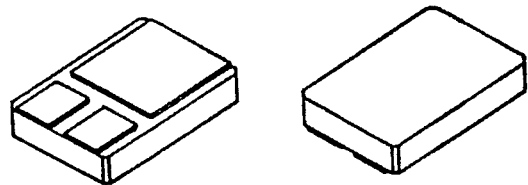




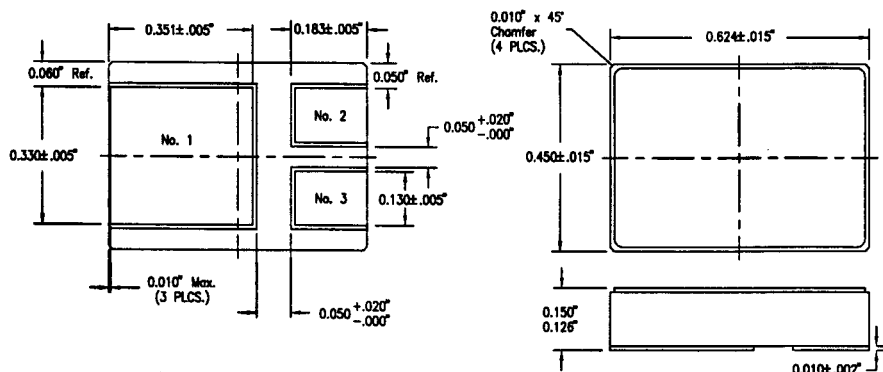
PRELIMINARY

SOLID STATE DEVICES, INC14849 Firestone Boulevard · La Mirada, CA 90638
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**SFF450****Designer's Data Sheet****FEATURES:**

- Rugged construction with poly silicon 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 surface mount power package
- TX, TXV and Space Level screening available
- Replaces: IRF450 Types

**12 AMP
500 VOLTS
0.40 Ω
N-CHANNEL
POWER MOSFET****MILPACK****MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V_{DS}	500	Volts
Gate to Source Voltage	V_{GS}	± 20	Volts
Continuous Drain Current @ 25°C @ 100°C	I_D	12 7.75	Amps
Operating and Storage Temperature	$T_{OP} \text{ \& } T_{STG}$	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.0	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°C	P_D	125 95	Watts
Single Pulse Avalanche Energy	EAS	8	mJ
Repetitive Avalanche Energy	EAR	---	mJ

PACKAGE OUTLINE: MILPACK**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 #: F00095 C**MED**

SFF450

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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 ($V_{GS}=0\text{ V}$, $I_D=1\text{ mA}$)		BV_{DSS}	500	---	---	V
Temperature Coefficient of Breakdown Voltage		$\frac{\Delta BV_{DSS}}{\Delta T_J}$	---	0.78	---	V/°C
Drain to Source on State Resistance ($V_{GS}=10\text{ V}$)	@ 7.75A @ 12 A	$R_{DS(on)}$	---	0.35 ---	0.40 0.50	Ω
Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$)		$V_{GS(th)}$	2.0	---	4.0	V
Forward Transconductance ($V_{DS} \geq 10\text{ V}$, $I_{DS}=7.75\text{ A}$)		g_{fs}	5.5	13	---	S (Ω)
Zero Gate Voltage Drain Current ($V_{DS}=80\%$ 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}	55 5 27	83 11 42	120 19 70	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated V_{DS} 50% rated I_D $R_G=6.2\ \Omega$	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	---	26 16 55 15	35 190 170 130	nsec
Diode Forward Voltage ($I_S=\text{rated } I_D$, $V_{GS}=0\text{ V}$, $T_J=25^\circ\text{C}$)		V_{SD}	---	0.9	1.7	V
Diode Reverse Recovery Time Reverse Recovery Charge	$T_J=25^\circ\text{C}$ $I_F=\text{rated } I_D$ $di/dt=100\text{ A}/\mu\text{sec}$	t_{rr} Q_{RR}	---	500 6.7	1600 14	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}	---	2700 600 240	---	pF

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