# 2SK1618(L), 2SK1618(S)

Silicon N-Channel MOS FET

HITACHI

## Application

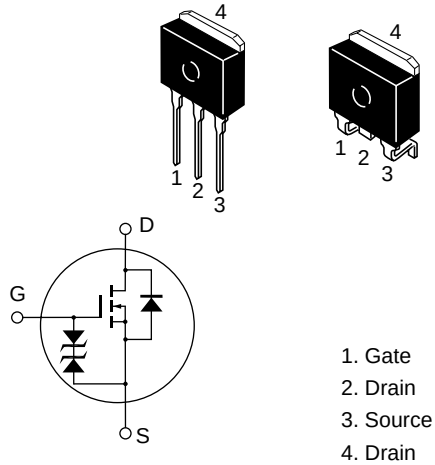
High speed power switching

## Features

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

## Outline

LDPAK




1. Gate
2. Drain
3. Source
4. Drain

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## Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|---|---|---|---|
| Drain to source voltage | $V_{DSS}$ | 600 | V |
| Gate to source voltage | $V_{GSS}$ | ±30 | V |
| Drain current | $I_D$ | 3 | A |
| Drain peak current | $I_{D(pulse)}$*[1] | 6 | A |
| Body to drain diode reverse drain current | $I_{DR}$ | 3 | A |
| Channel dissipation | Pch*[2] | 30 | W |
| Channel temperature | Tch | 150 | °C |
| Storage temperature | Tstg | –55 to +150 | °C |

Notes 1. PW ≤ 10 µs, duty cycle ≤ 1%
2. Value at $T_C$ = 25°C

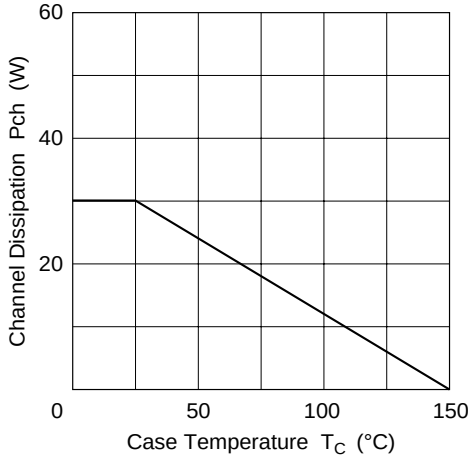
## Electrical Characteristics (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|---|---|---|---|---|---|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | 600 | — | — | V | $I_D$ = 10 mA, $V_{GS}$ = 0 |
| Gate to source breakdown voltage | $V_{(BR)GSS}$ | ±30 | — | — | V | $I_G$ = ±100 µA, $V_{DS}$ = 0 |
| Gate to source leak current | $I_{GSS}$ | — | — | ±10 | µA | $V_{GS}$ = ±25 V, $V_{DS}$ = 0 |
| Zero gate voltage drain current | $I_{DSS}$ | — | — | 250 | µA | $V_{DS}$ = 500 V, $V_{GS}$ = 0 |
| Gate to source cutoff voltage | $V_{GS(off)}$ | 2.0 | — | 3.0 | V | $I_D$ = 1 mA, $V_{DS}$ = 10 V |
| Static Drain to source on state resistance | $R_{DS(on)}$ | — | 3.8 | 5.0 | Ω | $I_D$ = 1 A, $V_{GS}$ = 10 V *[1] |
| Forward transfer admittance | \|yfs\| | 1.2 | 2.0 | — | S | $I_D$ = 1 A, $V_{DS}$ = 10 V *[1] |
| Input capacitance | Ciss | — | 295 | — | pF | $V_{DS}$ = 10 V, $V_{GS}$ = 0, f = 1 MHz |
| Output capacitance | Coss | — | 70 | — | pF | |
| Reverse transfer capacitance | Crss | — | 12 | — | pF | |
| Turn-on delay time | $t_{d(on)}$ | — | 8 | — | ns | $I_D$ = 1 A, $V_{GS}$ = 10 V, $R_L$ = 30 Ω |
| Rise time | $t_r$ | — | 25 | — | ns | |
| Turn-off delay time | $t_{d(off)}$ | — | 65 | — | ns | |
| Fall time | $t_f$ | — | 30 | — | ns | |
| Body to drain diode forward voltage | $V_{DF}$ | — | 0.9 | — | V | $I_F$ = 2 A, $V_{GS}$ = 0 |
| Body to drain diode reverse recovery time | $t_{rr}$ | — | 220 | — | ns | $I_F$ = 2 A, $V_{GS}$ = 0, $di_F/dt$ = 100 A/µs |

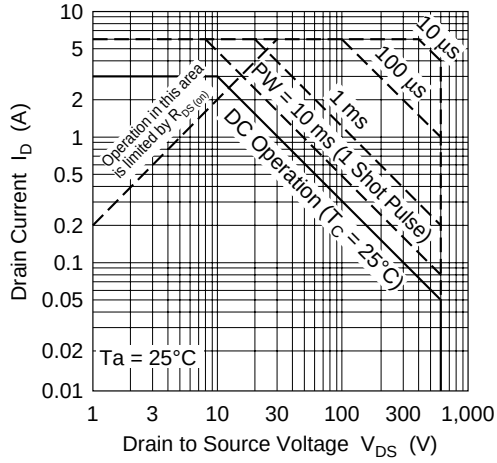
Note 1. Pulse test

See characteristic curves of 2SK1572.

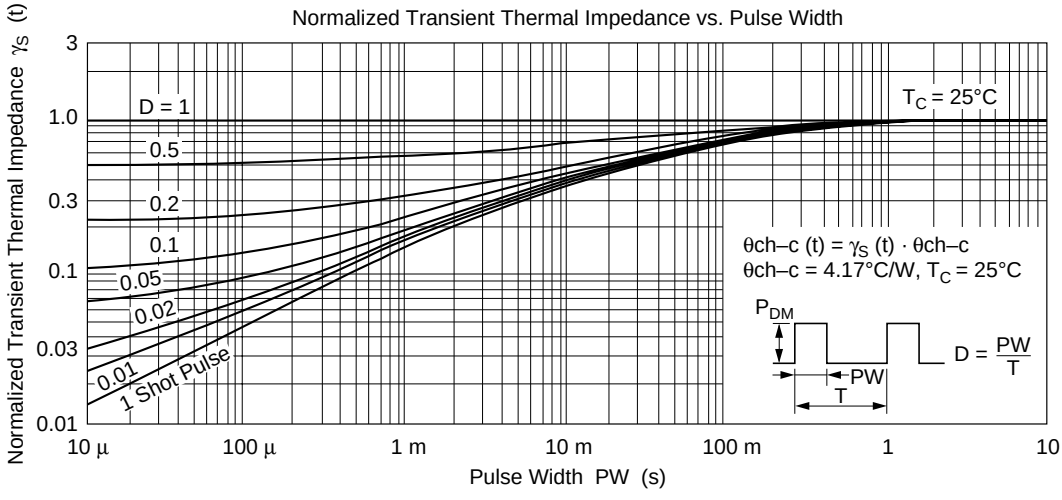
Power vs. Temperature Derating



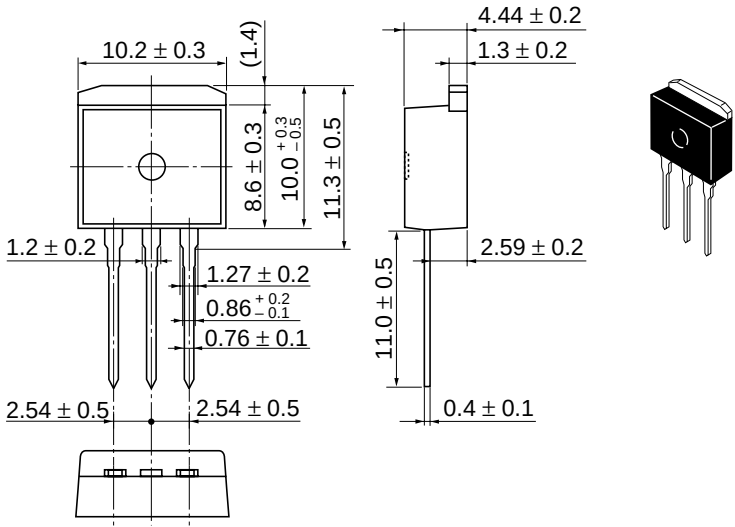

Maximum Safe Operation Area




Normalized Transient Thermal Impedance vs. Pulse Width



Unit: mm




| | |
|---|---|
| Hitachi Code | LDPAK (L) |
| JEDEC | — |
| EIAJ | — |
| Weight (reference value) | 1.4 g |

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