



PRELIMINARY

SOLID STATE DEVICES, INC

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

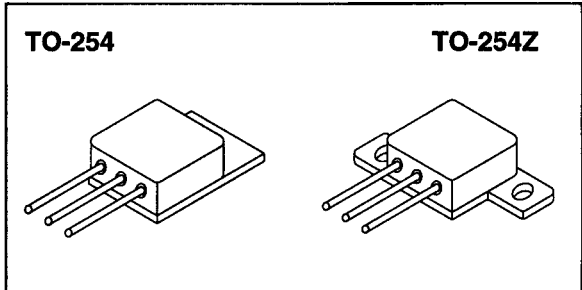
**SFF9140M  
SFF9140Z**

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

**Designer's Data Sheet**

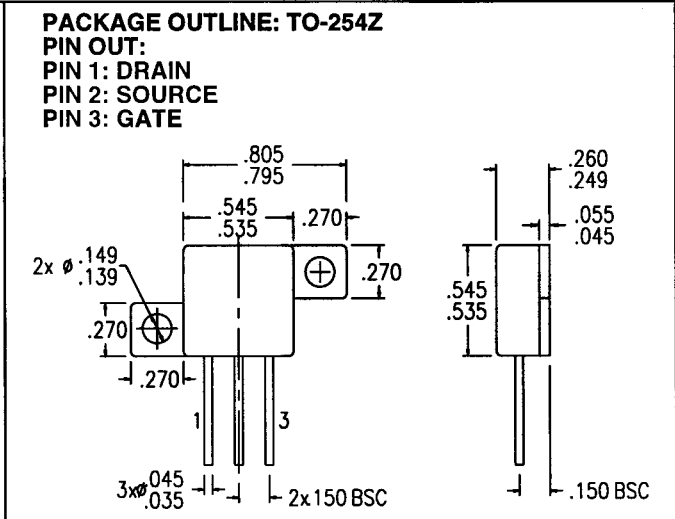
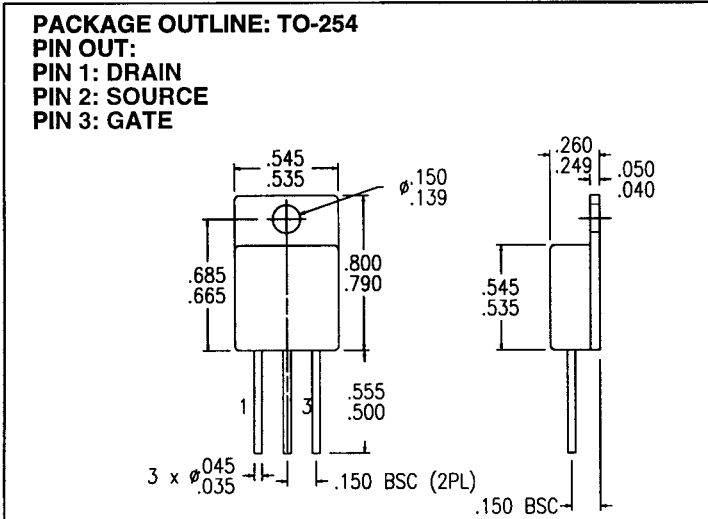
**FEATURES:**

- 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	Top & Tstg	-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
<b>Drain to Source Breakdown Voltage</b> (VGS=0 V, ID=1mA)		<b>BV<sub>DSS</sub></b>	-100	---	---	<b>V</b>
<b>Drain to Source on State Resistance</b> (VGS= -10 V)	ID=11A ID=18A	<b>R<sub>DS(on)</sub></b>	---	0.15 ---	0.20 0.23	<b>Ω</b>
<b>Temperature Coefficient of Breakdown Voltage</b>		$\frac{\Delta BV_{DSS}}{\Delta T_J}$	---	-0.087	---	<b>A</b>
<b>Gate Threshold Voltage</b> (VDS=VGS, ID= -250μA)		<b>VGS(th)</b>	-2.0	---	-4.0	<b>V</b>
<b>Forward Transconductance</b> (VDS≥15V, IDS=11A)		<b>g<sub>fs</sub></b>	6.2	8	---	<b>S(Ω)</b>
<b>Zero Gate Voltage Drain Current</b> (VDS=80% rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125° C)		<b>IDSS</b>	---	---	25 250	<b>μA</b>
<b>Gate to Source Leakage Forward</b> <b>Gate to Source Leakage Reverse</b>	At rated VGS	<b>I<sub>GSS</sub></b>	---	---	-100 100	<b>nA</b>
<b>Total Gate Charge</b> <b>Gate to Source Charge</b> <b>Gate to Drain Charge</b>	VGS= -10 Volts 50% rated VDS ID=18 A	<b>Q<sub>g</sub></b> <b>Q<sub>gs</sub></b> <b>Q<sub>gd</sub></b>	31 ---	50 3 25	70 13 45	<b>nC</b>
<b>Turn on Delay Time</b> <b>Rise Time</b> <b>Turn Off Delay Time</b> <b>Fall Time</b>	VDD=50% rated VDS rated ID RG=9.1Ω	<b>t<sub>d(on)</sub></b> <b>t<sub>r</sub></b> <b>t<sub>d(off)</sub></b> <b>t<sub>f</sub></b>	---	15 8 35 20	35 85 85 65	<b>nsec</b>
<b>Diode Forward Voltage</b> (IS=rated ID, VGS=0 V, T <sub>J</sub> =25° C)		<b>VSD</b>	---	---	-4.2	<b>V</b>
<b>Diode Reverse Recovery Time</b> <b>Reverse Recovery Charge</b>	T <sub>J</sub> =25° C IF=rated ID di/dt=100 A/μsec	<b>t<sub>rr</sub></b> <b>QRR</b>	---	170 ---	280 3.6	<b>nsec</b> <b>μC</b>
<b>Input Capacitance</b> <b>Output Capacitance</b> <b>Reverse Transfer Capacitance</b>	VGS=0 Volts VDS= -25 Volts f= 1 MHz	<b>C<sub>iss</sub></b> <b>C<sub>oss</sub></b> <b>C<sub>rss</sub></b>	---	1400 600 200	---	<b>pF</b>

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