



**Solid State Devices, Inc.**

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## Designer's Data Sheet

### FEATURES:

- Low-Level Gate Characteristics
- $I_{GT} = 200 \mu\text{A}$  (Max) @ 25°C
- Low Holding Current  $I_H = 1 \text{ mA}$  (Max) @ 25°C
- Anode Common to Case
- Hermetically Sealed
- TX, TXV, S-Level Screening Available. Consult Factory

**SFS2510 thru SFS2540**

**25 AMPS  
100 – 400 VOLTS  
FAST SWITCHING  
SILICON CONTROLLED  
RECTIFIER**



**TO-48**

| MAXIMUM RATINGS (T <sub>J</sub> = 25°C UNLESS OTHERWISE NOTED, R <sub>GK</sub> = 1K Ω)   |                       | Symbol               | Value       | Units |
|--|-----------------------|----------------------|-------------|-------|
| Peak Repetitive Reverse Voltage and DC Blocking Voltage                                  | SFS2510               | V <sub>DRM</sub>     | 100         | Volts |
|  | SFS2520               |                      | 200         |       |
|  | SFS2525               | V <sub>RRM</sub>     | 250         |       |
|  | SFS2530               |                      | 300         |       |
|  | SFS2540               |                      | 400         |       |
| Non-Repetitive Peak Reverse Blocking Voltage (t ≤ 5.0 ms)                                | SFS2510               | V <sub>RSM</sub>     | 150         | Volts |
|  | SFS2520               |                      | 300         |       |
|  | SFS2525               |                      | 350         |       |
|  | SFS2530               |                      | 400         |       |
|  | SFS2540               |                      | 500         |       |
| RMS On-State Current (All Conduction Angles)   |                       | I <sub>T (RMS)</sub> | 35          | Amps  |
| Average On-State Current   | T <sub>C</sub> = 50°C | I <sub>T (AV)</sub>  | 25          | Amps  |
| Peak Non-Repetitive Surge Current (One Cycle, 60 Hz, T <sub>J</sub> = 120°C, t = 8.3 ms) |                       | I <sub>TSM</sub>     | 210         | Amps  |
| Peak Gate Power  |                       | P <sub>GM</sub>      | 60          | Watts |
| Average Gate Power   |                       | P <sub>G (AV)</sub>  | 1.0         | Watts |
| Peak Gate Current  |                       | I <sub>GM</sub>      | 10          | Amps  |
| Peak Gate Voltage  |                       | V <sub>GM</sub>      | 15          | Volts |
| Operating Junction Temperature Range   |                       | T <sub>J</sub>       | -65 to +135 | °C    |
| Storage Temperature Range  |                       | T <sub>stg</sub>     | -65 to +150 | °C    |
| Thermal Resistance, Junction to Case   |                       | R <sub>θJC</sub>     | 1.45        | °C/W  |



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**SFS2510 thru SFS2540**

| ELECTRICAL CHARACTERISTICS  | Symbol    | Min    | Max          | Unit  |
|---|-----------|--------|--------------|-------|
| <b>Peak Reverse Blocking Current</b><br>(Rated $V_{RRM}$ , $T_C = 25^\circ C$ )   | $I_{RRM}$ | —      | 2            | mA    |
| <b>Peak Forward Blocking Current</b><br>(Rated $V_{DRM}$ , $T_C = 25^\circ C$ )   | $I_{DRM}$ | —      | 2            | mA    |
| <b>Peak On-State Voltage</b><br>( $I_F = 25$ A Peak, $t = 1$ ms, Duty Cycle $\leq 1\%$ )<br>( $I_F = 100$ A Peak, $t = 1$ ms, Duty Cycle $\leq 1\%$ ) | $V_{TM}$  | —<br>— | 2.05<br>2.25 | Volts |
| <b>Gate Trigger Current</b><br>( $V_D = 12$ V <sub>DC</sub> , $R_L = 33 \Omega$ )   | $I_{GT}$  | —      | 180          | mA    |
| <b>Gate Trigger Voltage</b><br>( $V_D = 12$ V <sub>DC</sub> , $R_L = 33 \Omega$ )   | $V_{GT}$  | —      | 1.5          | Volts |
| <b>Holding Current</b><br>( $I_T = 500$ mA, Gate Open)  | $I_H$     | —      | 70           | mA    |

**NOTES:**

1/ Unless Otherwise Specified, All Electrical Characteristics @  $T_C = 25^\circ C$ ,  $R_{GK} = 1K \Omega$ .

**PACKAGE OUTLINE: TO-48**

The drawing shows a perspective view of the TO-48 package labeled 'A' and two cross-sectional views. Dimensions are provided in inches with tolerances: .08 ± .008, 1.2 Max, .74 - .86, .120 Max, .444 ± .02, .08 Max, .160 ± .008, 0.5 Max, .505 Max, .94 - 1.06, 9/16 over flats, .562 Max, and 1/28 UNF.

**Available Part Numbers:**

|            |            |            |            |            |
|------------|------------|------------|------------|------------|
| SFS2510    | SFS2520    | SFS2525    | SFS2530    | SFS2540    |
| SFS2510/48 | SFS2520/48 | SFS2525/48 | SFS2530/48 | SFS2540/48 |

**PIN ASSIGNMENT (Standard)**

| Package     | Cathode    | Gate       | Anode   |
|-------------|------------|------------|---------|
| TO-48 (/48) | Terminal 1 | Terminal 2 | Cathode |
|             |            |            |         |
|             |            |            |         |