



PRELIMINARY

SOLID STATE DEVICES, INC

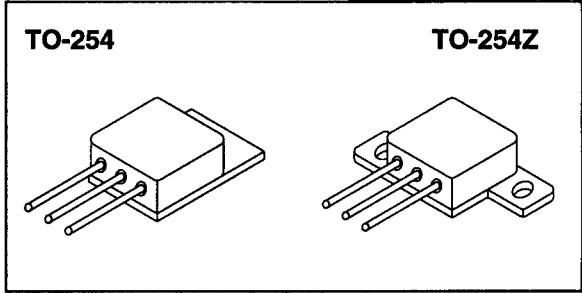
14849 Firestone Boulevard · La Mirada, CA 90638  
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

**SFF9140M  
SFF9140Z**

**-18 AMP  
-100 VOLTS  
0.20Ω  
P-CHANNEL  
POWER MOSFET**

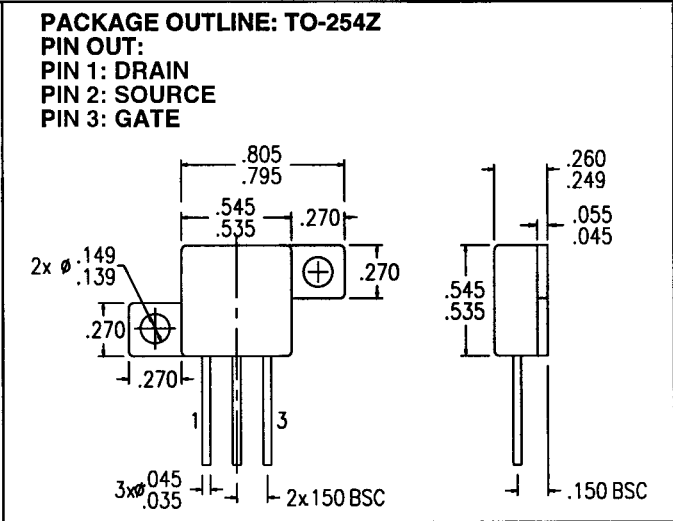
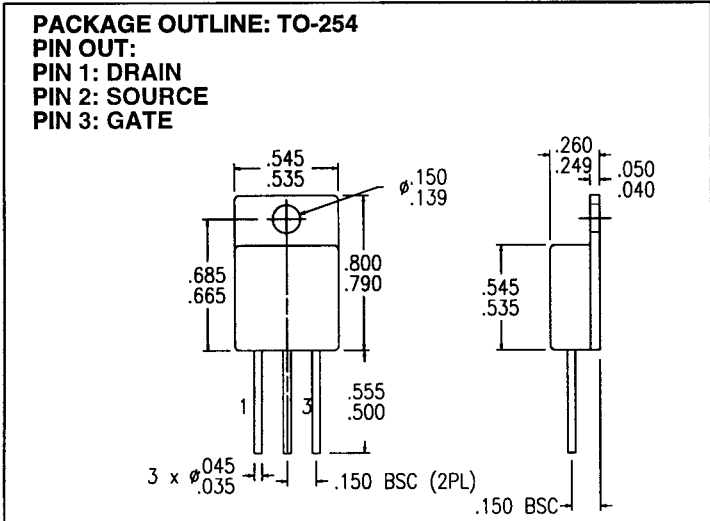
**Designer's Data Sheet**

- 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



**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>DS</sub>	-100	Volts
Gate to Source Voltage	V <sub>GS</sub>	±20	Volts
Continuous Drain Current @TC=25°C @TC=100°C	I <sub>D</sub>	18 11	Amps
Operating and Storage Temperature	T <sub>op</sub> & T <sub>stg</sub>	-55 to +150	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	1.7	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°C	P <sub>D</sub>	63 48	Watts
Single Pulse Avalanche Energy	E <sub>AS</sub>	500	mJ
Repetitive Avalanche Energy	E <sub>AR</sub>	12.5	mJ



Available with Glass or Ceramic Seals. Contact Factory for details.

**NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.**

**DATA SHEET #: FP0017 C**

**MED**

**SFF9140M**  
**SFF9140Z**

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**ELECTRICAL CHARACTERISTICS @ T<sub>J</sub>=25° C (Unless Otherwise Specified)**

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (V <sub>GS</sub> =0 V, I <sub>D</sub> =1mA)		BV <sub>DSS</sub>	-100	---	---	V
Drain to Source on State Resistance (V <sub>GS</sub> = -10 V)	I <sub>D</sub> =11A I <sub>D</sub> =18A	R <sub>DS(on)</sub>	---	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 <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> = -250μA)		V <sub>GS(th)</sub>	-2.0	---	-4.0	V
Forward Transconductance (V <sub>DS</sub> ≥15V, I <sub>DS</sub> =11A)		g <sub>fs</sub>	6.2	8	---	S(Ω)
Zero Gate Voltage Drain Current (V <sub>DS</sub> =80% rated voltage, V <sub>GS</sub> =0 V) (V <sub>DS</sub> =80% rated V <sub>DS</sub> , V <sub>GS</sub> =0 V, T <sub>A</sub> =125° C)		I <sub>DSS</sub>	---	---	25 250	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated V <sub>GS</sub>	I <sub>GSS</sub>	---	---	-100 100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	V <sub>GS</sub> = -10 Volts 50% rated V <sub>DS</sub> I <sub>D</sub> =18 A	Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	31 ---	50 3 25	70 13 45	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	V <sub>DD</sub> =50% rated V <sub>DS</sub> rated I <sub>D</sub> R <sub>G</sub> =9.1Ω	t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	---	15 8 35 20	35 85 85 65	nsec
Diode Forward Voltage (I <sub>S</sub> =rated I <sub>D</sub> , V <sub>GS</sub> =0 V, T <sub>J</sub> =25° C)		V <sub>SD</sub>	---	---	-4.2	V
Diode Reverse Recovery Time Reverse Recovery Charge	T <sub>J</sub> =25° C I <sub>F</sub> =rated I <sub>D</sub> di/dt=100 A/μsec	t <sub>rr</sub> Q <sub>RR</sub>	---	170 ---	280 3.6	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	V <sub>GS</sub> =0 Volts V <sub>DS</sub> = -25 Volts f= 1 MHz	C <sub>iss</sub> C <sub>oss</sub> C <sub>rss</sub>	---	1400 600 200	---	pF

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