

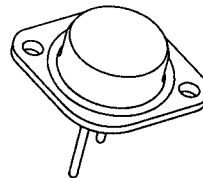


PRELIMINARY

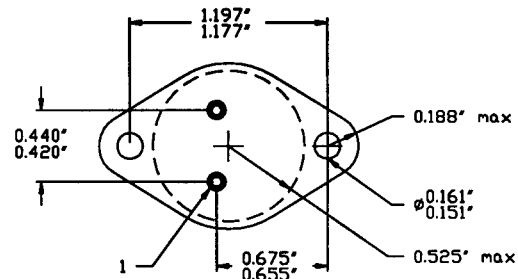
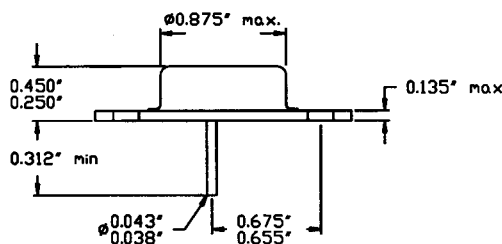
SOLID STATE DEVICES, INC

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 $R_{DS(on)}$ 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

SFF50N20/3**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****MED**

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 ($V_{GS}=0\text{ V}$, $I_D=250\mu\text{A}$)		BV_{DSS}	200	---	---	V
Drain to Source on State Resistance ($V_{GS}=10\text{ V}$, $I_D=60\%$ Rated ID)		$R_{DS(on)}$	---	---	0.050	Ω
On State Drain Current ($V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $V_{GS}=10\text{ V}$)		$I_D(on)$	50	---	---	A
Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=4\text{mA}$)		$V_{GS(th)}$	2.0	---	4.0	V
Forward Transconductance ($V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $I_{DS}=50\%$ rated ID)		g_{fs}	20	25	---	S(V)
Zero Gate Voltage Drain Current ($V_{DS}=\text{max rated voltage}$, $V_{GS}=0\text{ V}$) ($V_{DS}=80\%$ rated VDS, $V_{GS}=0\text{ V}$, $T_A=125^{\circ}\text{C}$)		I_{DSS}	---	---	250 1000	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated VGS	I_{GSS}	---	---	+100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	$V_{GS}=10\text{ Volts}$ 50% rated VDS 50% Rated ID	Q_g Q_{gs} Q_{gd}	---	190 35 95	220 50 120	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated VDS 50% rated ID $R_G=6.2\Omega$	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	---	28 38 110 30	35 40 130 35	nsec
Diode Forward Voltage ($I_S=\text{rated ID}$, $V_{GS}=0\text{ V}$, $T_J=25^{\circ}\text{C}$)		V_{SD}	---	---	1.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	$T_J=25^{\circ}\text{C}$ $I_F=10\text{ A}$ $di/dt=100\text{ A}/\mu\text{sec}$	t_{rr} Q_{RR}	---	---	225 ---	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	$V_{GS}=0\text{ Volts}$ $V_{DS}=25\text{ Volts}$ $f=1\text{ MHz}$	C_{iss} C_{oss} C_{rss}	---	4400 800 285	---	pF

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