



PRELIMINARY

SOLID STATE DEVICES, INC

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

SFF50N20/3

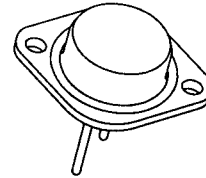
Designer's Data Sheet

FEATURES:

- Rugged construction with polysilicon gate
- Low $R_{DS(on)}$ 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 package
- TX, TXV and Space Level screening available
- Replaces: IXTH50N20 Type

50 AMP
200 VOLTS
0.050 Ω
N-CHANNEL
POWER MOSFET

TO-3

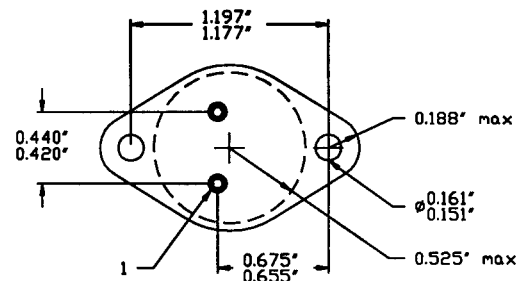
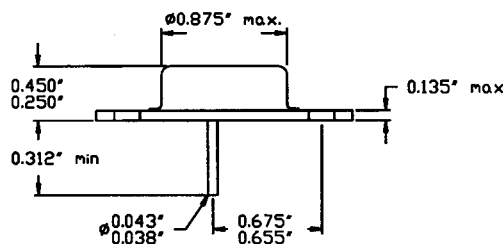


MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V_{DS}	200	Volts
Gate to Source Voltage	V_{GS}	± 20	Volts
Continuous Drain Current	I_D	50	Amps
Operating and Storage Temperature	$T_{op} \& T_{stg}$	-55 to +150	$^{\circ}C$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.5	$^{\circ}C/W$
Total Device Dissipation @ $T_C=25^{\circ}C$ Total Device Dissipation @ $T_C=55^{\circ}C$	P_D	250 190	Watts

PACKAGE OUTLINE: TO-3

PIN OUT:

PIN 1: GATE
PIN 2: SOURCE
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 #: F00139 B

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SFF50N20/3

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ELECTRICAL CHARACTERISTICS @ $T_J=25^{\circ}\text{C}$ (Unless Otherwise Specified)

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (VGS=0 V, ID=250μA)		BVDSS	200	---	---	V
Drain to Source on State Resistance (VGS=10 V, ID=60% Rated ID)		RDS(on)	---	---	0.050	Ω
On State Drain Current (VDS >ID(on) X RDS(on) Max, VGS=10 V)		ID(on)	50	---	---	A
Gate Threshold Voltage (VDS=VGS, ID=4mA)		VGS(th)	2.0	---	4.0	V
Forward Transconductance (VDS >ID(on) X RDS(on) Max, IDS=50% rated ID)		gfs	20	25	---	S(V)
Zero Gate Voltage Drain Current (VDS=max rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125°C)		IDSS	---	---	250 1000	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated VGS	IGSS	---	---	+100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	VGS=10 Volts 50% rated VDS 50% Rated ID	Qg Qgs Qgd	---	190 35 95	220 50 120	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	VDD=50% rated VDS 50% rated ID RG= 6.2Ω	td(on) tr td(off) tf	---	28 38 110 30	35 40 130 35	nsec
Diode Forward Voltage (IS=rated ID, VGS=0 V, TJ=25°C)		VSD	---	---	1.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	TJ=25°C IF=10 A di/dt=100 A/μsec	trr QRR	---	---	225 ---	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	VGS=0 Volts VDS=25 Volts f= 1 MHz	Ciss Coss Crss	---	4400 800 285	---	pF

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