PRELIMINARY

# SFF340-28

SOLID STATE DEVICES, INC

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

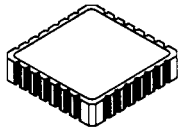
## Designer's Data Sheet

**10 AMP**
**400 VOLTS**
**0.58Ω**
**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 surface mount package
- TX, TXV and Space Level screening available
- Replaces: IRF340 Types

**28 PIN CLCC**



## MAXIMUM RATINGS

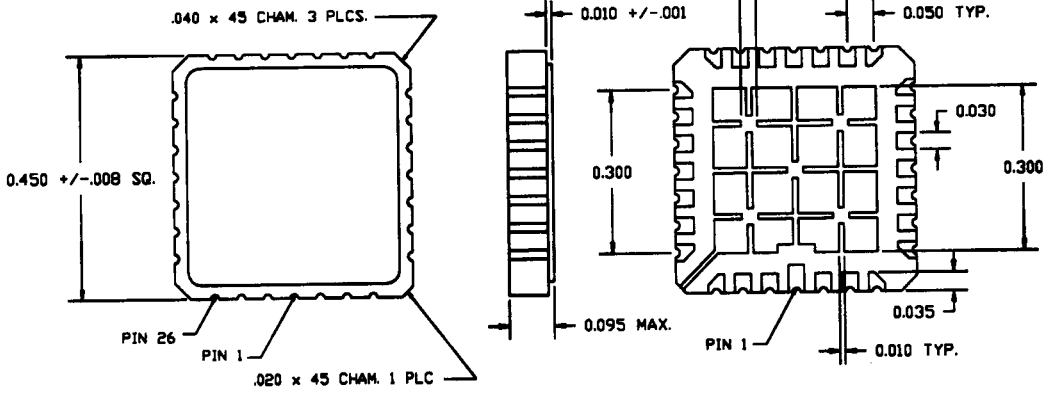
| CHARACTERISTIC | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Drain to Source Voltage | $V_{DS}$ | 400 | Volts |
| Gate to Source Voltage | $V_{GS}$ | ±20 | Volts |
| Continuous Drain Current | $I_D$ | 10* | Amps |
| Operating and Storage Temperature | $T_{op}$ & $T_{stg}$ | -55 to +150 | °C |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 3.5 | °C/W |
| Total Device Dissipation @ TC=25°C<br>Total Device Dissipation @ TC=80°C | $P_D$ | 36<br>27 | Watts |

**PACKAGE OUTLINE: 28 PIN CLCC**

**PIN OUT:**
**SOURCE: 1, 15-28**
**DRAIN: 5-11**
**GATE: 2, 3, 13, 14**

**NOTE:**

All Drain/Source Pins must be connected on the PC Board in order to maximize current capability and minimize RDS(on)




*** Rating based on size of chip. Device rating may vary depending on mounting and heatsink conditions. Consult SSDI Marketing department for thermal derating 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 #: F00073 A | MED |
|---|---|---|

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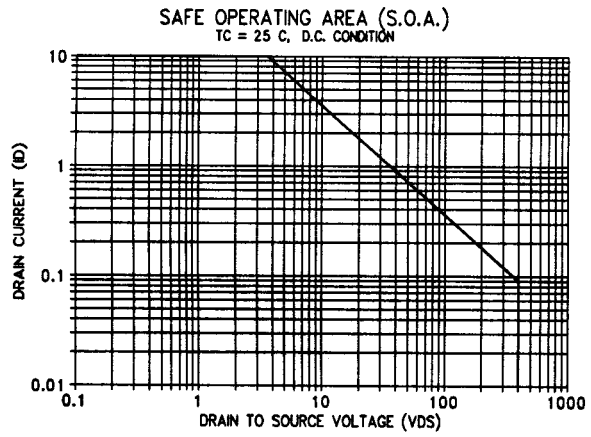
## ELECTRICAL CHARACTERISTICS @ TJ=25 C (Unless Otherwise Specified)

| RATING | | SYMBOL | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **Drain to Source Breakdown Voltage** (VGS=0 V, ID=250μA) | | BVDSS | 400 | --- | --- | V |
| **Drain to Source on State Resistance** (VGS=10 V, ID=60% Rated ID | | RDS(on) | --- | 0.42 | 0.58** | Ω |
| **On State Drain Current** (VDS >ID(on) X RDS(on) Max, VGS=10 V | | ID(on) | 10* | --- | --- | A |
| **Gate Threshold Voltage** (VDS=VGS, ID=250μA) | | VGS(th) | 2.0 | --- | 4.0 | V |
| **Forward Transconductance** (VDS ≥ 50V, IDS=60% rated ID) | | gfs | 5.8 | 8.7 | --- | 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=10A | Qg<br>Qgs<br>Qgd | ---<br>---<br>--- | 43<br>6<br>22 | 65<br>9.3<br>33 | nC |
| **Turn on Delay Time**<br>**Rise Time**<br>**Turn Off Delay Time**<br>**Fall Time** | VDD=50%<br>rated VDS<br>ID=10A<br>RG=9.1Ω<br>RD=20Ω | td(on)<br>tr<br>td(off)<br>tf | ---<br>---<br>---<br>--- | 14<br>27<br>50<br>24 | 9<br>30<br>74<br>36 | 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=25°C<br>IF=rated ID<br>di/dt=100 A/μsec | trr<br>QRR | 170<br>1.6 | 370<br>3.8 | 790<br>8.2 | 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>--- | 1300<br>210<br>37 | ---<br>---<br>--- | pF |




## NOTES:

* Rating based on size of chip. Device rating may vary depending on mounting and heatsink conditions. Consult SSDI Marketing department for thermal derating details.

** Due to package resistance; all Source/Drain pins must be connected on the PC Board in order to obtain the lowest RDS(on) possible.