



PRELIMINARY

SOLID STATE DEVICES, INC

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

SFF140M  
SFF140Z

28 AMP  
100 VOLT  
0.077 Ω  
N-CHANNEL  
POWER MOSFET

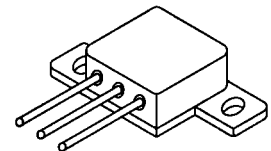
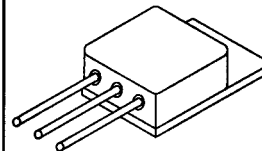
### Designer's Data Sheet

#### 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 package
- TX, TXV and Space Level screening available
- Replaces: IRFM140 Types

TO-254

TO-254Z

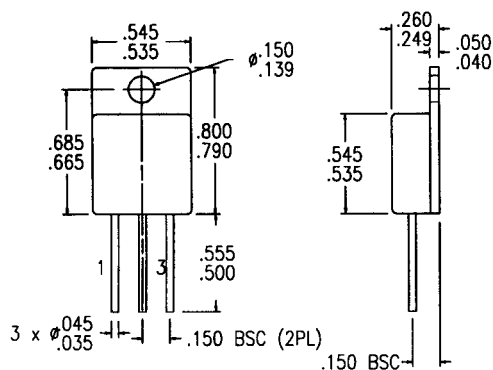


#### MAXIMUM RATINGS

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	I <sub>D</sub>	28	Amps
Operating and Storage Temperature	Top & Tstg	-55 to +175	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	1.7	°C/W
Total Device Dissipation @ TC=25°C	P <sub>D</sub>	74	Watts
Total Device Dissipation @ TC=55°C		56	

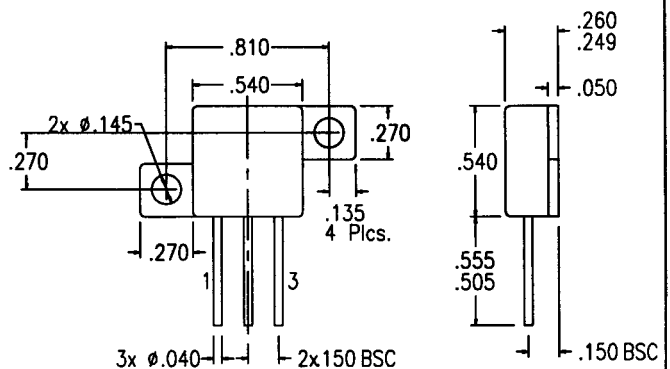
#### PACKAGE OUTLINE: TO-254

PIN OUT:  
PIN 1: DRAIN  
PIN 2: SOURCE  
PIN 3: GATE



#### PACKAGE OUTLINE: TO-254Z

PIN OUT:  
PIN 1: DRAIN  
PIN 2: SOURCE  
PIN 3: GATE



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 #: F00033 C

MED

**SFF140M**  
**SFF140Z**

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**ELECTRICAL CHARACTERISTICS @  $T_J=25^\circ\text{C}$  (Unless Otherwise Specified)**

RATING		SYMBOL	MIN	TYP	MAX	UNIT
<b>Drain to Source Breakdown Voltage</b> (VGS=0 V, ID=250 $\mu$ A)		<b>BVDSS</b>	100	---	---	<b>V</b>
<b>Drain to Source on State Resistance</b> (VGS=10 V, ID=60% Rated ID)		<b>RDS(on)</b>	---	0.06	0.077	$\Omega$
<b>On State Drain Current</b> (VDS > ID(on) X RDS(on) Max, VGS=10 V)		<b>ID(on)</b>	28	---	---	<b>A</b>
<b>Gate Threshold Voltage</b> (VDS=VGS, ID=250 $\mu$ A)		<b>VGS(th)</b>	2.0	2.4	4.0	<b>V</b>
<b>Forward Transconductance</b> (VDS > ID(on) X RDS(on) Max, IDS=60% rated ID)		<b>gfs</b>	8.7	13	---	<b>S(<math>\bar{v}</math>)</b>
<b>Zero Gate Voltage Drain Current</b> (VDS=max rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=150 $^\circ$ C)		<b>IDSS</b>	---	---	250 1000	$\mu$ <b>A</b>
<b>Gate to Source Leakage Forward</b> <b>Gate to Source Leakage Reverse</b>	At rated VGS	<b>IGSS</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 Rated ID	<b>Qg</b> <b>Qgs</b> <b>Qgd</b>	---	40 8 19	60 12 28	<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= 9.1 $\Omega$	<b>td(on)</b> <b>tr</b> <b>td(off)</b> <b>tf</b>	---	15 72 40 50	23 110 60 75	<b>nsec</b>
<b>Diode Forward Voltage</b> (IS=rated ID, VGS=0 V, TJ=25 $^\circ$ C)		<b>VSD</b>	---	1.3	2.5	<b>V</b>
<b>Diode Reverse Recovery Time</b> <b>Reverse Recovery Charge</b>	TJ=25 $^\circ$ C IF=10A di/dt=100 A/ $\mu$ sec	<b>trr</b> <b>QRR</b>	70 0.44	150 0.91	300 1.9	<b>nsec</b> $\mu$ <b>C</b>
<b>Input Capacitance</b> <b>Output Capacitance</b> <b>Reverse Transfer Capacitance</b>	VGS=0 Volts VDS=25 Volts f= 1 MHz	<b>Ciss</b> <b>Coss</b> <b>Crss</b>	---	1500 500 90	---	<b>pF</b>

SAFE OPERATING AREA (S.O.A.)  
TC = 25 $^\circ$ C, D.C. CONDITION

