

**Description**

- High speed switching application.

**Features**

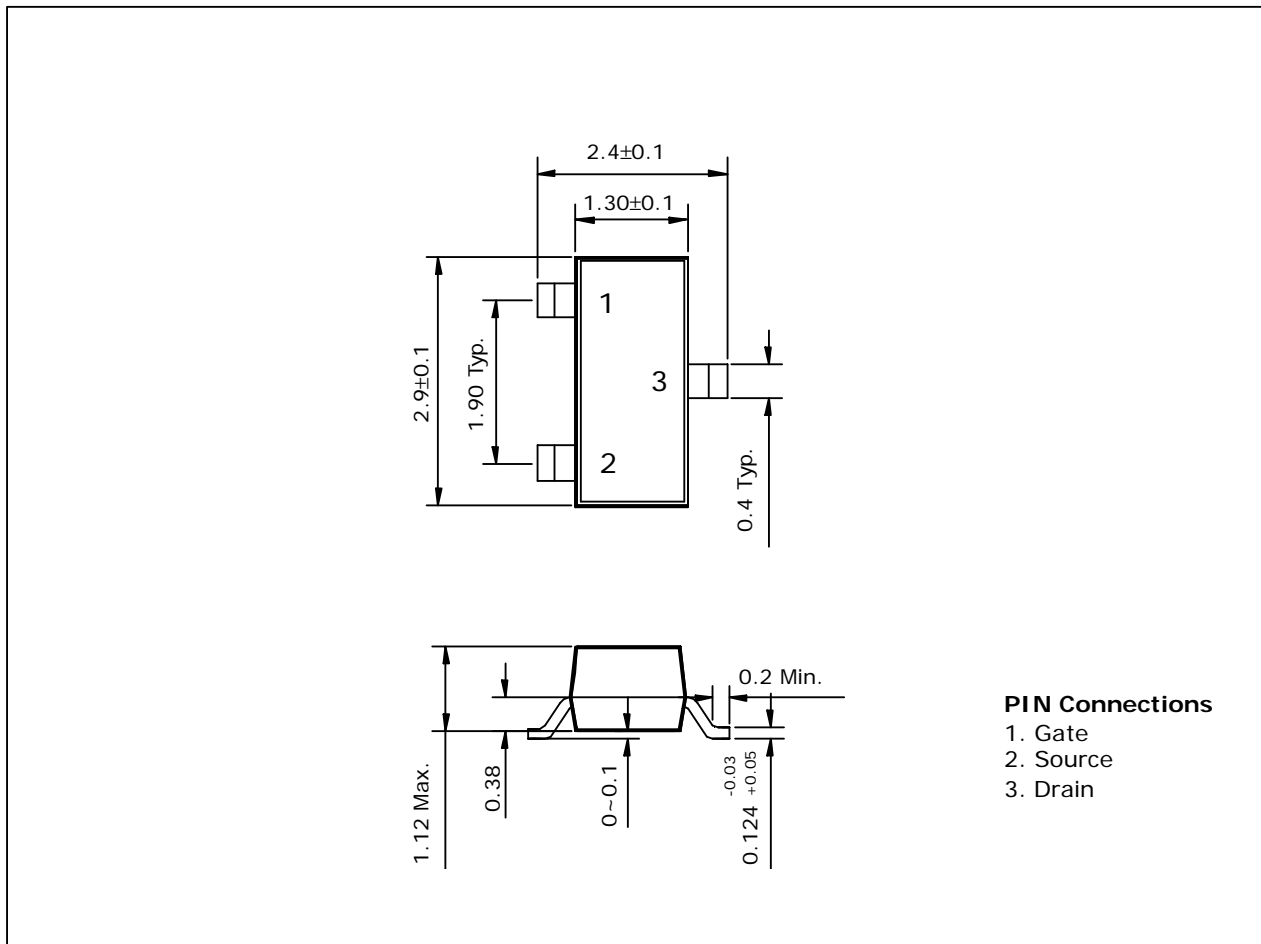
- High density cell design for low  $R_{DS(ON)}$ .
- Voltage controlled small signal switch
- High saturation current capability.

**Ordering Information**

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| STK7002  | K702    | SOT-23       |

**Outline Dimensions**

unit : mm



## Absolute maximum ratings

(Ta=25° C)

| Characteristic                                   | Symbol         | Ratings   | Unit |
|--|----------------|-----------|------|
| Drain-Source voltage                             | $V_{DSS}$      | 60        | V    |
| Gate-Source voltage                              | $V_{GS}$       | ±20       | V    |
| Maximum Drain current                            | $I_D$          | 115       | mA   |
| Pulsed Drain Current                             | $I_{DM}$       | 800       | mA   |
| Power dissipation                                | $P_D$          | 200       | mW   |
| Maximum Junction-to-Ambient                      | $R_{thJA}$     | 625       | °C/W |
| Operating Junction and Storage temperature range | $T_J, T_{stg}$ | -55 ~ 150 | °C   |

## Electrical Characteristics

(Ta=25° C)

| Characteristic                  | Symbol       | Test Condition                       | Min. | Typ. | Max. | Unit |
|---------------------------------|--------------|--------------------------------------|------|------|------|------|
| Drain-Source breakdown voltage  | $BV_{DSS}$   | $I_D = 10\mu A, V_{GS} = 0$          | 60   | -    | -    | V    |
| Gate-Threshold voltage          | $V_{GS(th)}$ | $I_D = 0.25mA, V_{DS} = V_{GS}$      | 1    | 2.0  | 2.5  | V    |
| Zero Gate voltage drain current | $I_{DSS}$    | $V_{DS} = 60V, V_{GS} = 0$           | -    | -    | 1    | μA   |
| Gate-body leakage               | $I_{GSS}$    | $V_{DS} = 0V, V_{GS} = \pm 20V$      | -    | -    | ±100 | nA   |
| On-state drain current          | $I_{D(on)}$  | $V_{DS} = 7.5V, V_{GS} = 10V$        | 500  | 1000 | -    | mA   |
| Drain-Source on-resistance      | $R_{DS(on)}$ | $V_{GS} = 5V, I_D = 0.05A$           | -    | 3.2  | 7.5  | Ω    |
|                                 |              | $T_C = 125$                          |      | 5.8  | 13.5 |      |
|                                 |              | $V_{GS} = 10V, I_D = 0.5A$           | -    | 2.4  | 7.5  |      |
|                                 |              | $T_C = 125$                          |      | 4.4  | 13.5 |      |
| Forward transconductance        | $g_{fs}$     | $V_{DS} = 10V, I_D = 0.2A$           | 80   | -    | -    | mS   |
| Input capacitance               | $C_{iss}$    | $V_{DS} = 25V, V_{GS} = 0, f = 1MHz$ | -    | 22   | 50   | pF   |
| Output capacitance              | $C_{oss}$    |                                      | -    | 11   | 25   |      |
| Reverse Transfer capacitance    | $C_{rss}$    |                                      | -    | 2    | 5    |      |
| Turn-on time                    | $t_{ON}$     | $V_{DD} = 30V, I_D = 0.2A$           | -    | 7    | 20   | ns   |
| Turn-off time                   | $t_{OFF}$    | $V_{GEN} = 10V, R_G = 25\Omega$      | -    | 11   | 20   | ns   |

Electrical Characteristic Curves

Fig. 1  $I_D - V_{DS}$

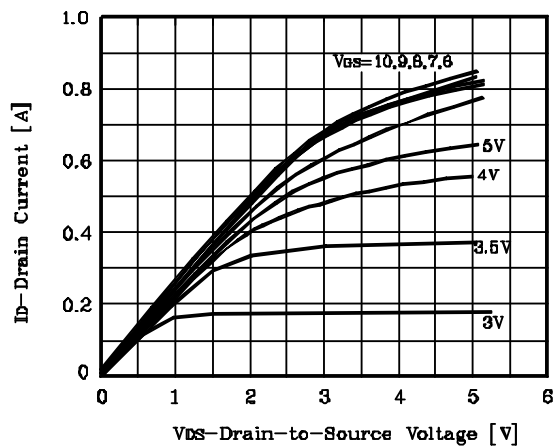


Fig. 2  $I_D - V_{GS}$

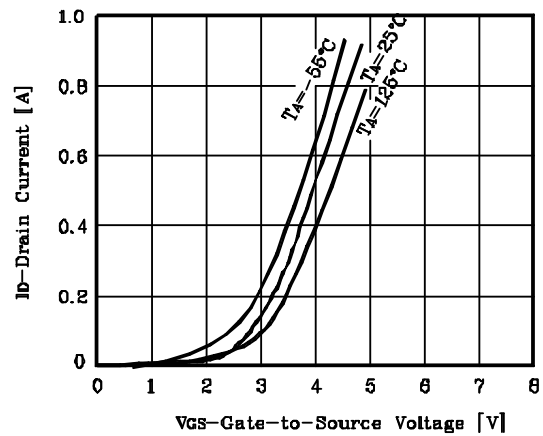


Fig. 3  $r_{DS(on)} - I_D$

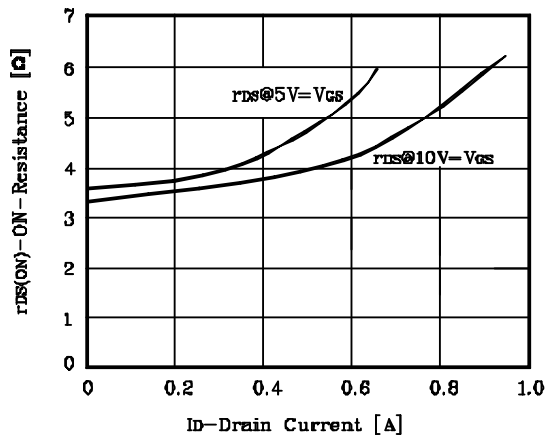


Fig. 4 C -  $V_{DS}$

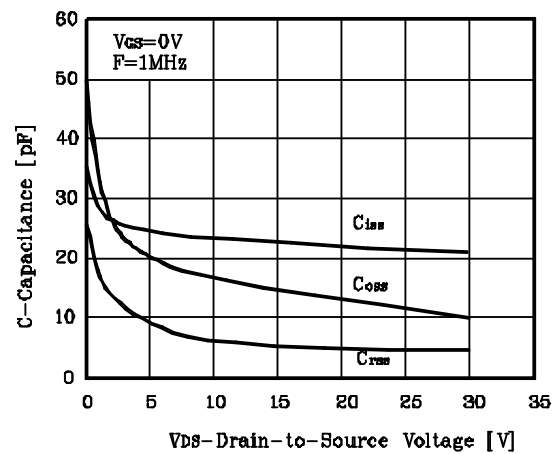


Fig. 5  $V_{GS} - Q_g$

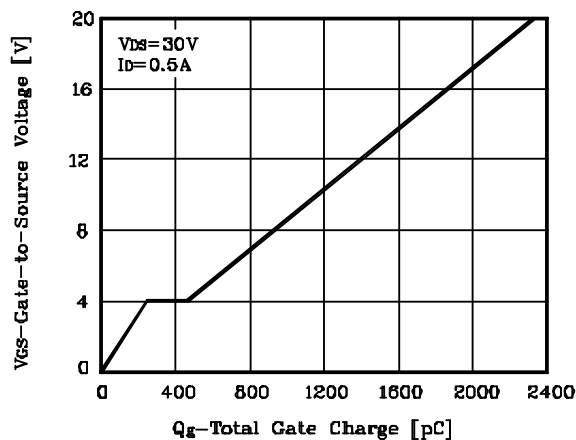


Fig. 6  $r_{DS(on)} - T_J$

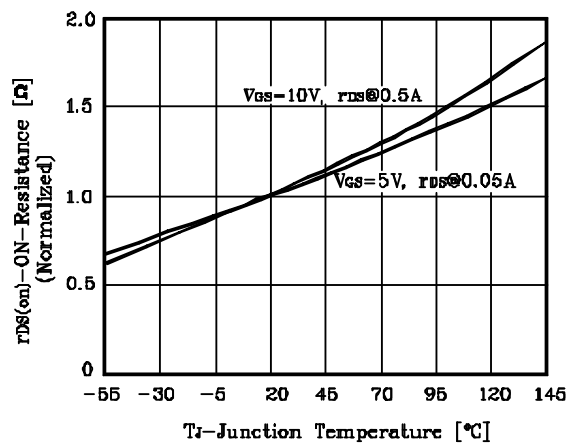


Fig. 7  $r_{DS(on)}$  -  $V_{GS}$

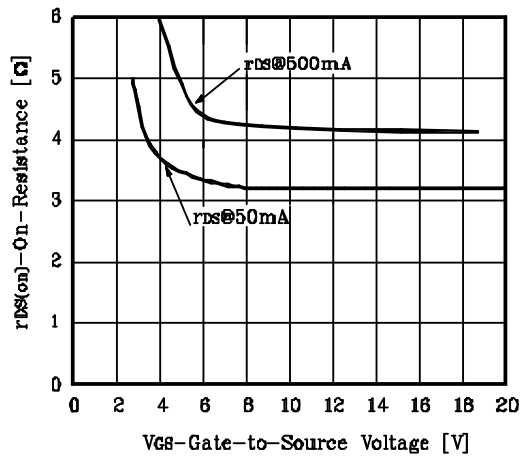


Fig. 8  $I_S$  -  $V_{SD}$

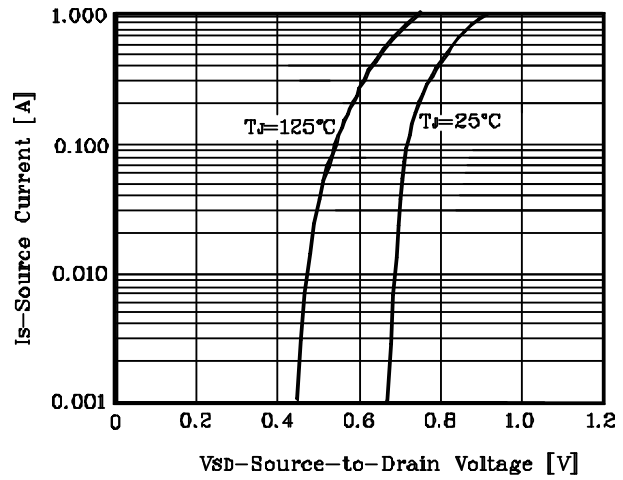


Fig. 9  $V_{GS(th)}$  -  $T_J$

