



PRELIMINARY

SOLID STATE DEVICES, INC

SFF50N20/3

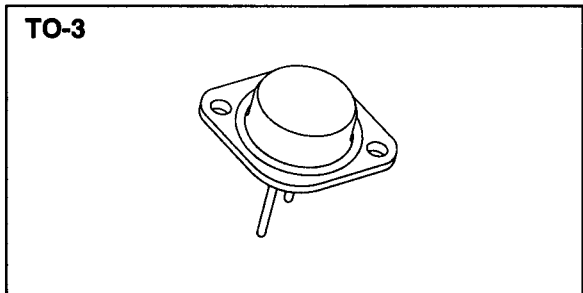
14849 Firestone Boulevard · La Mirada, CA 90638
 Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

Designer's Data Sheet

**50 AMP
 200 VOLTS
 0.050 Ω
 N-CHANNEL
 POWER MOSFET**

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
- Hermetically sealed package
- TX, TXV and Space Level screening available
- Replaces: IXTH50N20 Type



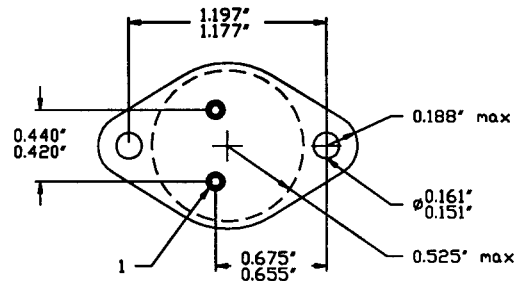
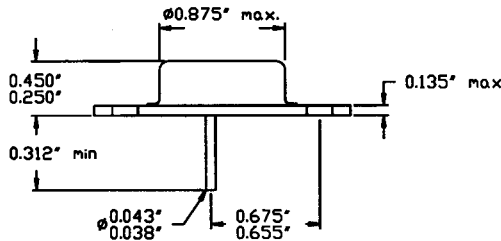
MAXIMUM RATINGS

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	°C
Thermal Resistance, Junction to Case	R _{θJC}	0.5	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°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**

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

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (V _{GS} =0 V, I _D =250μA)		BV_{DSS}	200	---	---	V
Drain to Source on State Resistance (V _{GS} =10 V, I _D =60% Rated ID)		R_{DS(on)}	---	---	0.050	Ω
On State Drain Current (V _{DS} > I _{D(on)} X R _{DS(on)} Max, V _{GS} =10 V)		I_{D(on)}	50	---	---	A
Gate Threshold Voltage (V _{DS} =V _{GS} , I _D =4mA)		V_{GS(th)}	2.0	---	4.0	V
Forward Transconductance (V _{DS} > I _{D(on)} X R _{DS(on)} Max, I _{DS} =50% rated ID)		g_{fs}	20	25	---	S(Ω)
Zero Gate Voltage Drain Current (V _{DS} =max rated voltage, V _{GS} =0 V) (V _{DS} =80% rated V _{DS} , V _{GS} =0 V, T _A =125° C)		I_{DSS}	---	---	250 1000	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated V _{GS}	I_{GSS}	---	---	+100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	V _{GS} =10 Volts 50% rated V _{DS} 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 V _{DS} 50% rated ID R _G = 6.2Ω	t_{d(on)} t_r t_{d(off)} t_f	---	28 38 110 30	35 40 130 35	nsec
Diode Forward Voltage (I _S =rated ID, V _{GS} =0 V, T _J =25° C)		V_{SD}	---	---	1.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	T _J =25° C I _F =10 A di/dt=100 A/μsec	t_{rr} Q_{RR}	---	---	225 ---	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	V _{GS} =0 Volts V _{DS} =25 Volts f= 1 MHz	C_{iss} C_{oss} C_{rss}	---	4400 800 285	---	pF

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