


**SOLID STATE DEVICES, INC**
**PRELIMINARY**
**SFF20N60B**

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

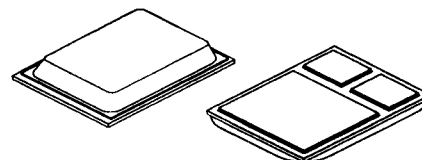
## Designer's Data Sheet

### 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
- Ceramic Seals for improved hermeticity
- Hermetically sealed surface mount power package
- TX, TXV and Space Level screening available
- Replaces: IXTH20N60 Types

**20 AMPS  
600 VOLTS  
0.35  $\Omega$   
N-CHANNEL  
POWER MOSFET**

### MILPACK 2



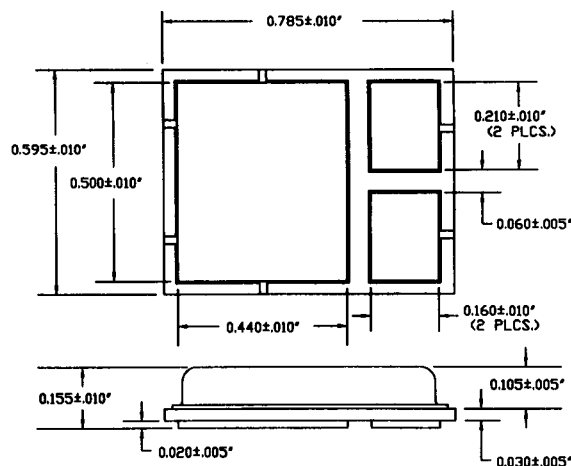
### MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>DS</sub>	600	Volts
Gate to Source Voltage	V <sub>GS</sub>	±20	Volts
Continuous Drain Current	I <sub>D</sub>	20	Amps
Operating and Storage Temperature	Top & Tstg	-55 to +175	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	0.5	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°C	P <sub>D</sub>	250 190	Watts

### PACKAGE OUTLINE: MILPACK 2

#### 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 #: F00209 C**
**MED**

## SFF20N60B

SOLID STATE DEVICES, INC

14849 Firestone Boulevard · La Mirada, CA 90638  
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424ELECTRICAL 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>	600	---	---	V
Drain to Source on State Resistance (V <sub>GS</sub> =10 V, I <sub>D</sub> =60% Rated ID)		R <sub>DS(on)</sub>	---	0.35	0.35	Ω
On State Drain Current (V <sub>DS</sub> > I <sub>D(on)</sub> X R <sub>DS(on)</sub> Max, V <sub>GS</sub> =10 V)		I <sub>D(on)</sub>	20	---	---	A
Gate Threshold Voltage (V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA)		V <sub>GS(th)</sub>	2.0	---	4.5	V
Forward Transconductance (V <sub>DS</sub> > I <sub>D(on)</sub> X R <sub>DS(on)</sub> Max, I <sub>DS</sub> =60% rated ID)		g <sub>fs</sub>	12	18	---	S(Ω)
Zero Gate Voltage Drain Current (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)		I <sub>DSS</sub>	---	---	200 1000	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 80% rated V <sub>DS</sub> 50 %Rated ID	Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	---	150 29 60	170 40 85	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	V <sub>DD</sub> =50% rated V <sub>DS</sub> 50% rated ID R <sub>G</sub> =6.2Ω	t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	---	30 30 110 30	40 60 150 60	nsec
Diode Forward Voltage (I <sub>S</sub> =rated ID, 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> =10A di/dt=100 A/μsec	t <sub>rr</sub> Q <sub>RR</sub>	---	600 ---	800 ---	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>	---	4500 420 140	---	pF

SAFE OPERATING AREA (S.O.A.)  
T<sub>C</sub> = 25 °C, D.C. CONDITION