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# 2SK2568

Silicon N-Channel MOS FET

# HITACHI

Preliminary

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## Application

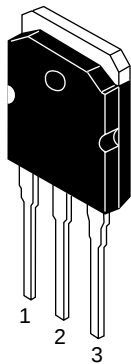
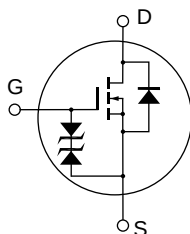
High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- Suitable for switching regulator and DC-DC converter

## Outline

TO-3P



1. Gate
2. Drain  
(Flange)
3. Source

Absolute Maximum Ratings (Ta = 25°C)

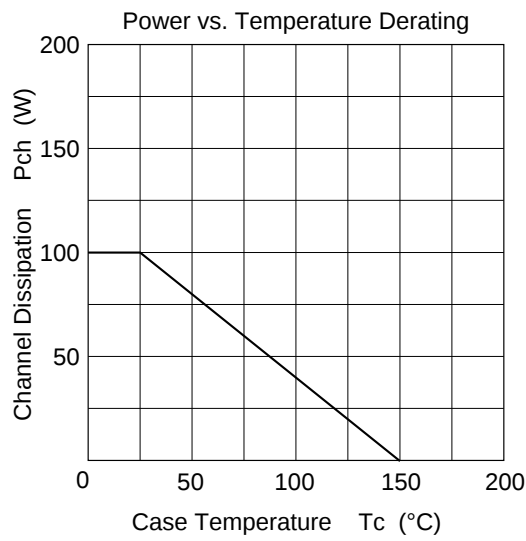
| Item                                      | Symbol                              | Ratings     | Unit |
|-------------------------------------------|-------------------------------------|-------------|------|
| Drain to source voltage                   | V <sub>DSS</sub>                    | 500         | V    |
| Gate to source voltage                    | V <sub>GSS</sub>                    | ±30         | V    |
| Drain current                             | I <sub>D</sub> <sup>*2</sup>        | 12          | A    |
| Drain peak current                        | I <sub>D(pulse)</sub> <sup>*1</sup> | 48          | A    |
| Body to drain diode reverse drain current | I <sub>DR</sub> <sup>*2</sup>       | 12          | A    |
| Channel dissipation                       | Pch <sup>*2</sup>                   | 100         | W    |
| Channel temperature                       | Tch                                 | 150         | °C   |
| Storage temperature                       | Tstg                                | −55 to +150 | °C   |

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

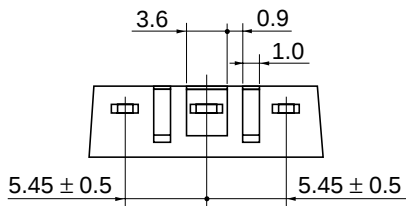
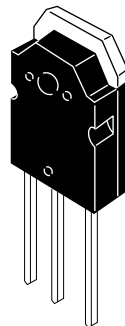
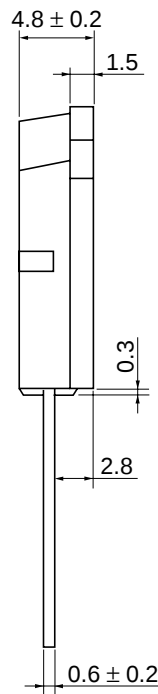
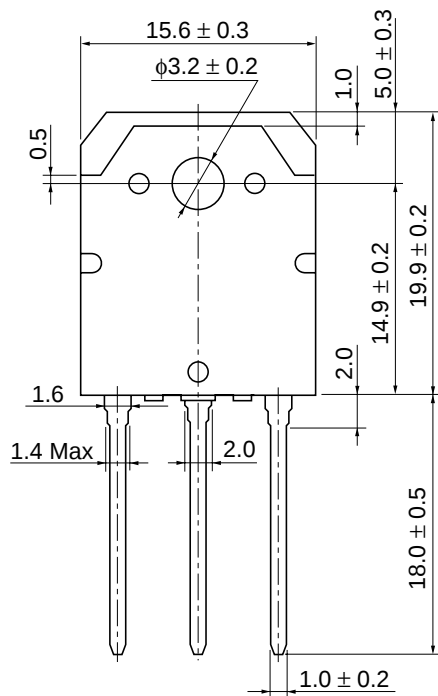
**Electrical Characteristics** (Ta = 25°C)

| Item                                       | Symbol        | Min | Typ  | Max | Unit | Test Conditions                                                                 |
|--------------------------------------------|---------------|-----|------|-----|------|---------------------------------------------------------------------------------|
| Drain to source breakdown voltage          | $V_{(BR)DSS}$ | 500 | —    | —   | V    | $I_D = 10 \text{ mA}$ , $V_{GS} = 0$                                            |
| Gate to source breakdown voltage           | $V_{(BR)GSS}$ | ±30 | —    | —   | V    | $I_G = \pm 100 \text{ } \mu\text{A}$ , $V_{DS} = 0$                             |
| Gate to source leak current                | $I_{GSS}$     | —   | —    | ±10 | μA   | $V_{GS} = \pm 25 \text{ V}$ , $V_{DS} = 0$                                      |
| Zero gate voltage drain current            | $I_{DSS}$     | —   | —    | 250 | μA   | $V_{DS} = 400 \text{ V}$ , $V_{GS} = 0$                                         |
| Gate to source cutoff voltage              | $V_{GS(off)}$ | 2.0 | —    | 3.0 | V    | $I_D = 1 \text{ mA}$ , $V_{DS} = 10 \text{ V}$                                  |
| Static drain to source on state resistance | $R_{DS(on)}$  | —   | 0.5  | 0.6 | Ω    | $I_D = 6 \text{ A}$<br>$V_{GS} = 10 \text{ V}^{*1}$                             |
| Forward transfer admittance                | $ y_{fs} $    | 6.0 | 10   | —   | S    | $I_D = 6 \text{ A}$<br>$V_{DS} = 10 \text{ V}^{*1}$                             |
| Input capacitance                          | $C_{iss}$     | —   | 1560 | —   | pF   | $V_{DS} = 10 \text{ V}$                                                         |
| Output capacitance                         | $C_{oss}$     | —   | 450  | —   | pF   | $V_{GS} = 0$                                                                    |
| Reverse transfer capacitance               | $C_{rss}$     | —   | 72   | —   | pF   | $f = 1 \text{ MHz}$                                                             |
| Turn-on delay time                         | $t_{d(on)}$   | —   | 22   | —   | ns   | $I_D = 6 \text{ A}$                                                             |
| Rise time                                  | $t_r$         | —   | 78   | —   | ns   | $V_{GS} = 10 \text{ V}$                                                         |
| Turn-off delay time                        | $t_{d(off)}$  | —   | 140  | —   | ns   | $R_L = 5 \text{ } \Omega$                                                       |
| Fall time                                  | $t_f$         | —   | 60   | —   | ns   |                                                                                 |
| Body to drain diode forward voltage        | $V_{DF}$      | —   | 1.1  | —   | V    | $I_F = 12 \text{ A}$ , $V_{GS} = 0$                                             |
| Body to drain diode reverse recovery time  | $t_{rr}$      | —   | 105  | —   | ns   | $I_F = 12 \text{ A}$ , $V_{GS} = 0$<br>$diF / dt = 100 \text{ A} / \mu\text{s}$ |

Note: 1. Pulse Test



Unit: mm



|                          |          |
|--------------------------|----------|
| Hitachi Code             | TO-3P    |
| JEDEC                    | —        |
| EIAJ                     | Conforms |
| Weight (reference value) | 5.0 g    |

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