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# 2SK2796L, 2SK2796S

Silicon N Channel MOS FET  
High Speed Power Switching

# HITACHI

Target Specification 1st. Edition  
October 1996

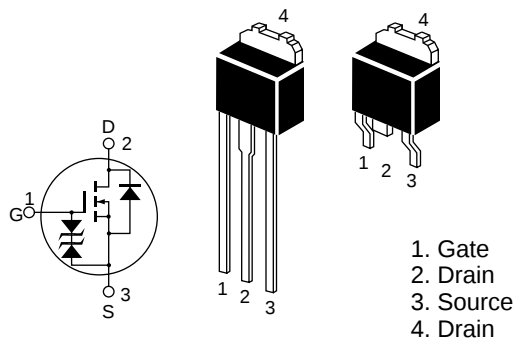
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## Features

- Low on-resistance  
RDS(on) = 0.12Ω typ.
- 4V gate drive devices.
- High speed switching

## Outline

DPAK



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## 2SK2796L, 2SK2796S

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

| Item                                   | Symbol         | Ratings     | Unit |
|----------------------------------------|----------------|-------------|------|
| Drain to source voltage                | VDSS           | 60          | V    |
| Gate to source voltage                 | VGSS           | ±20         | V    |
| Drain current                          | ID             | 5           | A    |
| Drain peak current                     | ID(pulse)Note1 | 20          | A    |
| Body-drain diode reverse drain current | IDR            | 5           | A    |
| Avalanche current                      | IAP Note3      | 5           | A    |
| Avalanche energy                       | EAR Note3      | 2.14        | mJ   |
| Channel dissipation                    | Pch Note2      | 20          | W    |
| Channel temperature                    | Tch            | 150         | °C   |
| Storage temperature                    | Tstg           | –55 to +150 | °C   |

Note: 1.  $PW \leq 10\mu s$ , duty cycle  $\leq 1\%$   
2. Value at Tc = 25°C  
3. Value at Tch = 25°C, Rg  $\geq 50\ \Omega$

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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    | ID = 10mA, VGS = 0                  |
| Gate to source breakdown voltage           | V(BR)GSS | ±20 | —    | —    | V    | IG = ±100μA, VDS = 0                |
| Zero gate voltage drain current            | IDSS     | —   | —    | 10   | μA   | VDS = 60 V, VGS = 0                 |
| Gate to source leak current                | IGSS     | —   | —    | ±10  | μA   | VGS = ±16V, VDS = 0                 |
| Gate to source cutoff voltage              | VGS(off) | 1.0 | —    | 2.0  | V    | ID = 1mA, VDS = 10V                 |
| Static drain to source on state resistance | RDS(on)  | —   | 0.12 | 0.16 | Ω    | ID = 3 A, VGS = 10V<br>Note4        |
| Static drain to source on state resistance | RDS(on)  | —   | 0.16 | 0.25 | Ω    | ID = 3A, VGS = 4V<br>Note4          |
| Forward transfer admittance                | yfs      | 2.5 | 4.0  | —    | S    | ID = 3A, VDS = 10V<br>Note4         |
| Input capacitance                          | Ciss     | —   | 180  | —    | pF   | VDS = 10V                           |
| Output capacitance                         | Coss     | —   | 90   | —    | pF   | VGS = 0                             |
| Reverse transfer capacitance               | Crss     | —   | 30   | —    | pF   | f = 1MHz                            |
| Turn-on delay time                         | td(on)   | —   | 9    | —    | ns   | VGS = 10V, ID = 3A                  |
| Rise time                                  | tr       | —   | 25   | —    | ns   | RL = 12Ω                            |
| Turn-off delay time                        | td(off)  | —   | 35   | —    | ns   |                                     |
| Fall time                                  | tf       | —   | 55   | —    | ns   |                                     |
| Body-drain diode forward voltage           | VDF      | —   | 1.0  | —    | V    | ID = 5A, VGS = 0                    |
| Body-drain diode reverse recovery time     | trr      | —   | 40   | —    | ns   | IF = 5A, VGS = 0<br>diF/ dt =50A/μs |

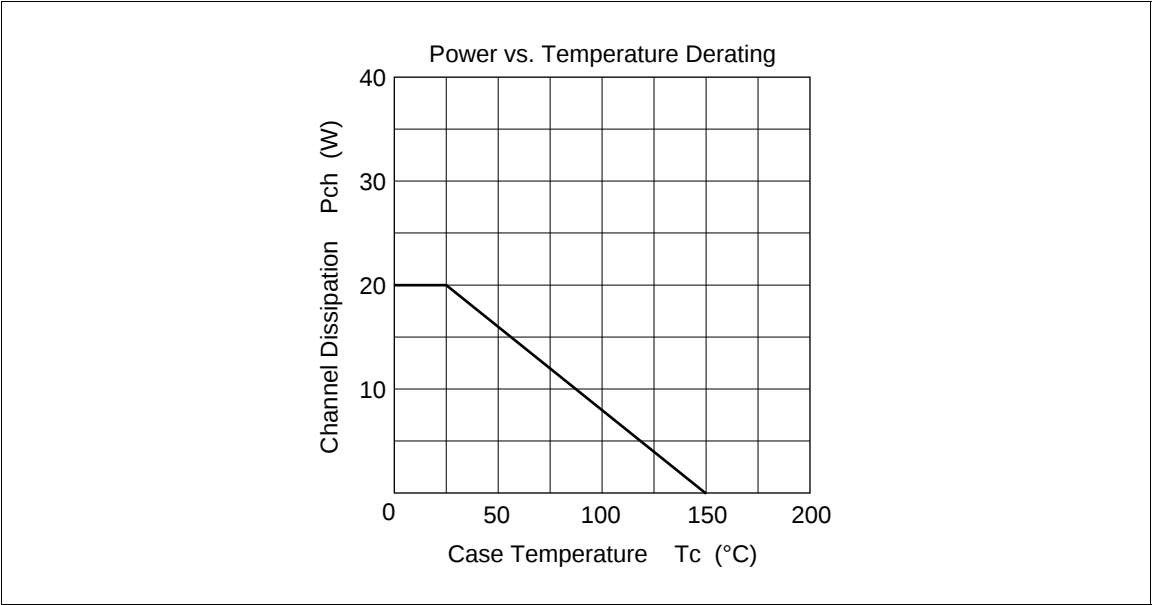
Note: 4. Pulse test

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## Main Characteristics



Unit: mm