# H5N2501LD, H5N2501LS, H5N2501LM

## Silicon N Channel MOS FET
## High Speed Power Switching

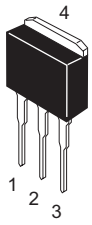
REJ03G1250-0200
Rev.2.00
Jul.21,2005

### Features

- Low on-resistance
- Low leakage current
- High speed switching

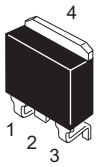
### Outline

RENESAS Package code: PRSS0004AE-A
(Package name LDPAK(L))



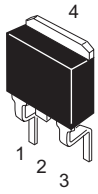

H5N2501LD

RENESAS Package code: PRSS0004AE-B
(Package name LDPAK(S)-(1))

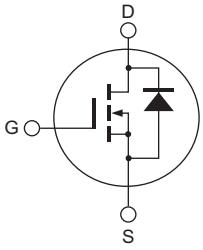



H5N2501LS

RENESAS Package code: PRSS0004AE-C
(Package name LDPAK(S)-(2))




H5N2501LM




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

### Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|---|---|---|---|
| Drain to Source voltage | $V_{DSS}$ | 250 | V |
| Gate to Source voltage | $V_{GSS}$ | ±30 | V |
| Drain current | $I_D$ | 18 | A |
| Drain peak current | $I_{D\ (pulse)}$ Note1 | 72 | A |
| Body-Drain diode reverse Drain current | $I_{DR}$ | 18 | A |
| Avalanche current | $I_{AP}$ Note3 | 18 | A |
| Channel dissipation | Pch Note2 | 75 | 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
3. STch = 25°C, Tch ≤ 150°C

## Electrical Characteristics

(Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|---|---|---|---|---|---|
| Drain to Source breakdown voltage | $V_{(BR)DSS}$ | 250 | — | — | V | $I_D$ = 10 mA, $V_{GS}$ = 0 |
| Zero Gate voltage drain current | $I_{DSS}$ | — | — | 1 | µA | $V_{DS}$ = 250 V, $V_{GS}$ = 0 |
| Gate to Source leak current | $I_{GSS}$ | — | — | ±0.1 | µA | $V_{GS}$ = ±30 V, $V_{DS}$ = 0 |
| Gate to Source cutoff voltage | $V_{GS(off)}$ | 3.0 | — | 4.5 | V | $V_{DS}$ = 10 V, $I_D$ = 1 mA |
| Forward transfer admittance | \|yfs\| | 8 | 14 | — | S | $I_D$ = 9 A, $V_{DS}$ = 10 V Note4 |
| Static Drain to Source on state resistance | $R_{DS(on)}$ | — | 0.14 | 0.18 | Ω | $I_D$ = 9 A, $V_{GS}$ = 10 V Note4 |
| Input capacitance | Ciss | — | 1350 | — | pF | $V_{DS}$ = 25 V<br>$V_{GS}$ = 0<br>f = 1 MHz |
| Output capacitance | Coss | — | 170 | — | pF | |
| Reverse transfer capacitance | Crss | — | 50 | — | pF | |
| Turn-on delay time | td(on) | — | 30 | — | ns | $I_D$ = 9 A<br>$V_{GS}$ = 10 V<br>$R_L$ = 13.9 Ω<br>Rg = 10 Ω |
| Rise time | tr | — | 65 | — | ns | |
| Turn-off delay time | td(off) | — | 95 | — | ns | |
| Fall time | tf | — | 18 | — | ns | |
| Total Gate charge | Qg | — | 45 | — | nC | $V_{DD}$ = 200 V<br>$V_{GS}$ = 10 V<br>$I_D$ = 18 A |
| Gate to Source charge | Qgs | — | 8 | — | nC | |
| Gate to Drain charge | Qgd | — | 22 | — | nC | |
| Body-Drain diode forward voltage | $V_{DF}$ | — | 0.9 | 1.4 | V | $I_F$ = 18 A, $V_{GS}$ = 0 Note4 |
| Body-Drain diode reverse recovery time | trr | — | 160 | — | ns | $I_F$ = 18 A, $V_{GS}$ = 0<br>$di_F/dt$ = 100 A/µs |
| Body-Drain diode reverse recovery charge | Qrr | — | 1.0 | — | µC | |

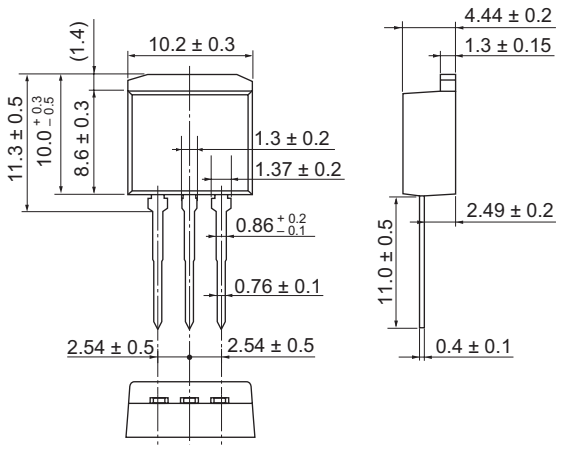
Notes: 4. Pulse test

## Package Dimensions

• H5N2501LD

| JEITA Package Code | RENESAS Code | Package Name | MASS[Typ.] |
|---|---|---|---|
| — | PRSS0004AE-A | LDPAK(L) / LDPAK(L)V | 1.40g |

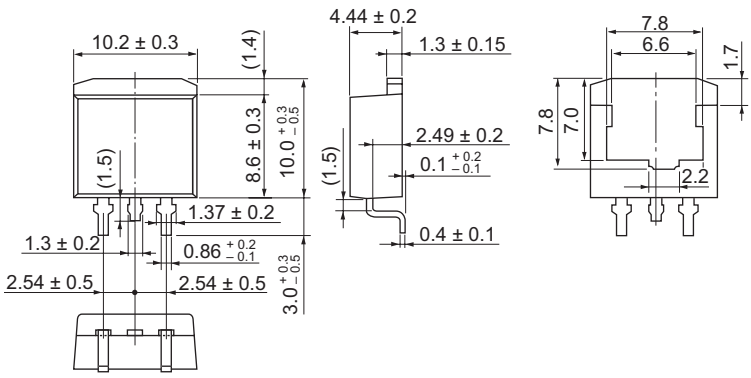
Unit: mm




• H5N2501LS

| JEITA Package Code | RENESAS Code | Package Name | MASS[Typ.] |
|---|---|---|---|
| SC-83 | PRSS0004AE-B | LDPAK(S)-(1) / LDPAK(S)-(1)V | 1.30g |

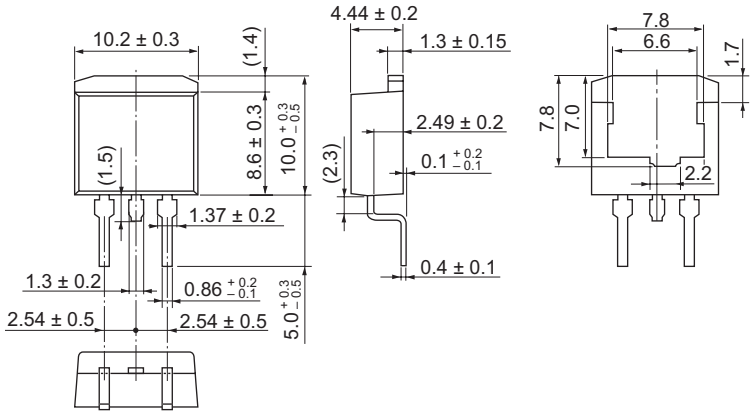
Unit: mm



• H5N2501LM

| JEITA Package Code | RENESAS Code | Package Name | MASS[Typ.] |
|---|---|---|---|
| — | PRSS0004AE-C | LDPAK(S)-(2) / LDPAK(S)-(2)V | 1.35g |

Unit: mm




## Ordering Information

| Part Name | Quantity | Shipping Container |
|---|---|---|
| H5N2501LSTL-E | 1000 pcs | Taping |

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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http://www.renesas.com

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