



PRELIMINARY

SOLID STATE DEVICES, INC

**SFF430G**

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

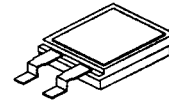
**Designer's Data Sheet**

**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

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

**CERPACK**



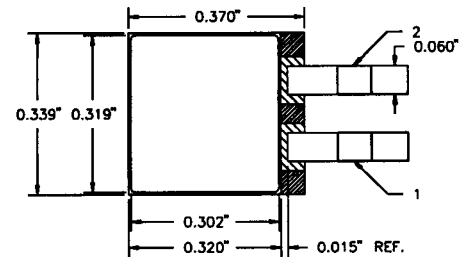
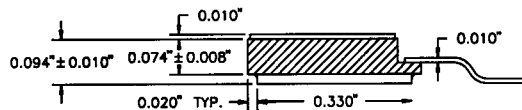
**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>DS</sub>	500	Volts
Gate to Source Voltage	V <sub>GS</sub>	± 20	Volts
Continuous Drain Current	I <sub>D</sub>	4.5	Amps
Operating and Storage Temperature	Top & Tstg	-55 to +150	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	2.8	°C/W
Total Device Dissipation @ TC=25°C	P <sub>D</sub>	125	Watts
Total Device Dissipation @ TC=55°C		95	

**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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Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**ELECTRICAL CHARACTERISTICS @ T<sub>J</sub>=25° C (Unless Otherwise Specified)**

<b>RATING</b>		<b>SYMBOL</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
<b>Drain to Source Breakdown Voltage</b> (V <sub>GS</sub> =0 V, I <sub>D</sub> =250μA)		<b>BV<sub>DSS</sub></b>	500	---	---	<b>V</b>
<b>Drain to Source on State Resistance</b> (V <sub>GS</sub> =10 V, I <sub>D</sub> = 2.5 A)		<b>R<sub>DS(on)</sub></b>	---	1.5	1.6	<b>Ω</b>
<b>On State Drain Current</b> (V <sub>DS</sub> = 8V, V <sub>GS</sub> =10 V)		<b>I<sub>D(on)</sub></b>	4.5	---	---	<b>A</b>
<b>Gate Threshold Voltage</b> (V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA)		<b>V<sub>GS(th)</sub></b>	2.0	---	4.0	<b>V</b>
<b>Forward Transconductance</b> (V <sub>DS</sub> ≥ 10 V, I <sub>DS</sub> = 2.5 A)		<b>g<sub>fs</sub></b>	2.7	4.1	---	<b>S(τ)</b>
<b>Zero Gate Voltage Drain Current</b> (V <sub>DS</sub> =max rated voltage, V <sub>GS</sub> =0 V) (V <sub>DS</sub> =80% rated V <sub>DS</sub> , V <sub>GS</sub> =0 V, T <sub>A</sub> =125° C)		<b>I<sub>DSS</sub></b>	---	---	250 1000	<b>μA</b>
<b>Gate to Source Leakage Forward</b> <b>Gate to Source Leakage Reverse</b>	At rated V <sub>GS</sub>	<b>I<sub>GSS</sub></b>	---	---	100 -100	<b>nA</b>
<b>Total Gate Charge</b> <b>Gate to Source Charge</b> <b>Gate to Drain Charge</b>	V <sub>GS</sub> =10 Volts 80% rated V <sub>DS</sub> Rated I <sub>D</sub>	<b>Q<sub>g</sub></b> <b>Q<sub>gs</sub></b> <b>Q<sub>gd</sub></b>	---	21 3.2 11	32 4.8 17	<b>nC</b>
<b>Turn on Delay Time</b> <b>Rise Time</b> <b>Turn Off Delay Time</b> <b>Fall Time</b>	V <sub>DD</sub> =50% rated V <sub>DS</sub> I <sub>D</sub> =4.5 A R <sub>G</sub> = 12 Ω R <sub>D</sub> = 56 Ω	<b>t<sub>d(on)</sub></b> <b>t<sub>r</sub></b> <b>t<sub>d(off)</sub></b> <b>t<sub>f</sub></b>	---	11 15 35 15	17 23 53 23	<b>nsec</b>
<b>Diode Forward Voltage</b> (I <sub>S</sub> =rated I <sub>D</sub> , V <sub>GS</sub> =0 V, T <sub>J</sub> =25° C)		<b>V<sub>SD</sub></b>	---	---	1.6	<b>V</b>
<b>Diode Reverse Recovery Time</b> <b>Reverse Recovery Charge</b>	T <sub>J</sub> =25° C I <sub>F</sub> =rated I <sub>D</sub> di/dt=100 A/μsec	<b>t<sub>rr</sub></b> <b>Q<sub>RR</sub></b>	180 0.96	370 2.0	760 4.3	<b>nsec</b> <b>μC</b>
<b>Input Capacitance</b> <b>Output Capacitance</b> <b>Reverse Transfer Capacitance</b>	V <sub>GS</sub> =0 Volts V <sub>DS</sub> =25 Volts f= 1 MHz	<b>C<sub>iss</sub></b> <b>C<sub>oss</sub></b> <b>C<sub>rss</sub></b>	---	610 91 18	---	<b>pF</b>