

2SK1621 L, 2SK1621 S

Silicon N-Channel MOS FET

Application

High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and motor driver

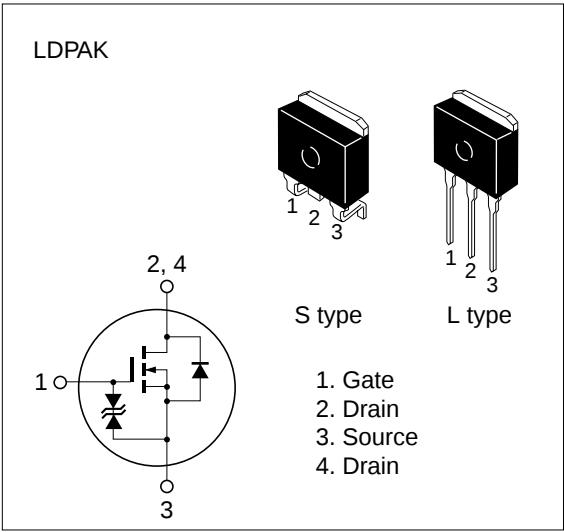


Table 1 Absolute Maximum Ratings (Ta = 25°C)

| Item                                      | Symbol           | Ratings     | Unit |
|-------------------------------------------|------------------|-------------|------|
| Drain to source voltage                   | $V_{DSS}$        | 250         | V    |
| Gate to source voltage                    | $V_{GSS}$        | ±20         | V    |
| Drain current                             | $I_D$            | 7           | A    |
| Drain peak current                        | $I_{D(pulse)}^*$ | 28          | A    |
| Body to drain diode reverse drain current | $I_{DR}$         | 7           | A    |
| Channel dissipation                       | $P_{ch}^{**}$    | 50          | W    |
| Channel temperature                       | $T_{ch}$         | 150         | °C   |
| Storage temperature                       | $T_{stg}$        | −55 to +150 | °C   |

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

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

**Table 2 Electrical Characteristics** (Ta = 25°C)

| Item                                       | Symbol        | Min      | Typ  | Max      | Unit          | Test Conditions                                                               |
|--------------------------------------------|---------------|----------|------|----------|---------------|-------------------------------------------------------------------------------|
| Drain to source breakdown voltage          | $V_{(BR)DSS}$ | 250      | —    | —        | V             | $I_D = 10 \text{ mA}$ , $V_{GS} = 0$                                          |
| Gate to source breakdown voltage           | $V_{(BR)GSS}$ | $\pm 20$ | —    | —        | V             | $I_G = \pm 100 \text{ }\mu\text{A}$ , $V_{DS} = 0$                            |
| 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      | $\mu\text{A}$ | $V_{DS} = 200 \text{ V}$ , $V_{GS} = 0$                                       |
| Gate to source cutoff voltage              | $V_{GS(off)}$ | 2.0      | —    | 4.0      | V             | $I_D = 1 \text{ mA}$ , $V_{DS} = 10 \text{ V}$                                |
| Static Drain to source on state resistance | $R_{DS(on)}$  | —        | 0.40 | 0.55     | $\Omega$      | $I_D = 4 \text{ A}$ , $V_{GS} = 10 \text{ V}$ *                               |
| Forward transfer admittance                | $ y_{fs} $    | 2.7      | 4.5  | —        | S             | $I_D = 4 \text{ A}$ , $V_{DS} = 10 \text{ V}$ *                               |
| Input capacitance                          | $C_{iss}$     | —        | 820  | —        | pF            | $V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ ,<br>$f = 1 \text{ MHz}$               |
| Output capacitance                         | $C_{oss}$     | —        | 370  | —        | pF            |                                                                               |
| Reverse transfer capacitance               | $C_{rss}$     | —        | 115  | —        | pF            |                                                                               |
| Turn-on delay time                         | $t_{d(on)}$   | —        | 12   | —        | ns            | $I_D = 4 \text{ A}$ , $V_{GS} = 10 \text{ V}$ ,<br>$R_L = 7.5 \text{ }\Omega$ |
| Rise time                                  | $t_r$         | —        | 48   | —        | ns            |                                                                               |
| Turn-off delay time                        | $t_{d(off)}$  | —        | 70   | —        | ns            |                                                                               |
| Fall time                                  | $t_f$         | —        | 50   | —        | ns            |                                                                               |
| Body to drain diode forward voltage        | $V_{DF}$      | —        | 1.2  | —        | V             | $I_F = 7 \text{ A}$ , $V_{GS} = 0$                                            |
| Body to drain diode reverse recovery time  | $t_{rr}$      | —        | 400  | —        | ns            | $I_F = 7 \text{ A}$ , $V_{GS} = 0$ ,<br>$di_F/dt = 50 \text{ A}/\mu\text{s}$  |

\* Pulse Test

See characteristic curves of 2SK741.

