PRELIMINARY

SOLID STATE DEVICES, INC

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

SFF50N20N
SFF50N20P

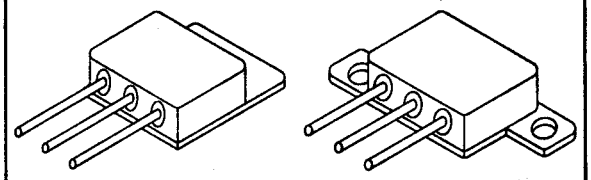
Designer's Data Sheet

50 AMP
200 VOLTS
0.055 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
- Ceramic Seals for improved hermeticity
- Hermetically sealed package
- TX, TXV and Space Level screening available
- Replaces: IXTH50N20 Types

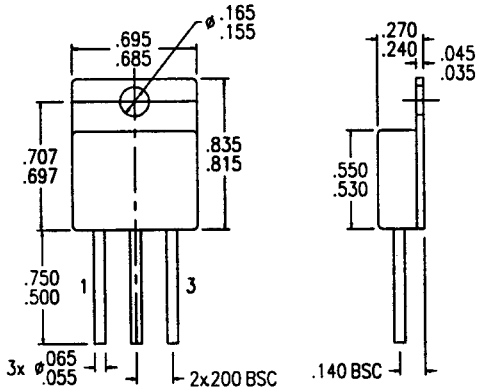
TO-258 (N) TO-259 (P)



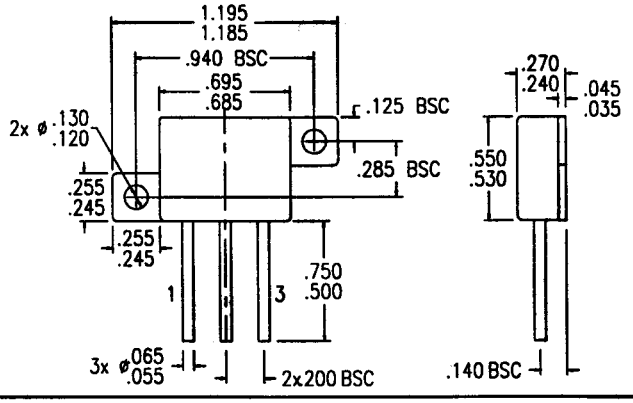
MAXIMUM RATINGS

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	$R_{\theta JC}$	0.83	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°C	P_D	150 114	Watts

PACKAGE OUTLINE: TO-258 (N)
PIN OUT:
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



PACKAGE OUTLINE: TO-259 (P)
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 #: F00133 B

MED

SFF50N20N
SFF50N20P

PRELIMINARY

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ELECTRICAL CHARACTERISTICS @ TJ=25°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)	---	---	0.055	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(℧)
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 VGS=10V	td(on) tr td(off) tf	--- --- --- ---	28 33 110 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	--- ---	--- 1.5	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