

2SJ318 , 2SJ318

Silicon P 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 Switching regulator, DC – DC converter

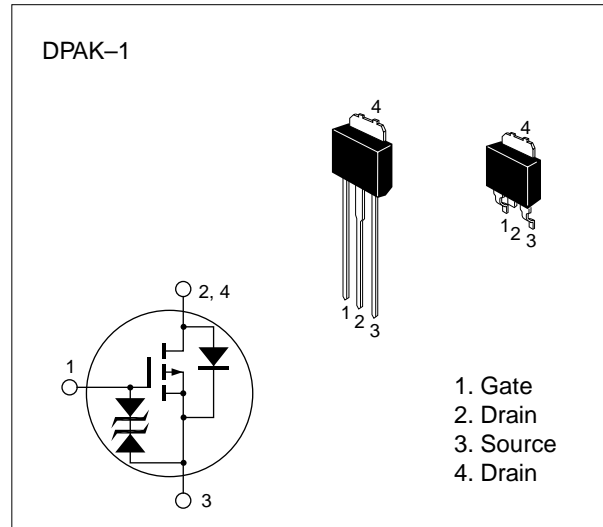


Table 1 Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|--|-------------------------|-------------|------|
| Drain to source voltage | V _{DSS} | -20 | V |
| Gate to source voltage | V _{GSS} | ±20 | V |
| Drain current | I _D | -5 | A |
| Drain peak current | I _{D(pulse)} * | -20 | A |
| Body-drain diode reverse drain current | I _{DR} | -5 | A |
| Channel dissipation | P _{ch} ** | 20 | W |
| Channel temperature | T _{ch} | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

* PW ≤ 10 μs, duty cycle ≤ 1 %

** Value at T_c = 25°C

Table 2 Electrical Characteristics (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|--|---------------|----------|------|----------|---------------|---|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | -20 | — | — | 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} | — | — | -100 | μA | $V_{DS} = -16 \text{ V}$, $V_{GS} = 0$ |
| Gate to source cutoff voltage | $V_{GS(off)}$ | -1.0 | — | -2.25 | V | $I_D = -1 \text{ mA}$, $V_{DS} = -10 \text{ V}$ |
| Static drain to source on state resistance | $R_{DS(on)}$ | — | 0.09 | 0.13 | Ω | $I_D = -3 \text{ A}$ $V_{GS} = -10 \text{ V}^*$ |
| | | — | 0.14 | 0.19 | Ω | $I_D = -3 \text{ A}$ $V_{GS} = -4 \text{ V}^*$ |
| Forward transfer admittance | $ y_{fs} $ | 3.5 | 5.5 | — | S | $I_D = -3 \text{ A}$ $V_{DS} = -10 \text{ V}^*$ |
| Input capacitance | C_{iss} | — | 580 | — | pF | $V_{DS} = -10 \text{ V}$ |
| Output capacitance | C_{oss} | — | 520 | — | pF | $V_{GS} = 0$ |
| Reverse transfer capacitance | C_{rss} | — | 215 | — | pF | $f = 1 \text{ MHz}$ |
| Turn-on delay time | $t_{d(on)}$ | — | 10 | — | ns | $I_D = -3 \text{ A}$ |
| Rise time | t_r | — | 60 | — | ns | $V_{GS} = -10 \text{ V}$ |
| Turn-off delay time | $t_{d(off)}$ | — | 75 | — | ns | $R_L = 3.3 \text{ }\Omega$ |
| Fall time | t_f | — | 75 | — | ns | |
| Body-drain diode forward voltage | V_{DF} | — | -1.1 | — | V | $I_F = -5 \text{ A}$, $V_{GS} = 0$ |
| Body-drain diode reverse recovery time | t_{rr} | — | 65 | — | μs | $I_F = -5 \text{ A}$, $V_{GS} = 0$, $di_F / dt = 50 \text{ A} / \mu\text{s}$ |

* Pulse Test

