

**SFF430M**  
**SFF430Z**

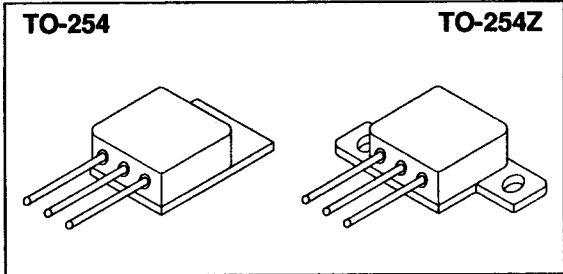
14849 Firestone Boulevard · La Mirada, CA 90638  
 Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

**Designer's Data Sheet**

**FEATURES:**

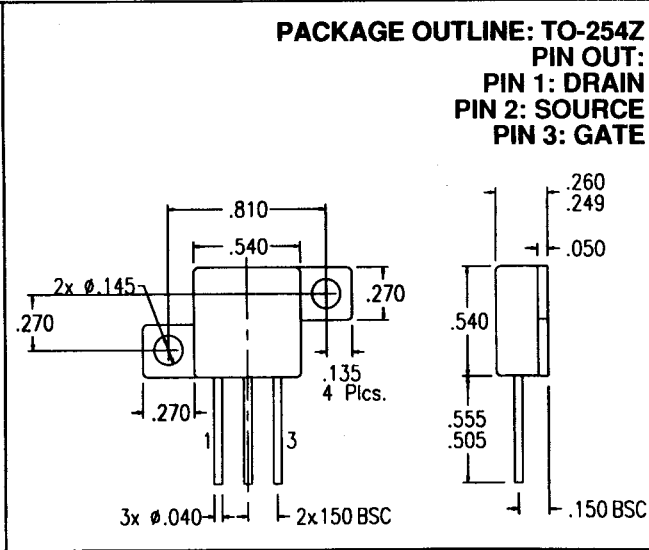
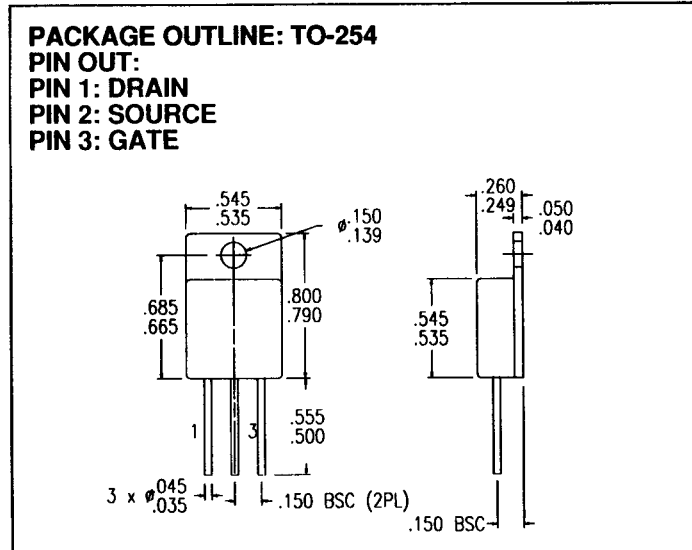
- Rugged construction with polysilicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Ceramic Seals for improved hermeticity
- Hermetically sealed package
- TX, TXV and Space Level screening available
- Replaces: IRF430 Types

**4.5 AMP**  
**500 VOLTS**  
**1.5 Ω**  
**N-CHANNEL**  
**POWER MOSFET**



**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>	4.5	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>	2	°C/W
Total Device Dissipation @ TC=25°C	P <sub>D</sub>	63	Watts
Total Device Dissipation @ TC=55°C		48	



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

<b>NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.</b>	<b>DATA SHEET #: F00121 B</b>	<b>MED</b>
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PRELIMINARY



**SOLID STATE DEVICES, INC**

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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 (VGS=0 V, ID=250μA)	BV <sub>DSS</sub>	500	---	---	V
Drain to Source on State Resistance (VGS=10 V, ID= 2.5 A)	R <sub>DS(on)</sub>	---	1.4	1.5	Ω
On State Drain Current (VDS > ID(on) X R <sub>DS(on)</sub> Max, VGS=10 V)	ID(on)	4.5	---	---	A
Gate Threshold Voltage (VDS=VGS, ID=250μA)	VGS(th)	2.0	---	4.0	V
Forward Transconductance (VDS ≥ 10 V, IDS= 2.5 A)	g <sub>fs</sub>	2.7	4.1	---	S(Ω)
Zero Gate Voltage Drain Current (VDS=max rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125°C)	I <sub>DSS</sub>	---	---	250 1000	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated VGS I <sub>GSS</sub>	---	---	100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	VGS=10 Volts 80% rated VDS Rated ID Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	---	21 3.2 11	32 4.8 17	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	VDD=50% rated VDS ID=4.5 A RG= 12 Ω RD= 56 Ω t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	---	11 15 35 15	17 23 53 23	nsec
Diode Forward Voltage (IS=rated ID, VGS=0 V, T <sub>J</sub> =25°C)	V <sub>SD</sub>	---	---	1.6	V
Diode Reverse Recovery Time Reverse Recovery Charge	T <sub>J</sub> =25°C I <sub>F</sub> =rated ID di/dt=100 A/μsec t <sub>rr</sub> Q <sub>RR</sub>	180 0.96	370 2.0	760 4.3	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	VGS=0 Volts VDS=25 Volts f= 1 MHz C <sub>iss</sub> C <sub>oss</sub> C <sub>rss</sub>	---	610 91 18	---	pF

SAFE OPERATING AREA (S.O.A.)  
T<sub>C</sub> = 25 °C, D.C. CONDITION

