



**Solid State Devices, Inc.**

14701 Firestone Blvd \* La Mirada, CA 90638  
Phone: (562) 404-4474 \* Fax: (562) 404-1773  
ssdi@ssdi-power.com \* www.ssdi-power.com

## DESIGNER'S DATA SHEET

### Part Number / Ordering Information <sup>1/</sup>

SFF2772-2



### Screening <sup>2/</sup>

— = Not Screened  
TX = TX Level  
TXV = TXV Level  
S = S Level

# SFF2772-2

**36 AMP**  
**Avalanche Rated**  
**N-channel MOSFET**  
**900 Volts, 260 mΩ**

### Features:

- Rugged poly-Si gate
- Lowest ON-resistance in the industry
- Avalanche rated
- Hermetically Sealed, Hot Case power SMD
- Low Total Gate Charge
- Fast Switching
- TX, TXV, S-Level screening available <sup>2/</sup>
- Improved ( $R_{DS(ON)}$   $Q_G$ ) figure of merit

| Maximum Ratings                                                      | Symbol                                                                        | Value       | Units |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------|-------|
| Drain - Source Voltage                                               | $V_{DSS}$                                                                     | 900         | V     |
| Gate - Source Voltage                                                | $V_{GS}$                                                                      | ±30         | V     |
| Max. Continuous Drain Current (package limited) @ $T_C = 25^\circ C$ | $I_{D1}$                                                                      | 36          | A     |
| Source Current ( $T_j$ limited) @ $T_C = 25^\circ C$                 | $I_S$                                                                         | 36          | A     |
| Max. Surge current                                                   | $I_{DM}$                                                                      | 144         | A     |
| Total Power Dissipation @ $T_C = 25^\circ C$                         | $P_D$                                                                         | 830         | W     |
| Operating & Storage Temperature                                      | $T_{OP} \& T_{STG}$                                                           | -55 to +150 | °C    |
| Maximum Thermal Resistance                                           | Junction to Case<br>$R_{\theta JC}$<br>Junction to Ambient<br>$R_{\theta JA}$ | 0.15<br>20  | °C/W  |

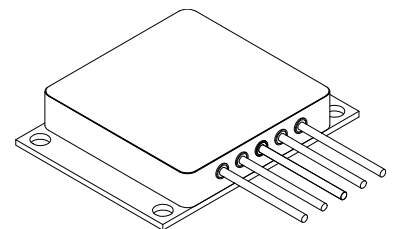
### NOTES:

1/ For ordering information, price, and availability - contact factory.

2/ Screening based on MIL-PRF-19500. Screening flows available on request.

3/ Unless otherwise specified, all electrical characteristics @25°C.

**5 Pin PowerPak**



**NOTE:** All specifications are subject to change without notification.  
SCD's for these devices should be reviewed by SSDI prior to release.

**DATA SHEET #: FT0047B**

**DOC**



**Solid State Devices, Inc.**

14701 Firestone Blvd \* La Mirada, CA 90638  
Phone: (562) 404-4474 \* Fax: (562) 404-1773  
ssdi@ssdi-power.com \* www.ssdi-power.com

# SFF2772-2

| Electrical Characteristics <sup>3/</sup>   |                                                  | Symbol        | Min | Typ    | Max       | Units   |
|--------------------------------------------|--------------------------------------------------|---------------|-----|--------|-----------|---------|
| <b>Drain to Source Breakdown Voltage</b>   | $V_{GS} = 0V, I_D = 1mA$                         | $BV_{DSS}$    | 900 | 960    | —         | V       |
| <b>Drain to Source On State Resistance</b> | $V_{GS} = 10V, I_D = 18A, T_j = 25^{\circ}C$     | $R_{DS(on)}$  | —   | 200    | 260       | mΩ      |
|                                            | $V_{GS} = 10V, I_D = 36A, T_j = 25^{\circ}C$     |               | —   | 220    | —         |         |
|                                            | $V_{GS} = 10V, I_D = 18A, T_j = 125^{\circ}C$    |               | —   | 310    | 540       |         |
| <b>Gate Threshold Voltage</b>              | $V_{DS} = V_{GS}, I_D = 1mA, T_j = 25^{\circ}C$  | $V_{GS(th)}$  | 2.0 | 5.0    | 6.5       | V       |
|                                            | $V_{DS} = V_{GS}, I_D = 1mA, T_j = 125^{\circ}C$ |               | 1.0 | 4.0    | —         |         |
|                                            | $V_{DS} = V_{GS}, I_D = 1mA, T_j = -55^{\circ}C$ |               | —   | 6.0    | 7.5       |         |
| <b>Gate to Source Leakage</b>              | $V_{GS} = \pm 30V, T_j = 25^{\circ}C$            | $I_{GSS}$     | —   | 10     | $\pm 100$ | nA      |
|                                            | $V_{GS} = \pm 30V, T_j = 125^{\circ}C$           |               | —   | 30     | $\pm 400$ |         |
|                                            | —                                                |               | —   | —      | —         |         |
| <b>Zero Gate Voltage Drain Current</b>     | $V_{DS} = 720V, V_{GS} = 0V, T_j = 25^{\circ}C$  | $I_{DSS}$     | —   | 0.3    | 250       | $\mu A$ |
|                                            | $V_{DS} = 900V, V_{GS} = 0V, T_j = 25^{\circ}C$  |               | —   | 0.5    | -         | $\mu A$ |
|                                            | $V_{DS} = 720V, V_{GS} = 0V, T_j = 125^{\circ}C$ |               | —   | 0.25   | 5         | mA      |
|                                            | —                                                |               | —   | —      | —         | —       |
| <b>Total Gate Charge</b>                   | $V_{GS} = 10V$                                   | $Q_g$         | —   | 410    | 675       | nC      |
| <b>Gate to Source Charge</b>               | $V_{DS} = 500V$                                  | $Q_{gs}$      | —   | 130    | 175       |         |
| <b>Gate to Drain Charge</b>                | $I_D = 20A$                                      | $Q_{gd}$      | —   | 225    | 340       |         |
| <b>Turn on Delay Time</b>                  | $V_{GS} = 10V$                                   | $t_{d(on)}$   | —   | 90     | 130       | nsec    |
| <b>Rise Time</b>                           | $V_{DS} = 450V$                                  | $t_r$         | —   | 87     | 90        |         |
| <b>Turn off Delay Time</b>                 | $I_D = 36A$                                      | $t_{d(off)}$  | —   | 180    | 200       |         |
| <b>Fall Time</b>                           | $R_G = 5 \text{ or } 50\Omega, pw = 3\mu s$      | $t_f$         | —   | 110    | 140       |         |
| <b>Diode Forward Voltage</b>               | $I_F = 36A, V_{GS} = 0V$                         | $V_{SD}$      | —   | 0.76   | 1.8       | V       |
| <b>Diode Reverse Recovery Time</b>         | $I_F = 36A, di/dt = 100A/\mu s$                  | $t_{rr}$      | —   | 325    | 1700      | nsec    |
| <b>Peak Reverse Recovery Current</b>       |                                                  | $I_{RM(rec)}$ | —   | 15     | —         | A       |
| <b>Reverse Recovery Charge</b>             |                                                  | $Q_{rr}$      | —   | 1.6    | —         | $\mu C$ |
| <b>Safe Operating Area</b>                 | $V_{DS} = 20V, t = 0.4s, T_j = 25^{\circ}C$      | <b>SOA1</b>   | 36  | -      | -         | A       |
|                                            | $V_{DS} = 90V, t = 0.4s, T_j = 25^{\circ}C$      | <b>SOA2</b>   | 4   | -      | -         |         |
| <b>Input Capacitance</b>                   | $V_{GS} = 0V$                                    | $C_{iss}$     | —   | 24,500 | —         | pF      |
| <b>Output Capacitance</b>                  | $V_{DS} = 25V$                                   | $C_{oss}$     | —   | 1350   | —         |         |
| <b>Reverse Transfer Capacitance</b>        | $f = 1MHz$                                       | $C_{rss}$     | —   | 350    | —         |         |

## NOTES:

\* Pulse Test: Pulse Width = 300μsec, Duty Cycle = 2%.

1/ For ordering information, price, and availability - contact factory.

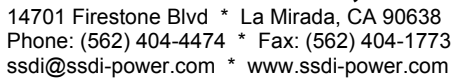
2/ Screening based on MIL-PRF-19500. Screening flows available on request.

3/ Unless otherwise specified, all electrical characteristics @25°C.

**NOTE:** All specifications are subject to change without notification.  
SCD's for these devices should be reviewed by SSDI prior to release.

**DATA SHEET #: FT0047B**

**DOC**



DOC