
2SK1622(L), 2SK1622(S)

Silicon N-Channel MOS FET

HITACHI

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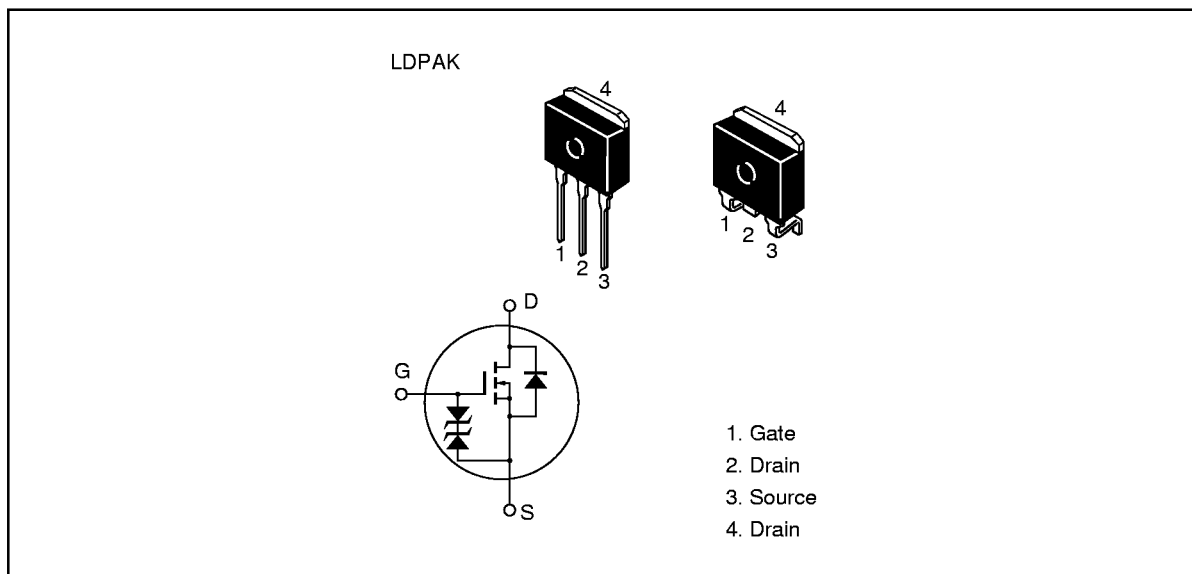
Application

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

Outline



2SK1622(L), 2SK1622(S)

Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|---|---------------------|-------------|------|
| Drain to source voltage | V_{DSS} | 60 | V |
| Gate to source voltage | V_{GSS} | ± 20 | V |
| Drain current | I_D | 25 | A |
| Drain peak current | $I_{D(pulse)}^{*1}$ | 100 | A |
| Body to drain diode reverse drain current | I_{DR} | 25 | A |
| Channel dissipation | P_{ch}^{*2} | 50 | W |
| Channel temperature | Tch | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | °C |

Notes 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
2. Value at $T_c = 25^\circ C$

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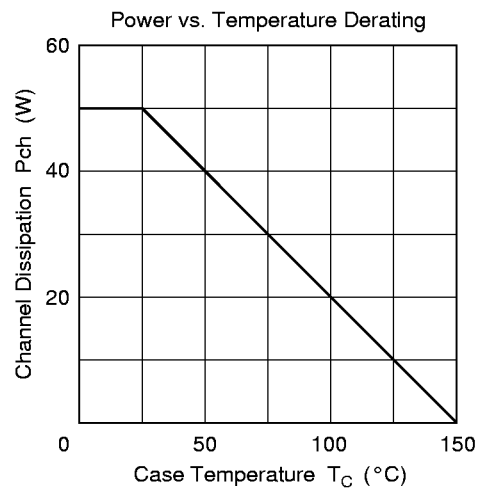
Electrical Characteristics (Ta = 25°C)

| 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 | $V_{(BR)GSS}$ | ± 20 | — | — | V | $I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$ |
| Gate to source leak current | I_{GSS} | — | — | ± 10 | μA | $V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$ |
| Zero gate voltage drain current | I_{DSS} | — | — | 250 | μA | $V_{DS} = 50 \text{ V}$, $V_{GS} = 0$ |
| 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 | Ω | $I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$ |
| | | — | 0.05 | 0.06 | Ω | $I_D = 15 \text{ A}$, $V_{GS} = 4 \text{ V}^{*1}$ |
| Forward transfer admittance | $ y_{fs} $ | 12 | 20 | — | S | $I_D = 15 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$ |
| Input capacitance | C_{iss} | — | 1400 | — | pF | $V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$ |
| Output capacitance | C_{oss} | — | 720 | — | pF | |
| Reverse transfer capacitance | C_{rss} | — | 220 | — | pF | |
| Turn-on delay time | $t_{d(on)}$ | — | 15 | — | ns | $I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}$, $R_L = 2 \text{ }\Omega$ |
| Rise time | t_r | — | 130 | — | ns | |
| 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 | $I_F = 25 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 50 \text{ A}/\mu\text{s}$ |

Note 1. Pulse test

See characteristic curves of 2SK972.

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