



PRELIMINARY

SOLID STATE DEVICES, INC

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

**SFFX054M  
SFFX054Z**

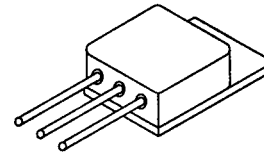
**35 AMP  
60 VOLTS  
0.022Ω  
N CHANNEL  
POWER MOSFET**

**Designer's Data Sheet**

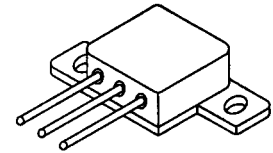
**FEATURES:**

- 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 power package
- TX, TXV and Space Level screening available
- Replaces: IRFM054 Types

TO-254



TO-254Z

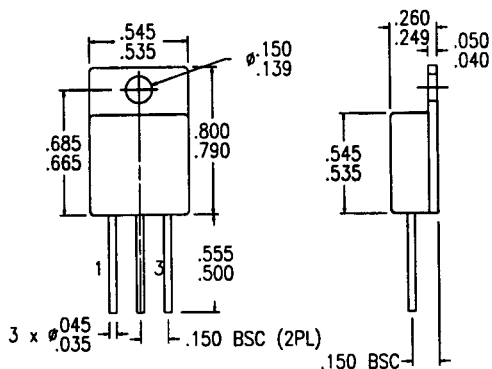


**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>DS</sub>	60	Volts
Gate to Source Voltage	V <sub>GS</sub>	±20	Volts
Continuous Drain Current	I <sub>D</sub>	35	Amps
Operating and Storage Temperature	Top & T <sub>stg</sub>	-55 to +150	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	0.83	°C/W
Total Device Dissipation @ TC=25°C	P <sub>D</sub>	150	Watts
Total Device Dissipation @ TC=55°C		114	

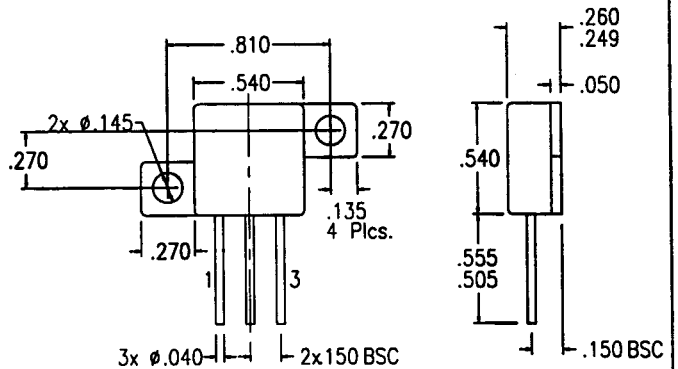
**PACKAGE OUTLINE: TO-254**

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



**PACKAGE OUTLINE: TO-254Z**

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



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 #: F00321 A**

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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>	60	---	---	V
Drain to Source on State Resistance (V <sub>GS</sub> =10 V, I <sub>D</sub> =60% Rated ID)		R <sub>DS(on)</sub>	---	0.017	0.022	Ω
On State Drain Current (V <sub>DS</sub> > I <sub>D(on)</sub> X R <sub>DS(on)</sub> Max, V <sub>GS</sub> =10 V)		I <sub>D(on)</sub>	35	---	---	A
Gate Threshold Voltage (V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA)		V <sub>GS(th)</sub>	2.0	2.6	4.0	V
Forward Transconductance (V <sub>DS</sub> > I <sub>D(on)</sub> X R <sub>DS(on)</sub> Max, I <sub>DS</sub> =35A)		g <sub>fs</sub>	20	45	---	S(Ω)
Zero Gate Voltage Drain Current (V <sub>DS</sub> =80%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)		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 80% rated V <sub>DS</sub> Rated I <sub>D</sub>	Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	80 10 34	---	180 45 105	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	V <sub>DD</sub> =50% rated V <sub>DS</sub> I <sub>D</sub> =35A R <sub>G</sub> =≤6.2Ω	t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	---	30 20 60 30	33 180 100 100	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>	---	1.1	2.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	T <sub>J</sub> =25° C I <sub>F</sub> =10A di/dt=100 A/μsec	t <sub>rr</sub> Q <sub>RR</sub>	---	---	280 2.2	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>	---	4600 2000 340	---	pF

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