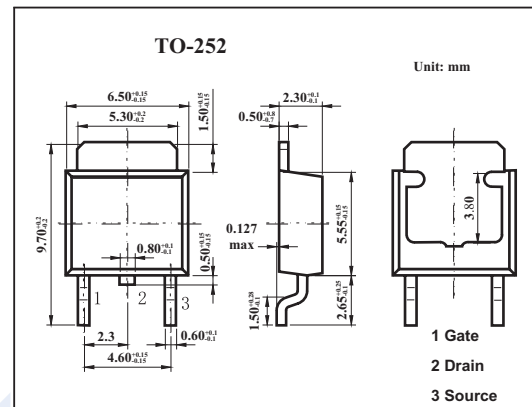


## Silicon N-Channel MOSFET

### 2SK2503

#### ■ Features

- Low on-resistance.
- Fast switching speed.
- Wide SOA (safe operating area).
- Easily designed drive circuits.
- Easy to parallel.



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter               | Symbol     | Rating      | Unit             |
|-------------------------|------------|-------------|------------------|
| Drain to source voltage | $V_{DS}$   | 60          | V                |
| Gate to source voltage  | $V_{GS}$   | $\pm 20$    | V                |
| Drain current           | $I_D$      | 5           | A                |
|                         | $I_{dp}^*$ | 20          | A                |
| Power dissipation       | $P_D$      | 20          | W                |
| Channel temperature     | $T_{ch}$   | 150         | $^\circ\text{C}$ |
| Storage temperature     | $T_{stg}$  | -55 to +150 | $^\circ\text{C}$ |

\*  $PW \leq 10 \mu s$ , Duty Cycle  $\leq 1\%$

#### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

| Parameter                           | Symbol       | Testconditions                                                                                                  | Min | Typ  | Max       | Unit          |
|-------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------|-----|------|-----------|---------------|
| Drain source breakdown voltage      | $V_{DS}$     | $I_D = 1\text{mA}$ , $V_{GS} = 0\text{V}$                                                                       | 60  |      |           | V             |
| Drain cut-off current               | $I_{DSS}$    | $V_{DS} = 60\text{V}$ , $V_{GS} = 0$                                                                            |     |      | 10        | $\mu\text{A}$ |
| Gate leakage current                | $I_{GSS}$    | $V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0$                                                                        |     |      | $\pm 100$ | nA            |
| Gate threshold voltage              | $V_{GS(th)}$ | $V_{DS} = 10\text{V}$ , $I_D = 1\text{mA}$                                                                      | 1.0 |      | 2.5       | V             |
| Forward transfer admittance         | $ Y_{fs} $   | $V_{DS} = 10\text{V}$ , $I_D = 2.5\text{A}$                                                                     | 4.0 |      |           | S             |
| Drain to source on-state resistance | $R_{DS(on)}$ | $V_{GS} = 10\text{V}$ , $I_D = 2.5\text{A}$                                                                     |     | 0.11 | 0.135     | $\Omega$      |
|                                     |              | $V_{GS} = 4\text{V}$ , $I_D = 2.5\text{A}$                                                                      |     | 0.17 | 0.20      | $\Omega$      |
| Input capacitance                   | $C_{iss}$    | $V_{DS} = 10\text{V}$ , $V_{GS} = 0$ , $f = 1\text{MHz}$                                                        |     | 520  |           | pF            |
| Output capacitance                  | $C_{oss}$    |                                                                                                                 |     | 240  |           | pF            |
| Reverse transfer capacitance        | $C_{rss}$    |                                                                                                                 |     | 100  |           | pF            |
| Turn-on delay time                  | $t_{on}$     | $I_D = 2.5\text{A}$ , $V_{GS(on)} = 10\text{V}$ , $R_G = 10 \Omega$ , $R_L = 12 \Omega$ , $V_{DD} = 30\text{V}$ |     | 5    |           | ns            |
| Rise time                           | $t_r$        |                                                                                                                 |     | 20   |           | ns            |
| Turn-off delay time                 | $t_{off}$    |                                                                                                                 |     | 50   |           | ns            |
| Fall time                           | $t_f$        |                                                                                                                 |     | 20   |           | ns            |