

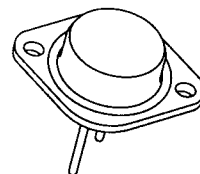


PRELIMINARY

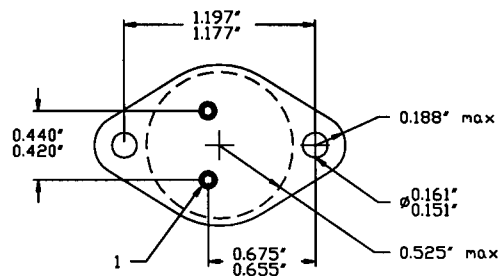
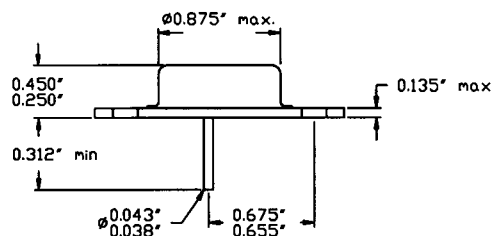
SOLID STATE DEVICES, INC

14849 Firestone Boulevard · La Mirada, CA 90638
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**Designer's Data Sheet****FEATURES:**

- Rugged construction with poly silicon 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
- Available in both hot case and isolated versions
- Ideal for low power applications
- TX, TXV and Space Level screening available
- Replaces: IRF130 Types

SFF130/3**14 AMP
100 VOLTS
0.16 Ω
N-CHANNEL
POWER MOSFET****TO-3****MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V_{DS}	100	Volts
Gate to Source Voltage	V_{GS}	± 20	Volts
Continuous Drain Current @ $TC=25^{\circ}C$ @ $TC=100^{\circ}C$	I_D	14 9	Amps
Operating and Storage Temperature	$T_{op} \text{ \& } T_{stg}$	-55 to +150	$^{\circ}C$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	5	$^{\circ}C/W$
Total Device Dissipation @ $TC=25^{\circ}C$ Total Device Dissipation @ $TA=25^{\circ}C$	P_D	25 19	Watts
Single Pulse Avalanche Energy	E_{AS}	75	mJ
Repetitive Avalanche Energy	E_{AR}	7.5	mJ

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 #: F00307 A**

SFF130/3

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RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage ($V_{GS}=0\text{ V}$, $I_D=250\mu\text{A}$)		BV_{DSS}	100	---	---	V
Temperature Coefficient of Breakdown Voltage		$\frac{\Delta BV_{DSS}}{\Delta T_J}$	---	130	---	mV/ $^\circ\text{C}$
Drain to Source on State Resistance ($V_{GS}=10\text{ V}$)	$I_D=9\text{ A}$ $I_D=14\text{ A}$	$R_{DS(on)}$	---	0.14	0.18 0.21	Ω
On State Drain Current ($V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $V_{GS}=10\text{ V}$)		$I_D(on)$	14	---	---	A
Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$)		$V_{GS(th)}$	2	2.8	4	V
Forward Transconductance ($V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $I_{DS}=9\text{ A}$)		g_{fs}	4.6	7	--	$S_{(T)}$
Zero Gate Voltage Drain Current ($V_{DS}=80\%$ max rated voltage, $V_{GS}=0\text{ V}$) ($V_{DS}=80\%$ rated V_{DS} , $V_{GS}=0\text{ V}$, $T_A=125^\circ\text{C}$)		I_{DSS}	---	---	25 250	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	$V_{GS}=10\text{ Volts}$ 50% rated V_{DS} Rated I_D	Q_g Q_{gs} Q_{gd}	12 1.5 .5	17 3.7 7.0	35 10 15	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated V_{DS} 50% rated I_D $R_G=7.5\Omega$	$t_d(on)$ t_r $t_d(off)$ t_f	---	9.5 42 22 25	35 80 60 45	nsec
Diode Forward Voltage ($I_S=\text{rated } I_D$, $V_{GS}=0\text{ V}$, $T_J=25^\circ\text{C}$)		V_{SD}	---	1	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}	---	120 0.58	300 3	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}	---	650 250 44	---	pF

SAFE OPERATING AREA (S.O.A.)
 $T_C = 25^\circ\text{C}$, D.C. CONDITION