

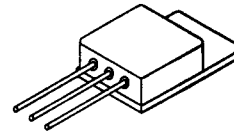


PRELIMINARY

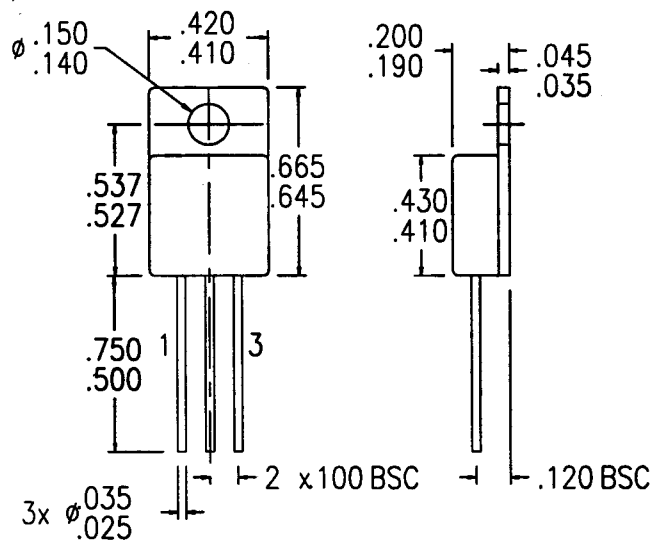
SOLID STATE DEVICES, INC

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

- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed package
- Low inductance leads
- TX, TXV and Space Level screening available
- Replaces: IRF420 Types

SFF420J**2.5 AMP
500 VOLTS
3.0Ω
N-CHANNEL
POWER MOSFET****TO-257****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	I _D	2.5	Amps
Operating and Storage Temperature	T _{op} & T _{stg}	-55 to +150	°C
Thermal Resistance, Junction to Case	R _{θJC}	2.5	°C/W
Total Device Dissipation @ TC=25°C	P _D	45	Watts

PACKAGE OUTLINE: TO-257**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 #: F00313 A**

SFF420J

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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
Drain to Source on State Resistance ($V_{GS}=10\text{ V}$)	$I_D=1.5\text{A}$	$R_{DS(on)}$	---	---	3.0	Ω
Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$)		$V_{GS(th)}$	2.0	---	4.0	V
Forward Transconductance ($V_{DS}\geq 15\text{V}$, $I_{DS}=1\text{A}$)		g_{fs}	1.0	---	---	S(Ω)
Zero Gate Voltage Drain Current ($V_{DS}=80\%$ rated V_{DS} , $V_{GS}=0\text{ V}$) ($V_{DS}=80\%$ 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} $I_D=1.5\text{ A}$	Q_g Q_{gs} Q_{gd}	7.3 0.1 3.7	---	16.7 3.0 12.0	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated V_{DS} $I_D=1.5\text{ A}$ $R_G=7.5\Omega$ $R_D=167\Omega$	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	---	---	40 30 60 30	nsec
Diode Forward Voltage ($I_S=\text{rated } I_D$, $V_{GS}=0\text{ V}$, $T_J=25^{\circ}\text{C}$)		V_{SD}	---	---	1.6	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}	---	---	900 5.9	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}	---	360 92 37	---	pF

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