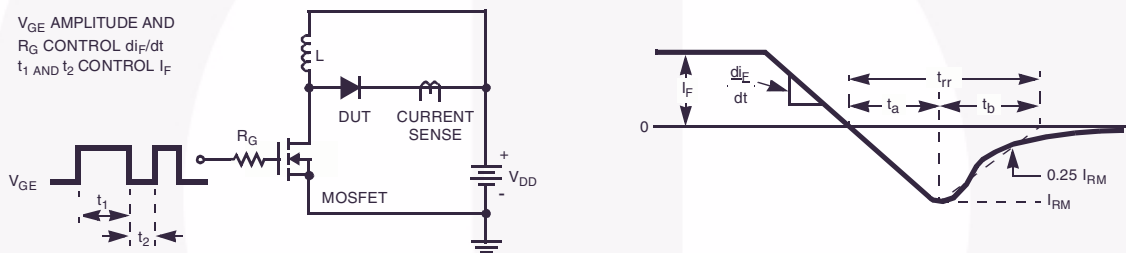


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

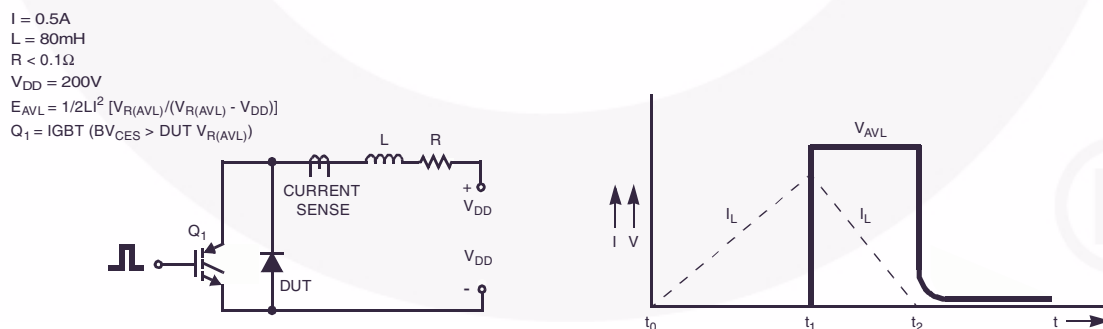


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

## Typical Performance Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Figure 3. Typical Forward Voltage Drop

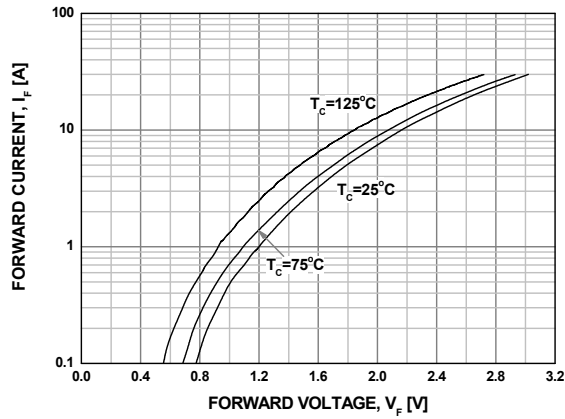


Figure 4. Typical Reverse Current

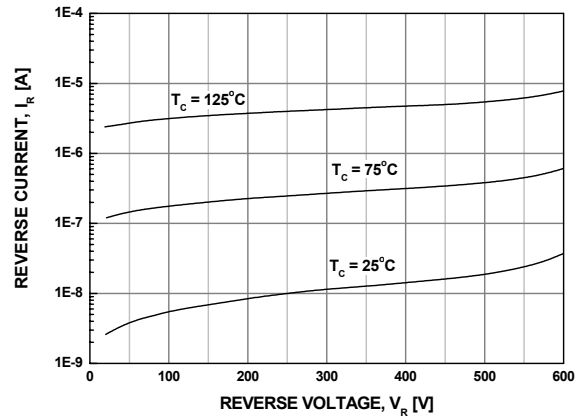


Figure 5. Typical Junction Capacitance

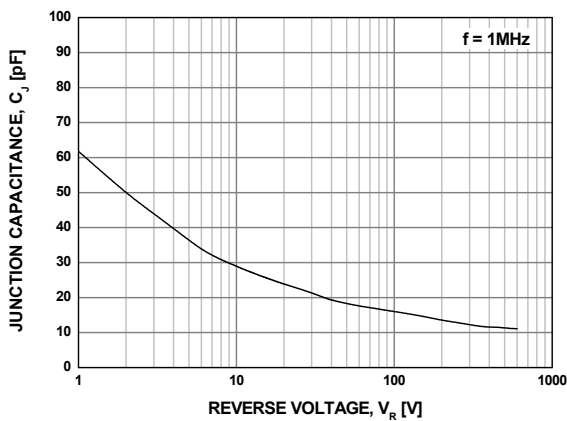


Figure 6. Typical Reverse Recovery Time

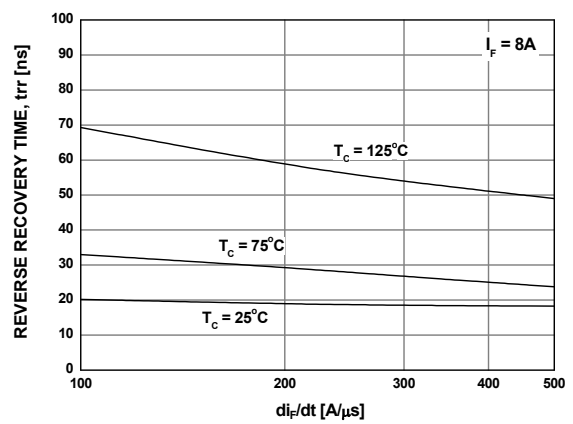


Figure 7. Typical Reverse Recovery Current

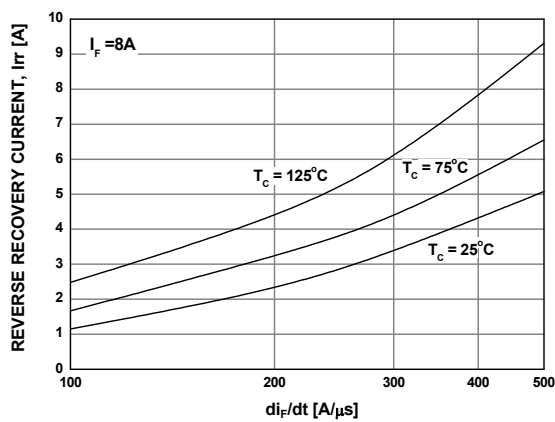
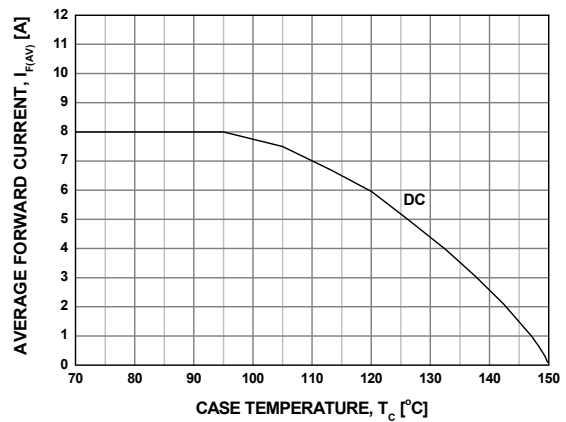


Figure 8. Forward Current Deration Curve



## Mechanical Dimensions

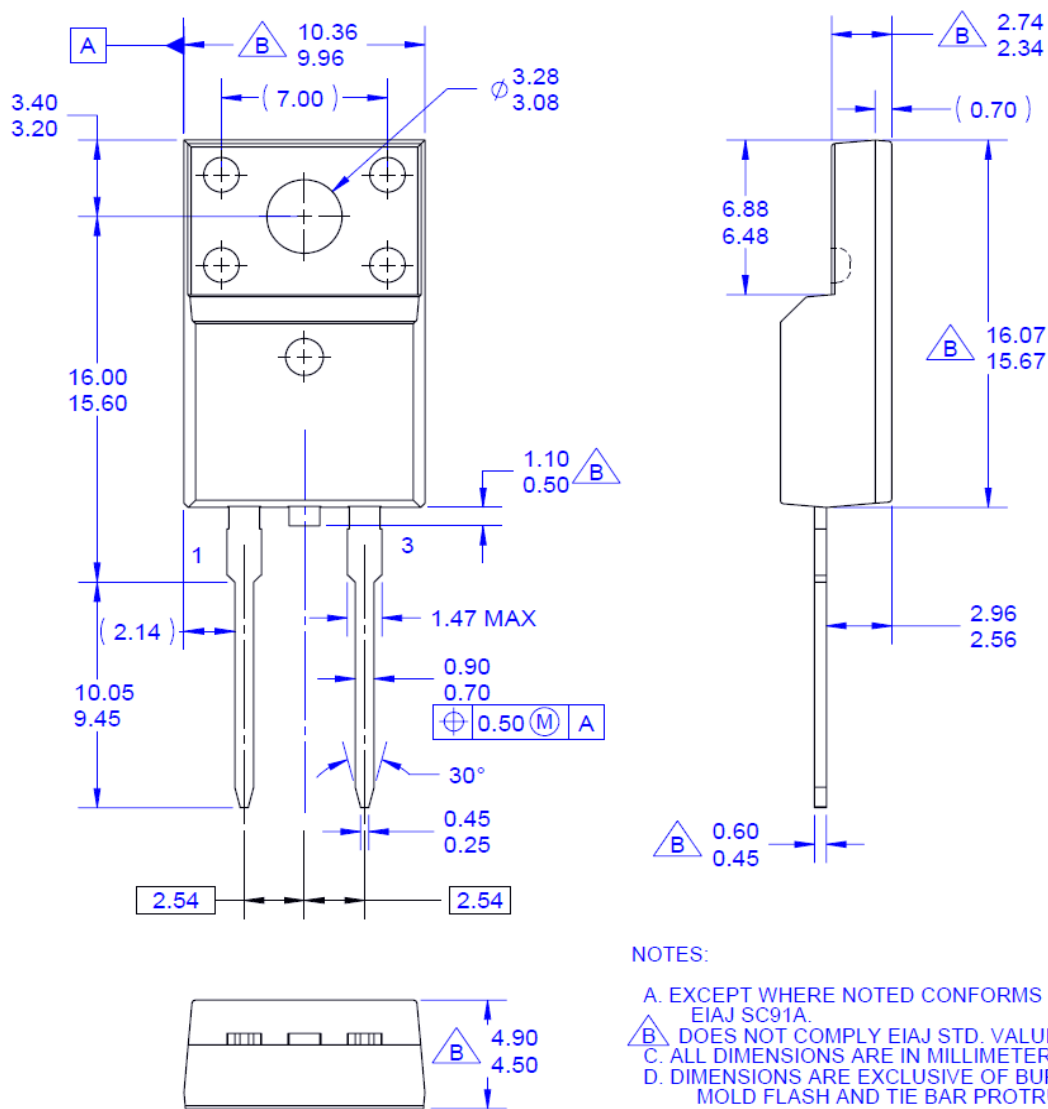


Figure 16. TO-220F 2L - 2LD; TO220; MOLDED; FULL PACK

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