

# Power MOSFET

## F20F60C3M

### 600V 20A

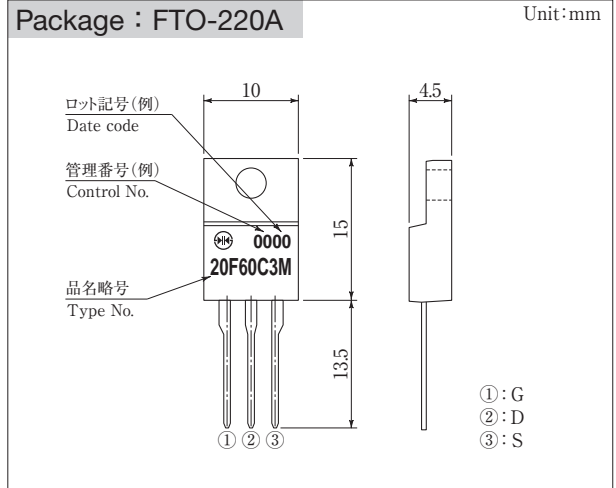
#### 特長

- 低オン抵抗
- 高速スイッチング
- 絶縁タイプ

#### Feature

- Low R<sub>ON</sub>
- Fast Switching
- Isolated Package

#### ■ 外観図 OUTLINE



外形図については新電元Webサイトをご参照下さい。捺印表示については捺印仕様をご確認下さい。

For details of the outline dimensions, refer to our web site. As for the marking, refer to the specification "Marking, Terminal Connection".

#### ■ 定格表 RATINGS

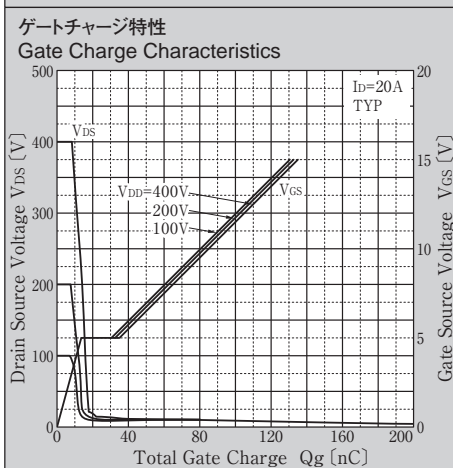
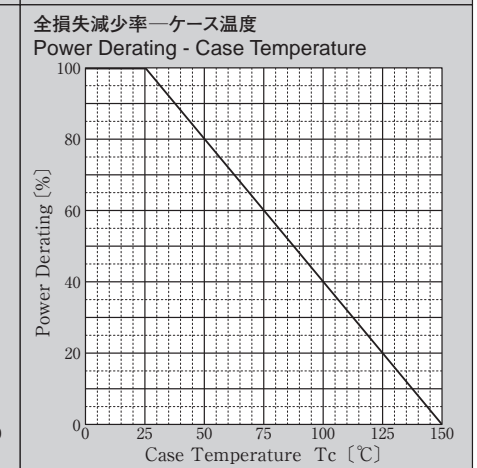
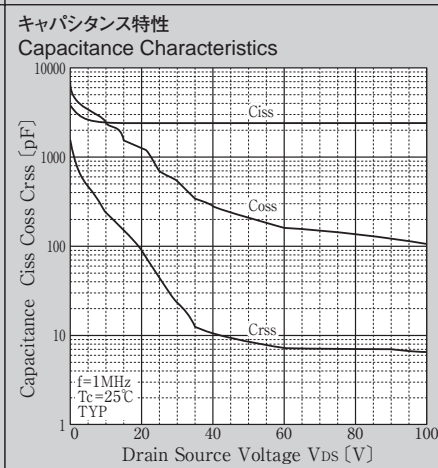
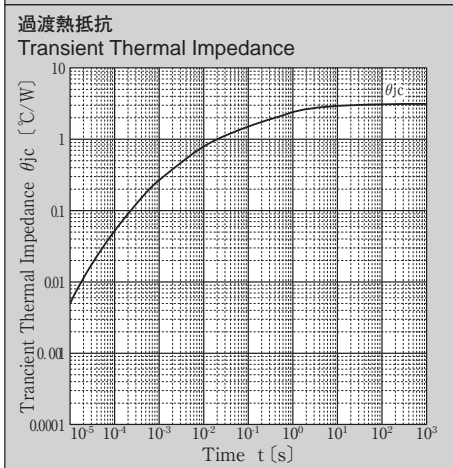
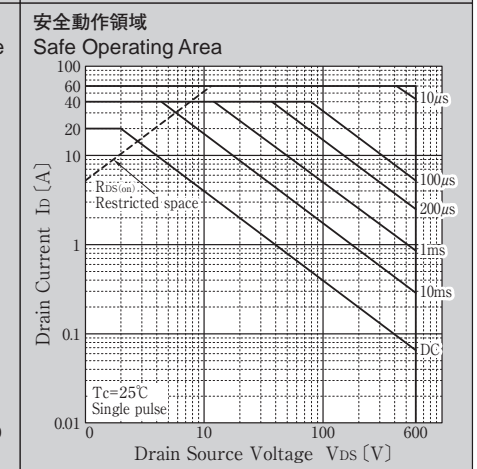
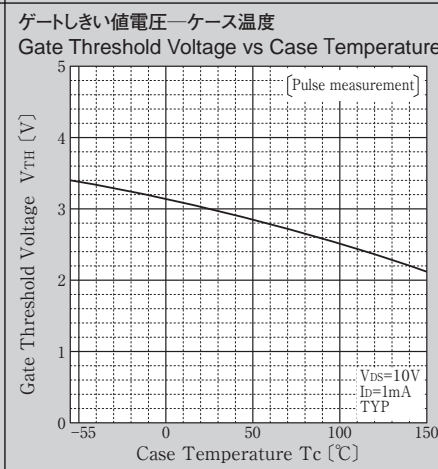
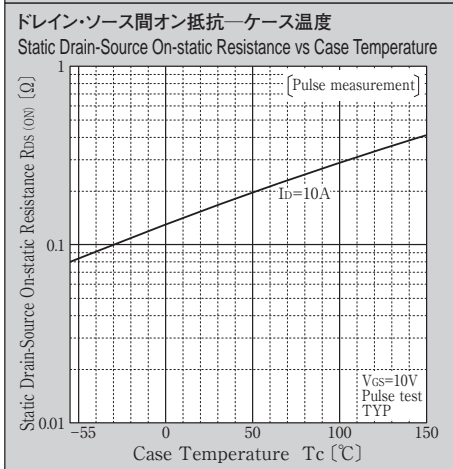
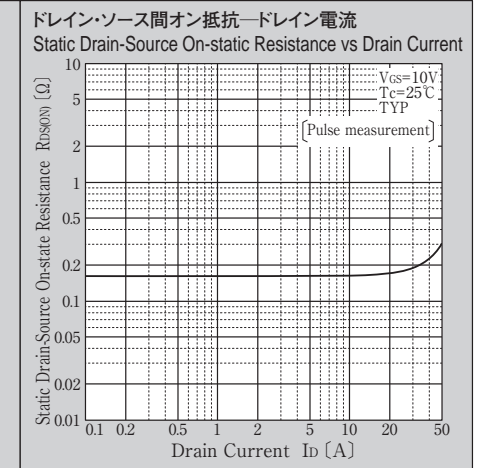
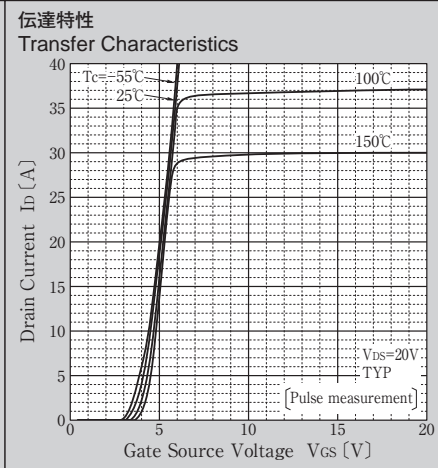
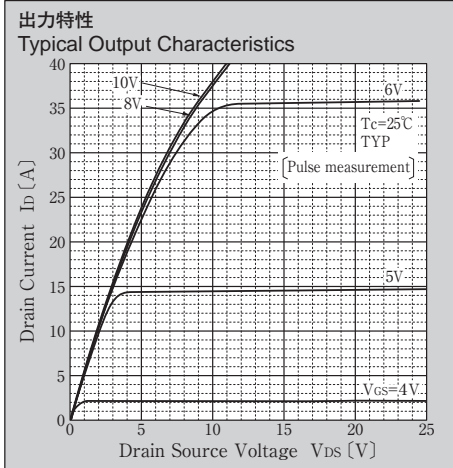
##### ● 絶対最大定格 Absolute Maximum Ratings (指定のない場合 T<sub>c</sub> = 25°C)

| 項目<br>Item                                      | 記号<br>Symbol     | 条件<br>Conditions  | 規格値<br>Ratings | 単位<br>Unit |
|---|------------------|---|----------------|------------|
| 保存温度<br>Storage Temperature                     | T <sub>stg</sub> |   | -55 ~ 150      | °C         |
| チャネル温度<br>Channel Temperature                   | T <sub>ch</sub>  |   | 150            |            |
| ドレイン・ソース間電圧<br>Drain-Source Voltage             | V <sub>DSS</sub> |   | 600            | V          |
| ゲート・ソース間電圧<br>Drain-Source Voltage              | V <sub>GSS</sub> |   | ±30            |            |
| ドレイン電流 (直流)<br>Continuous Drain Current (DC)    | I <sub>D</sub>   |   | 20             | A          |
| ドレイン電流 (ピーク)<br>Continuous Drain Current (Peak) | I <sub>DP</sub>  | パルス幅 10 μs, duty = 1/100<br>Pulse width 10 μs, duty = 1/100 | 60             |            |
| ソース電流 (直流)<br>Continuous Source Current (DC)    | I <sub>S</sub>   |   | 20             |            |
| 全損失<br>Total Power Dissipation                  | P <sub>T</sub>   |   | 65             | W          |
| 絶縁耐圧<br>Dielectric Strength                     | V <sub>dis</sub> | 一括端子・ケース間, AC 1分間印加<br>Terminals to case, AC 1 minute       | 2              | kV         |
| 締め付けトルク<br>Mounting Torque                      | TOR              | (推奨値: 0.3 N·m)<br>(Recommended torque: 0.3 N·m)             | 0.5            | N·m        |

##### ● 電氣的・熱的特性 Electrical Characteristics (指定のない場合 T<sub>c</sub> = 25°C)

| 項目<br>Item   | 記号<br>Symbol         | 条件<br>Conditions  | 規格値 Ratings |      |      | 単位<br>Unit |
|--|----------------------|---|-------------|------|------|------------|
|  |                      |   | MIN         | TYP  | MAX  |            |
| ドレイン・ソース間降伏電圧<br>Drain-Source Breakdown Voltage          | V <sub>(BR)DSS</sub> | I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0V  | 600         | —    | —    | V          |
| ドレイン遮断電流<br>Zero Gate Voltage Drain Current              | I <sub>DSS</sub>     | V <sub>DS</sub> = 600V, V <sub>GS</sub> = 0V  | —           | —    | 25   | μA         |
| ゲート漏れ電流<br>Gate-Source Leakage Current                   | I <sub>GSS</sub>     | V <sub>GS</sub> = ±30V, V <sub>DS</sub> = 0V  | —           | —    | ±0.1 |            |
| 順伝達コンダクタンス<br>Forward Transconductance                   | g <sub>fs</sub>      | I <sub>D</sub> = 10A, V <sub>DS</sub> = 10V   | 8.7         | 17.5 | —    | S          |
| ドレイン・ソース間オン抵抗<br>Static Drain-Source On-state Resistance | R <sub>(DS)ON</sub>  | I <sub>D</sub> = 10A, V <sub>GS</sub> = 10V   | —           | 0.16 | 0.19 | Ω          |
| ゲートしきい値電圧<br>Gate Threshold Voltage                      | V <sub>TH</sub>      | I <sub>D</sub> = 1mA, V <sub>DS</sub> = 10V   | 2.1         | 3.0  | 3.9  | V          |
| ソース・ドレイン間ダイオード順電圧<br>Source-Drain Diode Forward Voltage  | V <sub>SD</sub>      | I <sub>S</sub> = 10A, V <sub>GS</sub> = 0V  | —           | —    | 1.5  |            |
| 熱抵抗<br>Thermal Resistance                                | θ <sub>jc</sub>      | 接合部・ケース間<br>Junction to case  | —           | —    | 1.92 | °C/W       |
| ゲート全電荷量<br>Total Gate Charge                             | Q <sub>g</sub>       | V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A, V <sub>DD</sub> = 400V   | —           | 87   | —    | nC         |
| 入力容量<br>Input Capacitance                                | C <sub>iss</sub>     | V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1MHz   | —           | 2400 | —    | pF         |
| 掃還容量<br>Reverse Transfer Capacitance                     | C <sub>rss</sub>     |   | —           | 50   | —    |            |
| 出力容量<br>Output Capacitance                               | C <sub>oss</sub>     |   | —           | 780  | —    |            |
| ターンオン遅延時間<br>Turn-on delay time                          | t <sub>d(on)</sub>   | I <sub>D</sub> = 10A, V <sub>DD</sub> = 150V, R <sub>L</sub> = 15Ω<br>V <sub>GS(+)</sub> = 10V, V <sub>GS(-)</sub> = 0V | —           | 32   | —    | ns         |
| 上昇時間<br>Rise time  | t <sub>r</sub>       |   | —           | 60   | —    |            |
| ターンオフ遅延時間<br>Turn-off delay time                         | t <sub>d(off)</sub>  |   | —           | 355  | —    |            |
| 下降時間<br>Fall time  | t <sub>f</sub>       |   | —           | 60   | —    |            |

■特性図 CHARACTERISTIC DIAGRAMS



\* Sine waveは50Hzで測定しています。  
\* 50Hz sine wave is used for measurements.