PRELIMINARY

# SFF20N60B

SOLID STATE DEVICES, INC

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

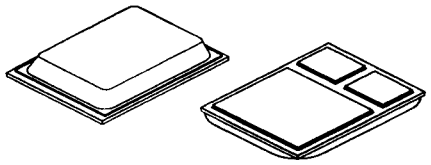
## Designer's Data Sheet

**20 AMPS**
**600 VOLTS**
**0.35 Ω**
**N-CHANNEL**
**POWER MOSFET**

### 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 surface mount power package
- TX, TXV and Space Level screening available
- Replaces: IXTH20N60 Types

**MILPACK 2**



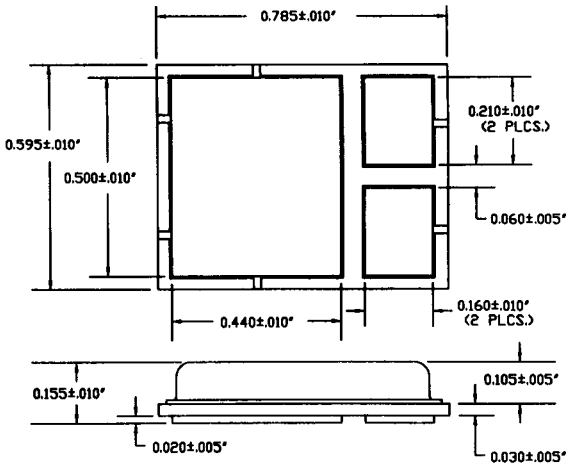
## MAXIMUM RATINGS

| CHARACTERISTIC | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Drain to Source Voltage | $V_{DS}$ | 600 | Volts |
| Gate to Source Voltage | $V_{GS}$ | ±20 | Volts |
| Continuous Drain Current | $I_D$ | 20 | Amps |
| Operating and Storage Temperature | $T_{op}$ & $T_{stg}$ | -55 to +175 | °C |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 0.5 | °C/W |
| Total Device Dissipation @ TC=25°C<br>Total Device Dissipation @ TC=55°C | $P_D$ | 250<br>190 | Watts |

**PACKAGE OUTLINE: MILPACK 2**

**PIN OUT:**

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




NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

**DATA SHEET #: F00209 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** | 600 | --- | --- | **V** |
| **Drain to Source on State Resistance** (VGS=10 V, ID=60% Rated ID | | **RDS(on)** | --- | 0.35 | 0.35 | **Ω** |
| **On State Drain Current** (VDS >ID(on) X RDS(on) Max, VGS=10 V | | **ID(on)** | 20 | --- | --- | **A** |
| **Gate Threshold Voltage** (VDS=VGS, ID=250μA) | | **VGS(th)** | 2.0 | --- | 4.5 | **V** |
| **Forward Transconductance** (VDS >ID(on) X RDS(on) Max, IDS=60% rated ID) | | **gfs** | 12 | 18 | --- | **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>--- | 200<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>50 %Rated ID | **Qg**<br>**Qgs**<br>**Qgd** | ---<br>---<br>--- | 150<br>29<br>60 | 170<br>40<br>85 | **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=6.2Ω | **td(on)**<br>**tr**<br>**td(off)**<br>**tf** | ---<br>---<br>---<br>--- | 30<br>30<br>110<br>30 | 40<br>60<br>150<br>60 | **nsec** |
| **Diode Forward Voltage** (IS=rated ID, VGS=0 V, TJ=25°C) | | **VSD** | --- | --- | 1.5 | **V** |
| **Diode Reverse Recovery Time**<br>**Reverse Recovery Charge** | TJ=25°C<br>IF=10A<br>di/dt=100 A/μsec | **trr**<br>**QRR** | ---<br>--- | 600<br>--- | 800<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>--- | 4500<br>420<br>140 | ---<br>---<br>--- | **pF** |

