



PRELIMINARY

SOLID STATE DEVICES, INC

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

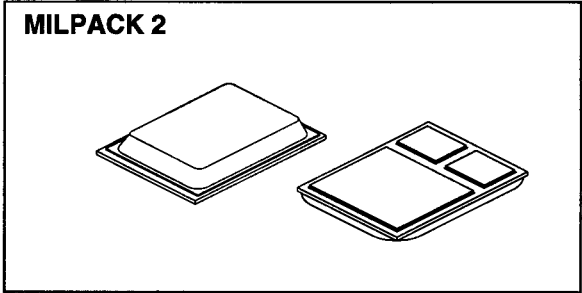
# SFF24N50B

**24 AMP  
500 VOLTS  
0.23 Ω  
N-CHANNEL  
POWER MOSFET**

## 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: IXTH24N50 Types



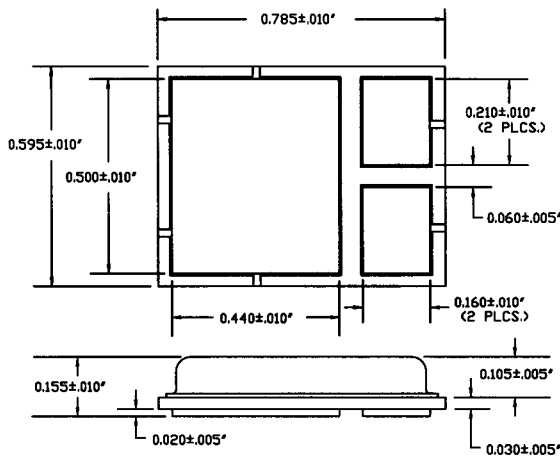
## MAXIMUM RATINGS

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>	24	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	P <sub>D</sub>	250	Watts
Total Device Dissipation @ TC=55°C		190	

## 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 #: F00173 D

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## 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
Drain to Source on State Resistance (V <sub>GS</sub> =10 V, I <sub>D</sub> =50% Rated ID)	R <sub>DS(on)</sub>	---	---	0.25	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>	24	---	---	A
Gate Threshold Voltage (V <sub>DS</sub> ≥ V <sub>GS</sub> , I <sub>D</sub> =4mA)	V <sub>GS(th)</sub>	2.0	---	4.0	V
Forward Transconductance (V <sub>DS</sub> > I <sub>D(on)</sub> X R <sub>DS(on)</sub> Max, I <sub>DS</sub> =50% rated ID)	g <sub>fs</sub>	12	16	---	S(τ)
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>	---	---	250 1000	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	I <sub>GSS</sub>	---	---	+100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	---	135 28 62	180 40 85	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	---	16 33 65 30	30 45 130 40	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>rr</sub> Q <sub>RR</sub>	---	---	500 ---	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	C <sub>iss</sub> C <sub>oss</sub> C <sub>rss</sub>	---	4200 450 135	---	pF

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

