

# Power MOSFET

## F20S60C3

### 600V 20A

#### 特長

- 低オン抵抗
- 高速スイッチング
- 面実装タイプ

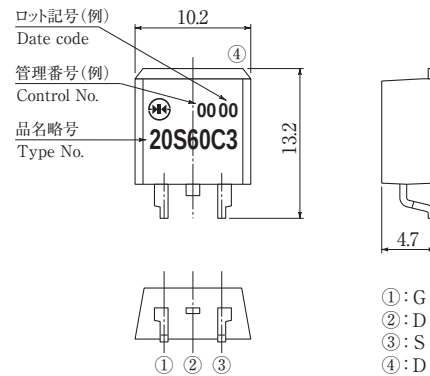
#### Feature

- Low  $R_{ON}$
- Fast Switching
- SMD Package

#### ■外観図 OUTLINE

Package : STO-220

Unit:mm



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

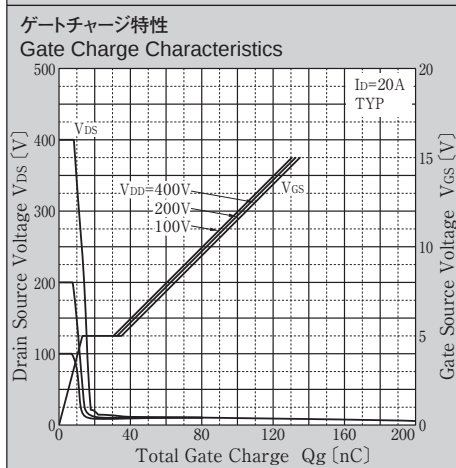
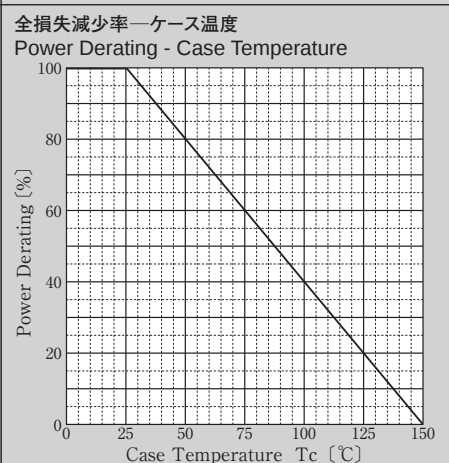
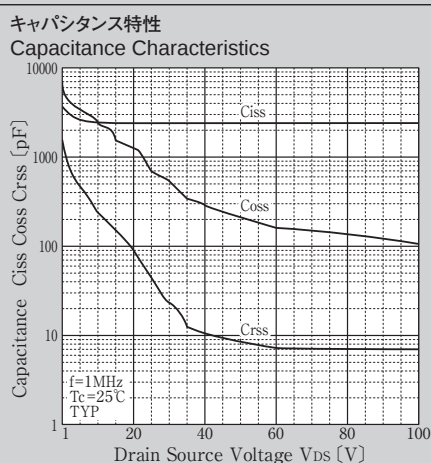
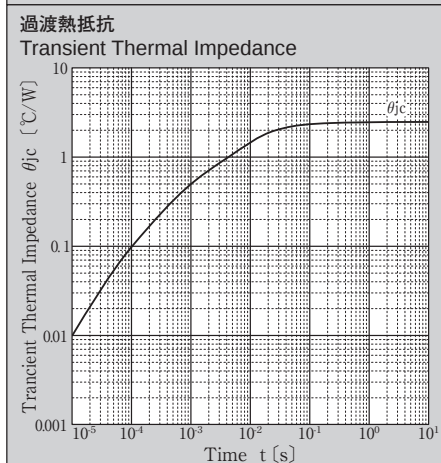
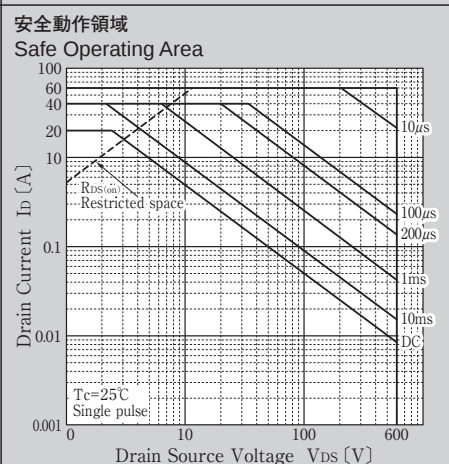
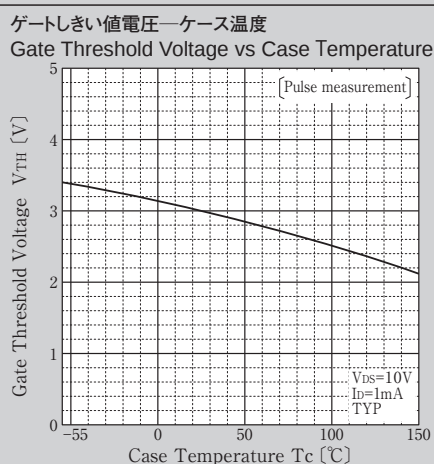
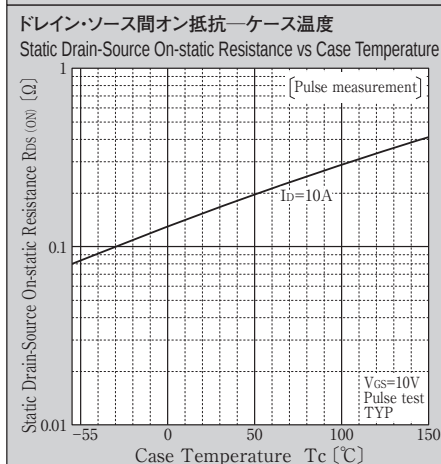
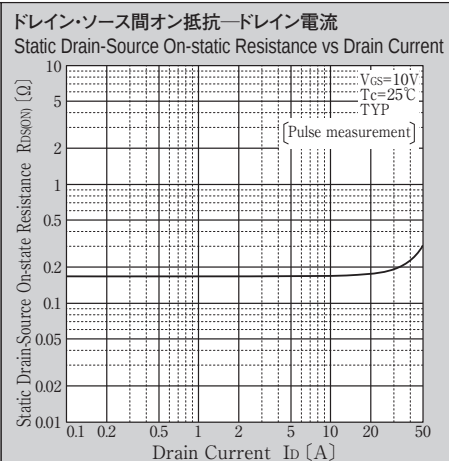
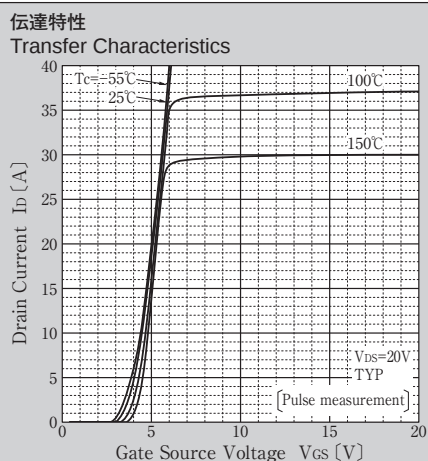
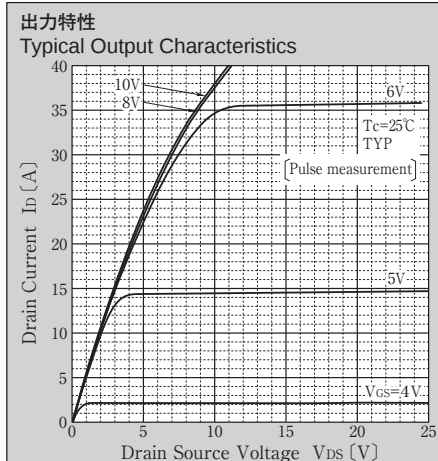
##### ●絶対最大定格 Absolute Maximum Ratings (指定のない場合 $T_c = 25^\circ\text{C}$ )

| 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                     | $T_{stg}$    |                                                                                   | -55~150        | $^\circ\text{C}$ |
| チャネル温度<br>Channel Temperature                   | $T_{ch}$     |                                                                                   | 150            |                  |
| ドレイン・ソース間電圧<br>Drain-Source Voltage             | $V_{DSS}$    |                                                                                   | 600            |                  |
| ゲート・ソース間電圧<br>Drain-Source Voltage              | $V_{GSS}$    |                                                                                   | $\pm 30$       | V                |
| ドレイン電流 (直流)<br>Continuous Drain Current (DC)    | $I_D$        |                                                                                   | 20             | A                |
| ドレイン電流 (ピーク)<br>Continuous Drain Current (Peak) | $I_{DP}$     | パルス幅 $10\mu\text{s}$ , duty = 1/100<br>Pulse width $10\mu\text{s}$ , duty = 1/100 | 60             |                  |
| ソース電流 (直流)<br>Continuous Source Current (DC)    | $I_S$        |                                                                                   | 20             |                  |
| 全損失<br>Total Power Dissipation                  | $P_T$        |                                                                                   | 50             | W                |

##### ●電氣的・熱的特性 Electrical Characteristics (指定のない場合 $T_c = 25^\circ\text{C}$ )

| 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          | $V_{(BR)DSS}$ | $I_D = 1\text{mA}$ , $V_{GS} = 0\text{V}$                                                                            | 600         | —    | —         | V                         |
| ドレイン遮断電流<br>Zero Gate Voltage Drain Current              | $I_{DSS}$     | $V_{DS} = 600\text{V}$ , $V_{GS} = 0\text{V}$                                                                        | —           | —    | 25        | $\mu\text{A}$             |
| ゲート漏れ電流<br>Gate-Source Leakage Current                   | $I_{GSS}$     | $V_{GS} = \pm 30\text{V}$ , $V_{DS} = 0\text{V}$                                                                     | —           | —    | $\pm 0.1$ |                           |
| 順伝達コンダクタンス<br>Forward Transconductance                   | $g_{fs}$      | $I_D = 10\text{A}$ , $V_{DS} = 10\text{V}$                                                                           | 8.7         | 17.5 | —         | S                         |
| ドレイン・ソース間オン抵抗<br>Static Drain-Source On-state Resistance | $R_{(DS)ON}$  | $I_D = 10\text{A}$ , $V_{GS} = 10\text{V}$                                                                           | —           | 0.16 | 0.19      | $\Omega$                  |
| ゲートしきい値電圧<br>Gate Threshold Voltage                      | $V_{TH}$      | $I_D = 1\text{mA}$ , $V_{DS} = 10\text{V}$                                                                           | 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  | $V_{SD}$      | $I_S = 10\text{A}$ , $V_{GS} = 0\text{V}$                                                                            | —           | —    | 1.5       |                           |
| 熱抵抗<br>Thermal Resistance                                | $\theta_{jc}$ | 接合部・ケース間<br>Junction to case                                                                                         | —           | —    | 2.5       | $^\circ\text{C}/\text{W}$ |
| ゲート全電荷量<br>Total Gate Charge                             | $Q_g$         | $V_{GS} = 10\text{V}$ , $I_D = 20\text{A}$ , $V_{DD} = 400\text{V}$                                                  | —           | 87   | —         | nC                        |
| 入力容量<br>Input Capacitance                                | $C_{iss}$     | $V_{DS} = 25\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$                                                     | —           | 2400 | —         | pF                        |
| 帰還容量<br>Reverse Transfer Capacitance                     | $C_{rss}$     |                                                                                                                      | —           | 50   | —         |                           |
| 出力容量<br>Output Capacitance                               | $C_{oss}$     |                                                                                                                      | —           | 780  | —         |                           |
| ターンオン遅延時間<br>Turn-on delay time                          | $t_{d(on)}$   | $I_D = 10\text{A}$ , $V_{DD} = 150\text{V}$ , $R_L = 15\Omega$<br>$V_{GS(+)} = 10\text{V}$ , $V_{GS(-)} = 0\text{V}$ | —           | 32   | —         | ns                        |
| 上昇時間<br>Rise time                                        | $t_r$         |                                                                                                                      | —           | 60   | —         |                           |
| ターンオフ遅延時間<br>Turn-off delay time                         | $t_{d(off)}$  |                                                                                                                      | —           | 355  | —         |                           |
| 下降時間<br>Fall time                                        | $t_f$         |                                                                                                                      | —           | 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.