

# 2SK2324(Tentative)

## Silicon N-Channel Power F-MOS

### ■ Features

- Avalanche energy capability guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown

### ■ Applications

- Non-contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator

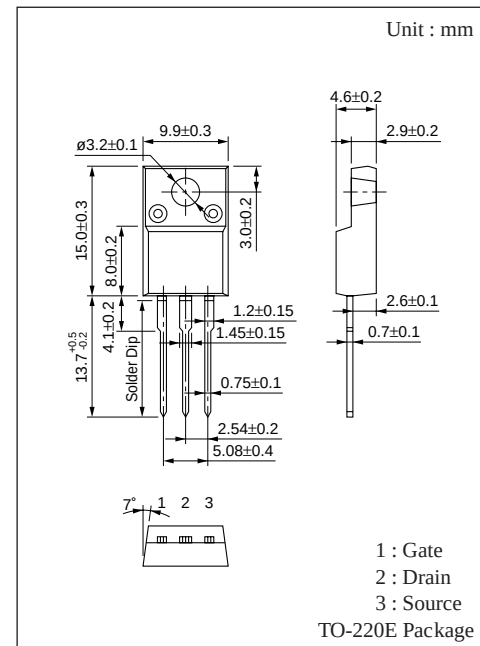
### ■ Absolute Maximum Ratings (T<sub>c</sub> = 25°C)

| Parameter                      | Symbol                | Rating          | Unit |
|--------------------------------|-----------------------|-----------------|------|
| Drain-Source breakdown voltage | V <sub>DSS</sub>      | 600             | V    |
| Gate-Source voltage            | V <sub>GSS</sub>      | ±30             | V    |
| Drain current                  | DC                    | I <sub>D</sub>  | ±2   |
|                                | Pulse                 | I <sub>DP</sub> | ±4   |
| Avalanche energy capability    | EAS *                 | 10              | mJ   |
| Allowable power dissipation    | T <sub>C</sub> = 25°C | P <sub>D</sub>  | 2    |
|                                | T <sub>a</sub> = 25°C |                 | 40   |
| Channel temperature            | T <sub>ch</sub>       | 150             | °C   |
| Storage temperature            | T <sub>stg</sub>      | -55 to +150     | °C   |

\* L= 5mH, I<sub>L</sub>= 2A, 1 pulse

### ■ Electrical Characteristics (T<sub>c</sub> = 25°C)

| Parameter                          | Symbol                | Condition                                                                                 | Min | Typ  | Max   | Unit |
|------------------------------------|-----------------------|-------------------------------------------------------------------------------------------|-----|------|-------|------|
| Drain-Source cut-off current       | I <sub>DSS</sub>      | V <sub>DS</sub> = 480V, V <sub>GS</sub> = 0                                               |     |      | 100   | μA   |
| Gate-Source leakage current        | I <sub>GSS</sub>      | V <sub>GS</sub> =± 30V, V <sub>DS</sub> = 0                                               |     |      | ±1    | μA   |
| Drain-Source breakdown voltage     | V <sub>DSS</sub>      | I <sub>D</sub> =1mA, V <sub>GS</sub> = 0                                                  | 600 |      |       | V    |
| Gate threshold voltage             | V <sub>th</sub>       | V <sub>DS</sub> = 25V, I <sub>D</sub> =1mA                                                | 2   |      | 5     | V    |
| Drain-Source ON-resistance         | R <sub>DS(on)</sub>   | V <sub>GS</sub> =10V, I <sub>D</sub> =1A                                                  |     | 4.9  | 6     | Ω    |
| Forward transadmittance            | Y <sub>fs</sub>       | V <sub>DS</sub> = 25V, I <sub>D</sub> =1A                                                 | 0.5 | 0.85 |       | S    |
| Diode forward voltage              | V <sub>DSF</sub>      | I <sub>DR</sub> = 2A, V <sub>GS</sub> = 0                                                 |     |      | -1.6  | V    |
| Input capacitance                  | C <sub>iss</sub>      | V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0, f=1MHz                                        |     | 260  |       | pF   |
| Output capacitance                 | C <sub>oss</sub>      |                                                                                           |     | 35   |       | pF   |
| Feedback capacitance               | C <sub>rss</sub>      |                                                                                           |     | 10   |       | pF   |
| Turn-on time (delay time)          | t <sub>d(on)</sub>    | V <sub>DD</sub> = 200V, I <sub>D</sub> =1A<br>V <sub>GS</sub> =10V, R <sub>L</sub> = 200Ω |     | 15   |       | ns   |
| Rise time                          | t <sub>r</sub>        |                                                                                           |     | 25   |       | ns   |
| Fall time                          | t <sub>f</sub>        |                                                                                           |     | 35   |       | ns   |
| Turn-off time (delay time)         | t <sub>d(off)</sub>   |                                                                                           |     | 35   |       | ns   |
| Channel-Case heat resistance       | R <sub>th(ch-c)</sub> |                                                                                           |     |      | 3.125 | °C/W |
| Channel-Atmosphere heat resistance | R <sub>th(ch-a)</sub> |                                                                                           |     |      | 62.5  | °C/W |



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