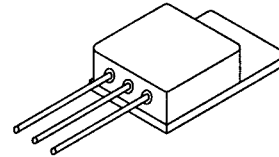




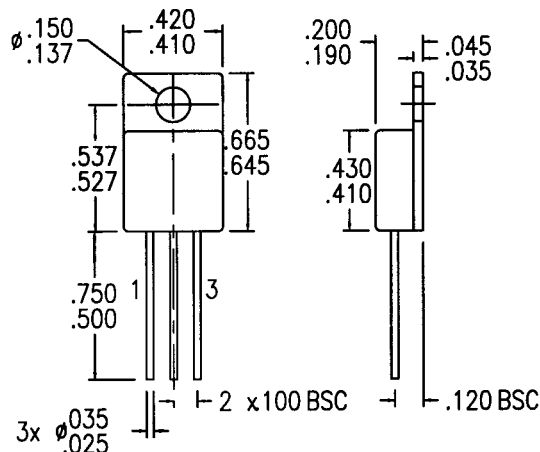
PRELIMINARY

SOLID STATE DEVICES, INC14849 Firestone Boulevard · La Mirada, CA 90638
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**SFF9140J****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
- TX, TXV and Space Level Screening available
- Replaces: IRF9140 Types

**-18 AMP
-100 VOLTS
0.20Ω
P-CHANNEL
POWER MOSFET****TO-257****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°C @TC = 100°C	I _D	18 11	Amps
Operating and Storage Temperature	T _{op} & T _{stg}	-55 to +150	°C
Thermal Resistance, Junction to Case	R _{θJC}	2.0	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°C	P _D	63 48	Watts
Single Pulse Avalanche Energy	E _{AS}	500	mJ
Repetitive Avalanche Energy	E _{AR}	12.5	mJ

PACKAGE OUTLINE: TO-257**PIN OUT:****PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE****NOTE:** All specifications are subject to change without notification. SSDI's for these devices should be reviewed by SSDI prior to release.**DATA SHEET #: FP0015 E****MED**

SFF9140J

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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}	-100	---	---	V
Drain to Source on State Resistance ($V_{GS}=-10\text{ V}$) $I_D=11\text{ A}$ $I_D=18\text{ A}$	$R_{DS(on)}$	---	0.15 ---	0.20 0.23	Ω
Temperature Coefficient of Breakdown Voltage	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	---	-0.087	---	A
Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$)	$V_{GS(th)}$	-2.0	---	-4.0	V
Forward Transconductance ($V_{DS}\geq 10\text{ V}$, $I_{DS}=11\text{ A}$)	g_{fs}	6.2	8	---	S(V)
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} $I_D=18\text{ A}$ Q_g Q_{gs} Q_{gd}	31 ---	50 3 25	70 13 45	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated V_{DS} rated I_D $R_G=9.1\Omega$ $t_d(on)$ t_r $t_d(off)$ t_f	---	15 8 35 20	35 85 85 65	nsec
Diode Forward Voltage ($I_S=\text{rated } I_D$, $V_{GS}=0\text{ V}$, $T_J=25^\circ\text{C}$)	V_{SD}	---	---	-4.2	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}	---	170 ---	280 3.6	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}	---	1400 600 200	1500 650 250	pF

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