PRELIMINARY

# SOLID STATE DEVICES, INC

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

# SFF230M
# SFF230Z

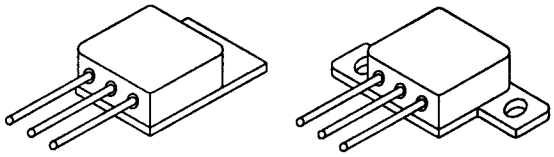
## Designer's Data Sheet

## 9 AMP
## 200 VOLTS
## 0.40Ω
## N-CHANNEL
## POWER MOSFET

### 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
- Ceramic seals for improved hermeticity
- TX, TXV and Space Level screening available
- Replaces: IRFM230 Types

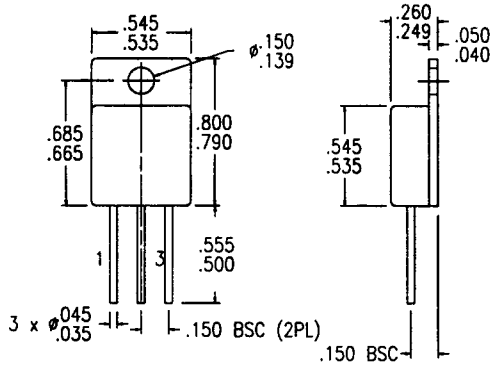
TO-254 TO-254Z



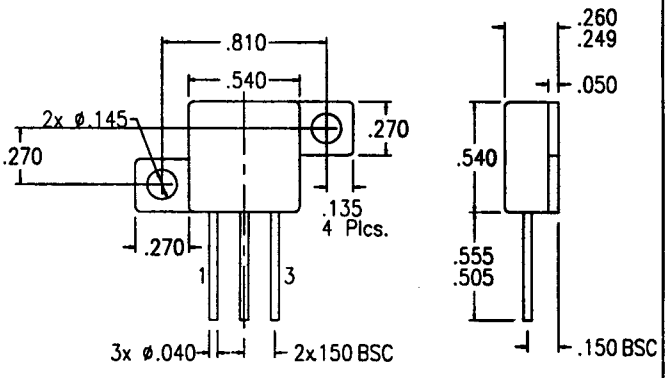
## MAXIMUM RATINGS

| CHARACTERISTIC | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Drain to Source Voltage | $V_{DS}$ | 200 | Volts |
| Gate to Source Voltage | $V_{GS}$ | ±20 | Volts |
| Continuous Drain Current | $I_D$ | 9 | Amps |
| Operating and Storage Temperature | $T_{op}$ & $T_{stg}$ | -55 to +150 | °C |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 2 | °C/W |
| Total Device Dissipation @ TC=25°C<br>Total Device Dissipation @ TC=55°C | $P_D$ | 63<br>48 | 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 #: F00015 C | MED |
|---|---|---|

PRELIMINARY

# SFF230M
# SFF230Z

SOLID STATE DEVICES, INC

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

## ELECTRICAL CHARACTERISTICS @ $T_J$=25°C (Unless Otherwise Specified)

| RATING | | SYMBOL | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **Drain to Source Breakdown Voltage** (VGS=0 V, ID=250μA) | | $BV_{DSS}$ | 200 | --- | --- | V |
| **Drain to Source on State Resistance** (VGS=10 V, ID= 5 A) | | $R_{DS(on)}$ | --- | 0.25 | 0.4 | Ω |
| **On State Drain Current** (VDS >ID(on) X RDS(on) Max, VGS=10 V | | $I_{D(on)}$ | 9 | --- | --- | A |
| **Gate Threshold Voltage** (VDS=VGS, ID=250μA) | | $V_{GS(th)}$ | 2 | --- | 4 | V |
| **Forward Transconductance** (VDS >ID(on) X RDS(on) Max, IDS= 5 A) | | $g_{fs}$ | 3.0 | 6 | --- | S(℧) |
| **Zero Gate Voltage Drain Current** (VDS=max rated voltage, VGS=0 V)<br>(VDS=80% rated VDS, VGS=0 V, TA=125°C) | | $I_{DSS}$ | ---<br>--- | ---<br>--- | 250<br>1000 | μA |
| **Gate to Source Leakage Forward**<br>**Gate to Source Leakage Reverse** | At rated VGS | $I_{GSS}$ | ---<br>--- | ---<br>--- | 100<br>-100 | nA |
| **Total Gate Charge**<br>**Gate to Source Charge**<br>**Gate to Drain Charge** | VGS=10 Volts<br>80% rated VDS<br>ID= 12 A | $Q_g$<br>$Q_{gs}$<br>$Q_{gd}$ | ---<br>---<br>--- | 30<br>10<br>9 | 39<br>---<br>--- | nC |
| **Turn on Delay Time**<br>**Rise Time**<br>**Turn Off Delay Time**<br>**Fall Time** | VDD=50%<br>rated VDS<br>50% rated ID<br>RG= 15Ω | $t_{d(on)}$<br>$t_r$<br>$t_{d(off)}$<br>$t_f$ | ---<br>---<br>---<br>--- | ---<br>---<br>---<br>--- | 30<br>50<br>50<br>40 | nsec |
| **Diode Forward Voltage** (IS=rated ID, VGS=0 V, TJ=25°C) | | $V_{SD}$ | --- | --- | 2.0 | V |
| **Diode Reverse Recovery Time**<br>**Reverse Recovery Charge** | TJ=150°C<br>IF=rated ID<br>di/dt=100 A/μsec | $t_{rr}$<br>$Q_{RR}$ | ---<br>--- | 450<br>3.0 | ---<br>--- | nsec<br>μC |
| **Input Capacitance**<br>**Output Capacitance**<br>**Reverse Transfer Capacitance** | VGS=0 Volts<br>VDS=25 Volts<br>f= 1 MHz | $C_{iss}$<br>$C_{oss}$<br>$C_{rss}$ | ---<br>---<br>--- | 600<br>250<br>80 | 800<br>450<br>150 | pF |

