PRELIMINARY

SOLID STATE DEVICES, INC

# SFF430G

14849 Firestone Boulevard · La Mirada,CA 90638
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

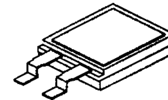
## Designer's Data Sheet

**4.5 AMP**
**500 VOLTS**
**1.6 Ω**
**N-CHANNEL**
**POWER MOSFET**

### FEATURES:

- Rugged construction with polysilicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed surface mount package
- TX, TXV and Space Level screening available
- Replaces: IRF430 Types

**CERPACK**



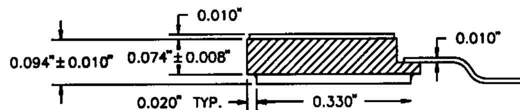
## MAXIMUM RATINGS

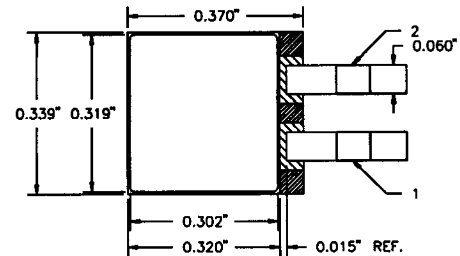
| CHARACTERISTIC | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Drain to Source Voltage | $V_{DS}$ | 500 | Volts |
| Gate to Source Voltage | $V_{GS}$ | ± 20 | Volts |
| Continuous Drain Current | $I_D$ | 4.5 | Amps |
| Operating and Storage Temperature | $T_{op}$ & $T_{stg}$ | -55 to +150 | °C |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 2.8 | °C/W |
| Total Device Dissipation @ TC=25°C<br>Total Device Dissipation @ TC=55°C | $P_D$ | 125<br>95 | Watts |

**PACKAGE OUTLINE: CERPACK**

**PIN OUT:**

**PIN 1: SOURCE**
**PIN 2: GATE**
**CASE: DRAIN**




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

**DATA SHEET #: F00251 B**

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## ELECTRICAL CHARACTERISTICS @ $T_J$=25°C (Unless Otherwise Specified)

| RATING | | SYMBOL | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **Drain to Source Breakdown Voltage**<br>(VGS=0 V, ID=250μA) | | $BV_{DSS}$ | 500 | --- | --- | V |
| **Drain to Source on State Resistance**<br>(VGS=10 V, ID= 2.5 A) | | $R_{DS(on)}$ | --- | 1.5 | 1.6 | Ω |
| **On State Drain Current**<br>(VDS = 8V, VGS=10 V) | | $I_{D(on)}$ | 4.5 | --- | --- | A |
| **Gate Threshold Voltage**<br>(VDS=VGS, ID=250μA) | | $V_{GS(th)}$ | 2.0 | --- | 4.0 | V |
| **Forward Transconductance**<br>(VDS ≥ 10 V, IDS= 2.5 A) | | gfs | 2.7 | 4.1 | --- | S(℧) |
| **Zero Gate Voltage Drain Current**<br>(VDS=max rated voltage, VGS=0 V)<br>(VDS=80% rated VDS, VGS=0 V, TA=125°C) | | $I_{DSS}$ | ---<br>--- | ---<br>--- | 250<br>1000 | μA |
| **Gate to Source Leakage Forward**<br>**Gate to Source Leakage Reverse** | At rated VGS | $I_{GSS}$ | ---<br>--- | ---<br>--- | 100<br>-100 | nA |
| **Total Gate Charge**<br>**Gate to Source Charge**<br>**Gate to Drain Charge** | VGS=10 Volts<br>80% rated VDS<br>Rated ID | $Q_g$<br>$Q_{gs}$<br>$Q_{gd}$ | ---<br>---<br>--- | 21<br>3.2<br>11 | 32<br>4.8<br>17 | nC |
| **Turn on Delay Time**<br>**Rise Time**<br>**Turn Off Delay Time**<br>**Fall Time** | VDD=50%<br>rated VDS<br>ID=4.5 A<br>RG= 12 Ω<br>RD= 56 Ω | $t_{d(on)}$<br>$t_r$<br>$t_{d(off)}$<br>$t_f$ | ---<br>---<br>---<br>--- | 11<br>15<br>35<br>15 | 17<br>23<br>53<br>23 | nsec |
| **Diode Forward Voltage**<br>(IS=rated ID, VGS=0 V, TJ=25°C) | | $V_{SD}$ | --- | --- | 1.6 | V |
| **Diode Reverse Recovery Time**<br>**Reverse Recovery Charge** | TJ=25°C<br>IF=rated ID<br>di/dt=100 A/μsec | $t_{rr}$<br>$Q_{RR}$ | 180<br>0.96 | 370<br>2.0 | 760<br>4.3 | nsec<br>μC |
| **Input Capacitance**<br>**Output Capacitance**<br>**Reverse Transfer Capacitance** | VGS=0 Volts<br>VDS=25 Volts<br>f= 1 MHz | $C_{iss}$<br>$C_{oss}$<br>$C_{rss}$ | ---<br>---<br>--- | 610<br>91<br>18 | ---<br>---<br>--- | pF |