

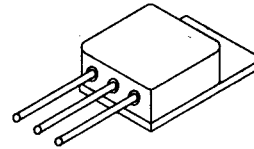
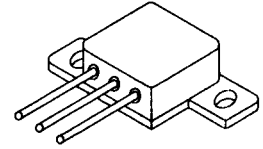

**SOLID STATE DEVICES, INC**
**PRELIMINARY**
**SFF440M  
SFF440Z**

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

## Designer's Data Sheet

### FEATURES:

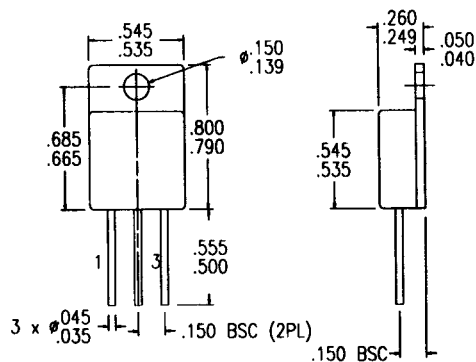
- Rugged construction with poly silicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed package
- Low inductance leads
- TX, TXV and Space Level screening available
- Replaces: IRF440 Types

**8 AMP  
500 VOLTS  
0.85Ω  
N-CHANNEL  
POWER MOSFET**
**TO-254**

**TO-254Z**


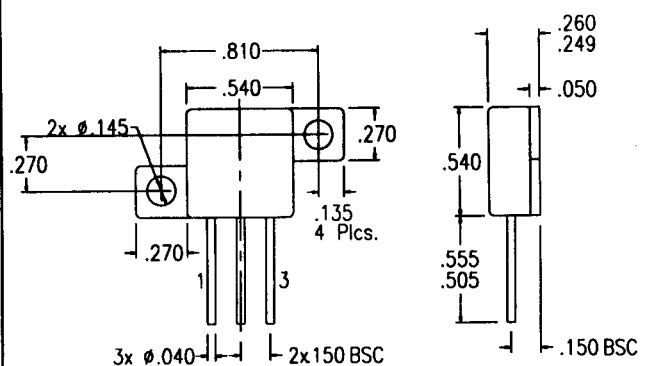
### MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>DS</sub>	500	Volts
Gate to Source Voltage	V <sub>GS</sub>	±20	Volts
Continuous Drain Current	I <sub>D</sub>	8	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>	74 56	Watts

#### 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 #: F00089 B**
**MED**

**SFF440M**  
**SFF440Z**

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

<b>RATING</b>		<b>SYMBOL</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
<b>Drain to Source Breakdown Voltage</b> (V <sub>GS</sub> =0 V, I <sub>D</sub> =250μA)		<b>BVDSS</b>	500	---	---	<b>V</b>
<b>Drain to Source on State Resistance</b> (V <sub>GS</sub> =10 V, I <sub>D</sub> =60% Rated ID)		<b>RDS(on)</b>	---	0.70	0.85	<b>Ω</b>
<b>On State Drain Current</b> (V <sub>DS</sub> > I <sub>D(on)</sub> X RDS(on) Max, V <sub>GS</sub> =10 V)		<b>ID(on)</b>	8	---	---	<b>A</b>
<b>Gate Threshold Voltage</b> (V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA)		<b>VGS(th)</b>	2.0	---	4.0	<b>V</b>
<b>Forward Transconductance</b> (V <sub>DS</sub> ≥ 50V, I <sub>DS</sub> =60% rated ID)		<b>gfs</b>	4.9	7.4	---	<b>S(Ω)</b>
<b>Zero Gate Voltage Drain Current</b> (V <sub>DS</sub> =max 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)		<b>IDSS</b>	---	---	250 1000	<b>μA</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>	V <sub>GS</sub> =10 Volts 80% rated V <sub>DS</sub> I <sub>D</sub> =8 A	<b>Qg</b> <b>Qgs</b> <b>Qgd</b>	---	42 6 22	63 10 32	<b>nC</b>
<b>Turn on Delay Time</b> <b>Rise Time</b> <b>Turn Off Delay Time</b> <b>Fall Time</b>	V <sub>DD</sub> =50% rated V <sub>DS</sub> I <sub>D</sub> = 8 A R <sub>G</sub> =9.1Ω R <sub>D</sub> =30Ω	<b>td(on)</b> <b>tr</b> <b>td(off)</b> <b>tf</b>	---	14 23 50 20	21 35 74 30	<b>nsec</b>
<b>Diode Forward Voltage</b> (I <sub>S</sub> =rated ID, V <sub>GS</sub> =0 V, T <sub>J</sub> =25°C)		<b>VSD</b>	---	---	2.0	<b>V</b>
<b>Diode Reverse Recovery Time</b> <b>Reverse Recovery Charge</b>	T <sub>J</sub> =25°C I <sub>F</sub> =rated ID di/dt=100 A/μsec	<b>trr</b> <b>QRR</b>	210 2	460 4.2	970 8.9	<b>nsec</b> <b>μC</b>
<b>Input Capacitance</b> <b>Output Capacitance</b> <b>Reverse Transfer Capacitance</b>	V <sub>GS</sub> =0 Volts V <sub>DS</sub> =25 Volts f= 1 MHz	<b>Ciss</b> <b>Coss</b> <b>Crss</b>	---	1300 180 45	---	<b>pF</b>

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