

## 2SK1622 (L), 2SK1622 (S)

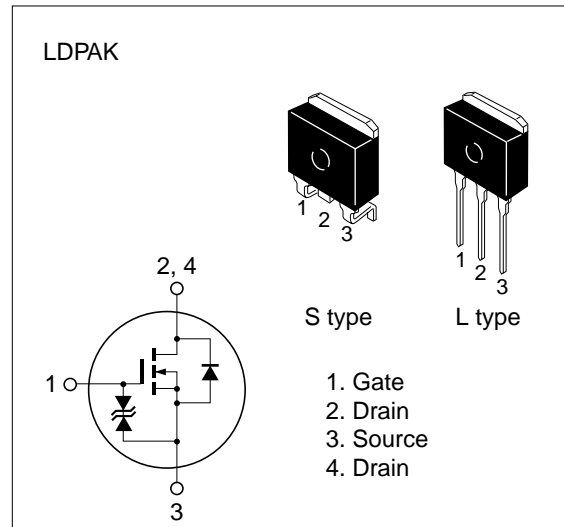
### Silicon N-Channel MOS FET

#### Application

High speed power switching

#### Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device
  - Can be driven from 5 V source
- Suitable for motor drive, DC-DC converter, power switch and solenoid drive



**Table 1 Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

| Item                                      | Symbol                  | Ratings     | Unit             |
|---|-------------------------|-------------|------------------|
| Drain to source voltage                   | $V_{DSS}$               | 60          | V                |
| Gate to source voltage                    | $V_{GSS}$               | $\pm 20$    | V                |
| Drain current                             | $I_D$                   | 25          | A                |
| Drain peak current                        | $I_{D(\text{pulse})}^*$ | 100         | A                |
| Body to drain diode reverse drain current | $I_{DR}$                | 25          | A                |
| Channel dissipation                       | $P_{ch}^{**}$           | 50          | W                |
| Channel temperature                       | $T_{ch}$                | 150         | $^\circ\text{C}$ |
| Storage temperature                       | $T_{stg}$               | -55 to +150 | $^\circ\text{C}$ |

\*  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$

\*\* Value at  $T_C = 25^\circ\text{C}$

**Table 2 Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

| Item                                       | Symbol        | Min      | Typ   | Max      | Unit          | Test Conditions   |
|--|---------------|----------|-------|----------|---------------|---|
| Drain to source breakdown voltage          | $V_{(BR)DSS}$ | 60       | —     | —        | V             | $I_D = 10 \text{ mA}, V_{GS} = 0$   |
| Gate to source breakdown voltage           | $V_{(BR)GSS}$ | $\pm 20$ | —     | —        | V             | $I_G = \pm 100 \mu\text{A}, V_{DS} = 0$                                   |
| Gate to source leak current                | $I_{GSS}$     | —        | —     | $\pm 10$ | $\mu\text{A}$ | $V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$                                   |
| Zero gate voltage drain current            | $I_{DSS}$     | —        | —     | 250      | $\mu\text{A}$ | $V_{DS} = 50 \text{ V}, V_{GS} = 0$                                       |
| Gate to source cutoff voltage              | $V_{GS(off)}$ | 1.0      | —     | 2.0      | V             | $I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$                               |
| Static Drain to source on state resistance | $R_{DS(on)}$  | —        | 0.033 | 0.04     | $\Omega$      | $I_D = 15 \text{ A}, V_{GS} = 10 \text{ V}^*$                             |
|  |               | —        | 0.05  | 0.06     |               | $I_D = 15 \text{ A}, V_{GS} = 4 \text{ V}^*$                              |
| Forward transfer admittance                | $ y_{fs} $    | 12       | 20    | —        | S             | $I_D = 15 \text{ A}, V_{DS} = 10 \text{ V}^*$                             |
| Input capacitance                          | $C_{iss}$     | —        | 1400  | —        | pF            | $V_{DS} = 10 \text{ V}, V_{GS} = 0,$                                      |
| Output capacitance                         | $C_{oss}$     | —        | 720   | —        | pF            | $f = 1 \text{ MHz}$   |
| Reverse transfer capacitance               | $C_{rss}$     | —        | 220   | —        | pF            |   |
| Turn-on delay time                         | $t_{d(on)}$   | —        | 15    | —        | ns            | $I_D = 15 \text{ A}, V_{GS} = 10 \text{ V},$                              |
| Rise time                                  | $t_r$         | —        | 130   | —        | ns            | $R_L = 2 \Omega$  |
| Turn-off delay time                        | $t_{d(off)}$  | —        | 270   | —        | ns            |   |
| Fall time                                  | $t_f$         | —        | 180   | —        | ns            |   |
| Body to drain diode forward voltage        | $V_{DF}$      | —        | 1.3   | —        | V             | $I_F = 25 \text{ A}, V_{GS} = 0$  |
| Body to drain diode reverse recovery time  | $t_{rr}$      | —        | 135   | —        | ns            | $I_F = 25 \text{ A}, V_{GS} = 0,$<br>$di_F/dt = 50 \text{ A}/\mu\text{s}$ |

\* Pulse Test

See characteristic curves of 2SK972.

