



PRELIMINARY

SOLID STATE DEVICES, INC

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

SFF440

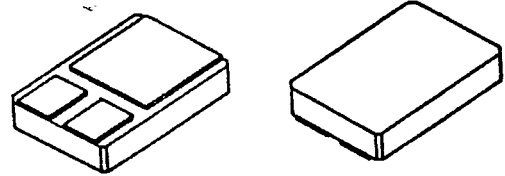
8 AMP  
500 VOLTS  
0.85Ω  
N-CHANNEL  
POWER MOSFET

### Designer's Data Sheet

#### FEATURES:

- Rugged construction with poly silicon 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 power package
- Low inductance leads
- TX, TXV and Space Level screening available
- Replaces: IRF440 Types

#### MILPACK



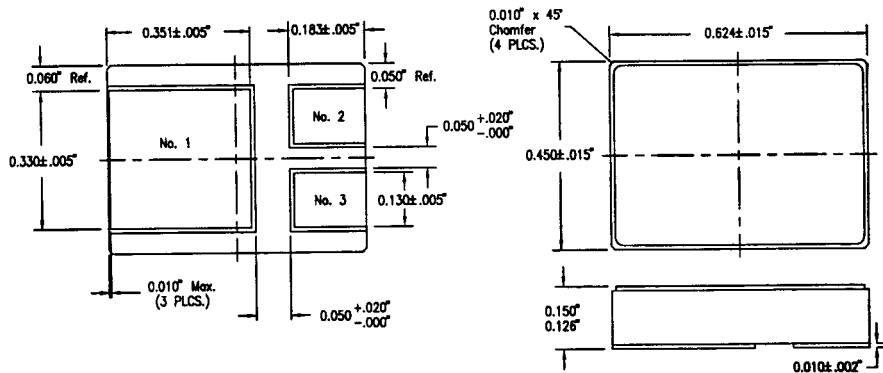
#### MAXIMUM RATINGS

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>	8 5	Amps
		@25°C @100°C	
Operating and Storage Temperature	T <sub>op</sub> & T <sub>stg</sub>	-55 to +150	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	1.7	°C/W
Total Device Dissipation @ TC=25°C	P <sub>D</sub>	74	Watts
Total Device Dissipation @ TC=55°C		55	
Single Pulse Avalanche Energy	E <sub>AS</sub>	3.6	mJ
Repetitive Avalanche Energy	E <sub>AR</sub>	---	

#### PACKAGE OUTLINE: MILPACK

#### PIN OUT:

PIN 1: DRAIN  
PIN 2: SOURCE  
PIN 3: GATE



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

DATA SHEET #: F00083 C

MED

**SFF440**

PRELIMINARY

**SOLID STATE DEVICES, INC**14849 Firestone Boulevard · La Mirada, CA 90638  
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**ELECTRICAL CHARACTERISTICS @ T<sub>J</sub>=25°C (Unless Otherwise Specified)**

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (V <sub>GS</sub> =0 V, I <sub>D</sub> =250μA)		BV <sub>DSS</sub>	500	---	---	V
Temperature Coefficient of Breakdown Voltage		$\frac{\Delta BV_{DSS}}{\Delta T_J}$	---	0.78	---	V/°C
Drain to Source on State Resistance @ 5 A (V <sub>GS</sub> =10 V) @ 8 A		R <sub>DS(on)</sub>	---	0.70 ---	0.85 0.98	Ω
Gate Threshold Voltage (V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA)		V <sub>GS(th)</sub>	2.0	---	4.0	V
Forward Transconductance (V <sub>DS</sub> ≥ 10V, I <sub>DS</sub> =5 A)		g <sub>fs</sub>	4.7	7.4	---	S(Ω)
Zero Gate Voltage Drain Current (V <sub>DS</sub> =80% 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)		I <sub>DSS</sub>	---	---	25 250	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated V <sub>GS</sub>	I <sub>GSS</sub>	---	---	100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	V <sub>GS</sub> =10 Volts 50% rated V <sub>DS</sub> I <sub>D</sub> =8 A	Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	27.3 2 11	34 6 17	68.5 12.5 42	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	V <sub>DD</sub> =50% rated V <sub>DS</sub> I <sub>D</sub> = 8 A R <sub>G</sub> =9.1Ω	t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	---	22 27 42 15	45 49 72 51	nsec
Diode Forward Voltage (I <sub>S</sub> =rated I <sub>D</sub> , V <sub>GS</sub> =0 V, T <sub>J</sub> =25°C)		V <sub>SD</sub>	---	---	1.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	T <sub>J</sub> =25°C I <sub>F</sub> =rated I <sub>D</sub> di/dt=100 A/μsec	t <sub>rr</sub> Q <sub>RR</sub>	---	380 3	700 8.9	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	V <sub>GS</sub> =0 Volts V <sub>DS</sub> =25 Volts f= 1 MHz	C <sub>iss</sub> C <sub>oss</sub> C <sub>rss</sub>	---	1300 310 120	---	pF

For thermal derating curves and other characteristic curves please contact SSDI Marketing Department.