



PRELIMINARY

SOLID STATE DEVICES, INC

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

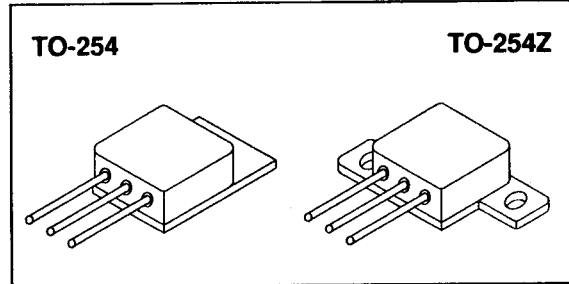
**SFF240M**  
**SFF240Z**

**18 AMP**  
**200 VOLTS**  
**0.18Ω**  
**N-CHANNEL**  
**POWER MOSFET**

**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: IRFM240 Types

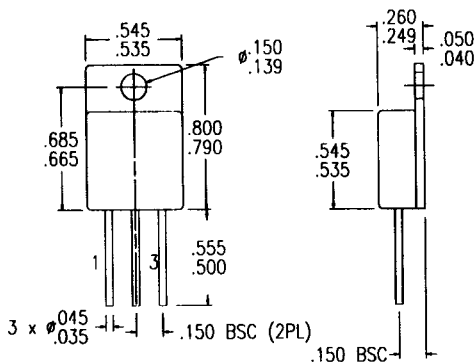


**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>DS</sub>	200	Volts
Gate to Source Voltage	V <sub>GS</sub>	±20	Volts
Continuous Drain Current	I <sub>D</sub>	18	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	P <sub>D</sub>	74	Watts
Total Device Dissipation @ TC=55°C		56	

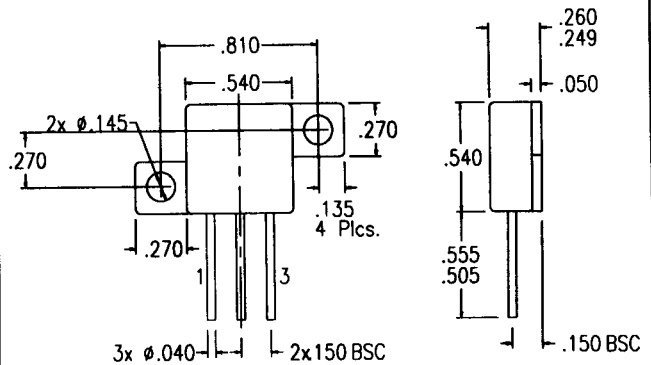
**PACKAGE OUTLINE: TO-254**

**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.	<b>DATA SHEET #: F00113 B</b>	<b>MED</b>
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# SFF240M SFF240Z

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

RATING	SYMBOL	MIN	TYP	MAX	UNIT	
Drain to Source Breakdown Voltage ( $V_{GS}=0\text{ V}$ , $I_D=250\mu\text{A}$ )	$BV_{DSS}$	200	---	---	V	
Drain to Source on State Resistance ( $V_{GS}=10\text{ V}$ , $I_D=10\text{ A}$ )	$R_{DS(on)}$	---	0.13	0.18	$\Omega$	
On State Drain Current ( $V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $V_{GS}=10\text{ V}$ )	$I_D(on)$	18	---	---	A	
Gate Threshold Voltage ( $V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$ )	$V_{GS(th)}$	2.0	---	4.0	V	
Forward Transconductance ( $V_{DS} \geq 10\text{ V}$ , $I_{DS}=10\text{ A}$ )	$g_{fs}$	6.5	10	---	$S(\Omega)$	
Zero Gate Voltage Drain Current ( $V_{DS}=\text{max rated voltage}$ , $V_{GS}=0\text{ V}$ ) ( $V_{DS}=80\%$ rated $V_{DS}$ , $V_{GS}=0\text{ V}$ , $T_A=125^\circ\text{C}$ )	$I_{DSS}$	---	---	250 1000	$\mu\text{A}$	
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated $V_{GS}$	---	---	100 -100	nA	
Total Gate Charge Gate to Source Charge Gate to Drain Charge	$V_{GS}=10\text{ Volts}$ 80% rated $V_{DS}$ Rated $I_D$	$Q_g$ $Q_{gs}$ $Q_{gd}$	---	40 7 21	60 10 32	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated $V_{DS}$ rated $I_D$ $R_G=9.1\ \Omega$ $R_D=5.6\ \Omega$	$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	---	14 52 45 36	21 77 68 54	nsec
Diode Forward Voltage ( $I_S=\text{rated } I_D$ , $V_{GS}=0\text{ V}$ , $T_J=25^\circ\text{C}$ )	$V_{SD}$	---	---	2.0	V	
Diode Reverse Recovery Time Reverse Recovery Charge	$T_J=25^\circ\text{C}$ $I_F=\text{rated } I_D$ $di/dt=100\text{ A}/\mu\text{sec}$	$t_{rr}$ $Q_{RR}$	120 1.3	250 2.6	530 5.6	nsec $\mu\text{C}$
Input Capacitance Output Capacitance Reverse Transfer Capacitance	$V_{GS}=0\text{ Volts}$ $V_{DS}=25\text{ Volts}$ $f=1\text{ MHz}$	$C_{iss}$ $C_{oss}$ $C_{rss}$	---	1300 380 93	---	pF

SAFE OPERATING AREA (S.O.A.)  
 $T_C = 25^\circ\text{C}$ , D.C. CONDITION

