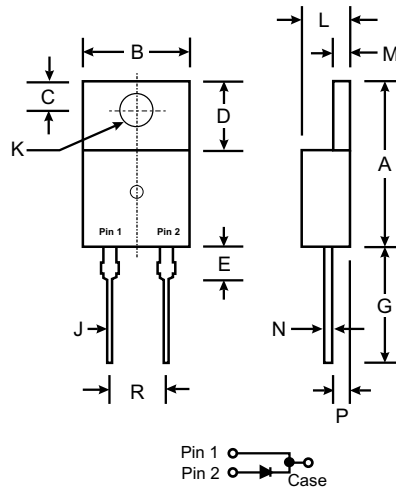


### Features

- Glass Passivated Die Construction
- Diffused Junction
- Super-Fast Switching Times for High Efficiency
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 125A Peak
- Low Reverse Leakage Current
- Plastic Material: UL Flammability Classification Rating 94V-0



| TO-220AC             |                    |                    |
|----------------------|--------------------|--------------------|
| Dim                  | Min                | Max                |
| A                    | 14.22              | 15.88              |
| B                    | 9.65               | 10.67              |
| C                    | 2.54               | 3.43               |
| D                    | 5.84               | 6.86               |
| E                    | —                  | 6.35               |
| G                    | 12.70              | 14.73              |
| J                    | 0.51               | 1.14               |
| K                    | 3.53 $\varnothing$ | 4.09 $\varnothing$ |
| L                    | 3.56               | 4.83               |
| M                    | 1.14               | 1.40               |
| N                    | 0.30               | 0.64               |
| P                    | 2.03               | 2.92               |
| R                    | 4.83               | 5.33               |
| All Dimensions in mm |                    |                    |

### Mechanical Data

- Case: Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 2.24 grams (approx.)
- Mounting Position: Any
- Marking: Type Number

### Maximum Ratings and Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

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

| Characteristic  | Symbol   | STPR 805DF  | STPR 810DF | STPR 815DF | STPR 820DF | STPR 830DF | STPR 840DF | STPR 850DF | STPR 860DF | Unit |
|---|--|-------------|------------|------------|------------|------------|------------|------------|------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                                | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 50          | 100        | 150        | 200        | 300        | 400        | 500        | 600        | V    |
| RMS Reverse Voltage   | V <sub>R(RMS)}</sub>                                   | 35          | 70         | 105        | 140        | 210        | 280        | 350        | 420        | V    |
| Average Rectified Output Current<br>(Note 1)<br>@ T <sub>C</sub> = 100°C  | I <sub>O</sub>   | 8.0         |            |            |            |            |            |            |            | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms single half sine-wave superimposed on<br>rated load (JEDEC Method) | I <sub>FSM</sub>                                       | 125         |            |            |            |            |            |            |            | A    |
| Forward Voltage<br>@ I <sub>F</sub> = 8.0A  | V <sub>FM</sub>  | 0.95        |            | 1.3        |            |            | 1.5        |            | V          |      |
| Peak Reverse Current<br>@ T <sub>C</sub> = 25°C<br>at Rated DC Blocking Voltage<br>@ T <sub>C</sub> = 100°C           | I <sub>RM</sub>  | 5.0         |            |            |            | 500        |            |            |            | μA   |
| Reverse Recovery Time (Note 2)  | t <sub>rr</sub>  | 35          |            |            | 50         |            |            |            | ns         |      |
| Typical Junction Capacitance (Note 3)   | C <sub>j</sub>   | 85          |            |            |            |            |            | 60         |            | pF   |
| Typical Thermal Resistance Junction to Case   | R <sub>θJC</sub>                                       | 6.3         |            |            |            |            |            |            |            | °C/W |
| Operating and Storage Temperature Range   | T <sub>j</sub> , T <sub>STG</sub>                      | -65 to +150 |            |            |            |            |            |            |            | °C   |

- Notes:
1. Case mounted on heatsink.
  2. Measured with I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1.0A, I<sub>rr</sub> = 0.25A.
  3. Measured at 1.0MHz and Applied Reverse Voltage of 4.0V DC.

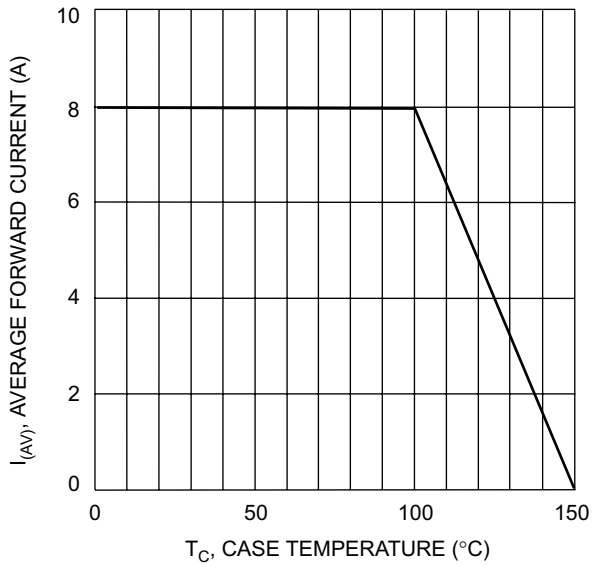


Fig. 1 Forward Current Derating Curve

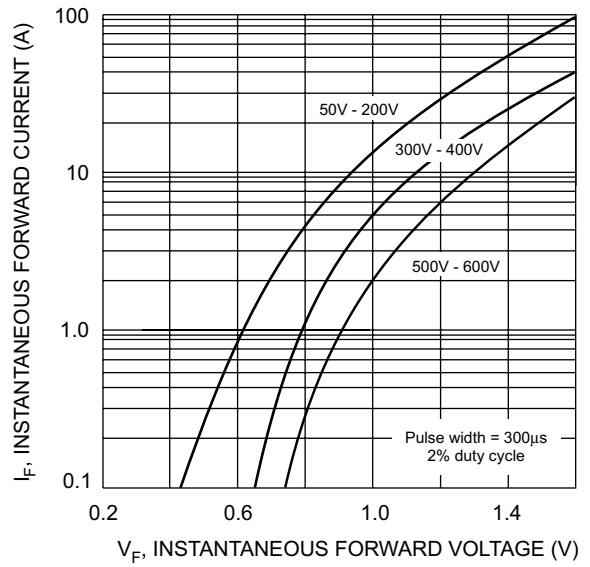


Fig. 2 Typical Forward Characteristics

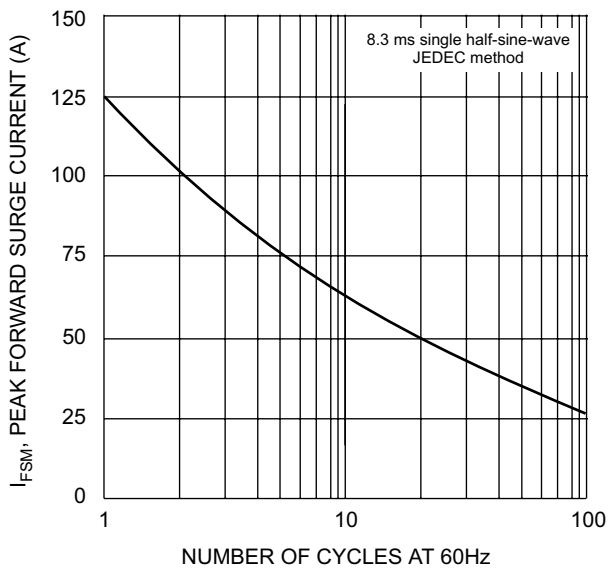


Fig. 3 Max Non-Repetitive Surge Current

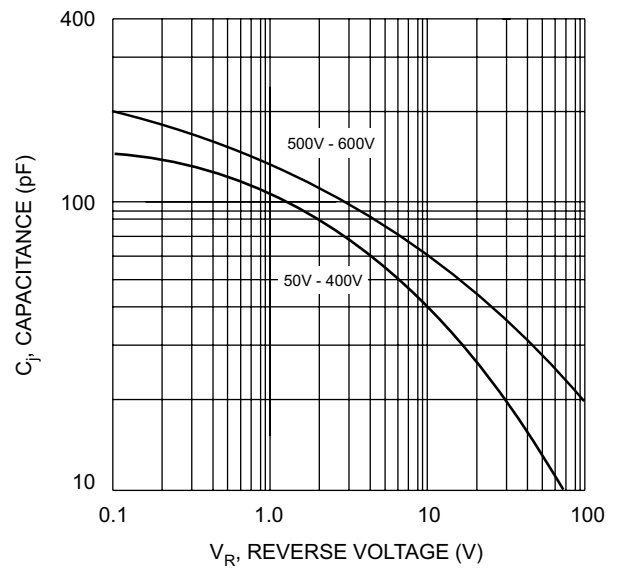


Fig. 4 Typical Junction Capacitance

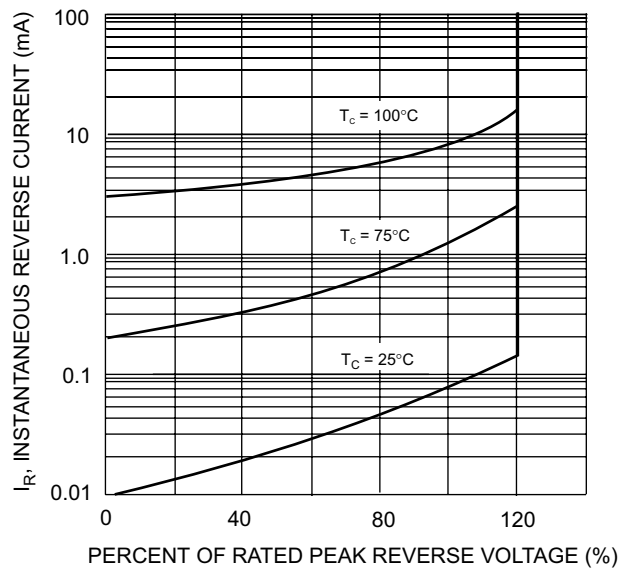


Fig. 5 Typical Reverse Characteristics