PRELIMINARY

# SOLID STATE DEVICES, INC

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

## SFF230/5

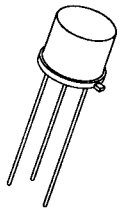
## Designer's Data Sheet

## 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
- Available in both hot case and isolated versions
- Ideal for low power applications
- TX, TXV and Space Level screening available
- Replaces: IRF230 Types

**TO-5**



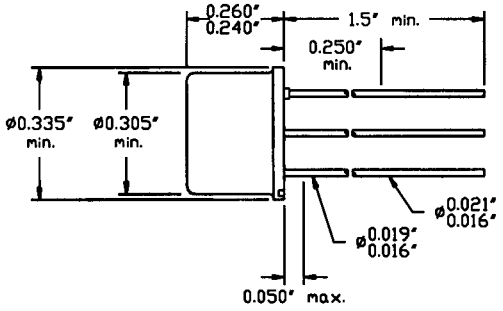
## MAXIMUM RATINGS

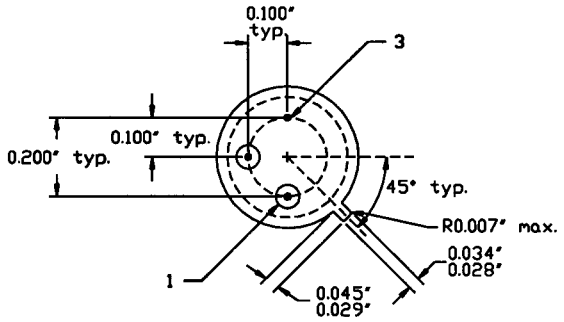
| CHARACTERISTIC | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Drain to Source Voltage | $V_{DS}$ | 200 | Volts |
| Gate to Source Voltage | $V_{GS}$ | ±20 | Volts |
| Continuous Drain Current | $I_D$ | 9 | Amps |
| Operating and Storage Temperature | $T_{op}$ & $T_{stg}$ | -55 to +150 | °C |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 5 | °C/W |
| Total Device Dissipation @ TC=25°C<br>Total Device Dissipation @ TA=25°C | $P_D$ | 25<br>19 | Watts |

**PACKAGE OUTLINE: TO-5**

**PIN OUT:**

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




| NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release. | DATA SHEET #: F00011 C | MED |
|---|---|---|

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

| RATING | | SYMBOL | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **Drain to Source Breakdown Voltage** (VGS=0 V, ID=250μA) | | **BVDSS** | 200 | --- | --- | **V** |
| **Drain to Source on State Resistance** (VGS=10 V, ID= 5 A) | | **RDS(on)** | --- | 0.25 | 0.4 | **Ω** |
| **On State Drain Current** (VDS >ID(on) X RDS(on) Max, VGS=10 V | | **ID(on)** | 9 | --- | --- | **A** |
| **Gate Threshold Voltage** (VDS=VGS, ID=250μA) | | **VGS(th)** | 2 | --- | 4 | **V** |
| **Forward Transconductance** (VDS >ID(on) X RDS(on) Max, IDS= 5 A) | | **gfs** | 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) | | **IDSS** | ---<br>--- | ---<br>--- | 250<br>1000 | **μA** |
| **Gate to Source Leakage Forward**<br>**Gate to Source Leakage Reverse** | At rated VGS | **IGSS** | ---<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= 9 A | **Qg**<br>**Qgs**<br>**Qgd** | ---<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 | **td(on)**<br>**tr**<br>**td(off)**<br>**tf** | ---<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) | | **VSD** | --- | --- | 2.0 | **V** |
| **Diode Reverse Recovery Time**<br>**Reverse Recovery Charge** | TJ=150°C<br>IF=rated ID<br>di/dt=100 A/μsec | **trr**<br>**QRR** | ---<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 | **Ciss**<br>**Coss**<br>**Crss** | ---<br>---<br>--- | 600<br>250<br>80 | 800<br>450<br>150 | **pF** |

