



# H5N2005DL, H5N2005DS

Silicon N Channel MOS FET  
High Speed Power Switching

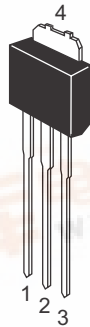
REJ03G1104-0200  
(Previous: ADE-208-1373)  
Rev.2.00  
Sep 07, 2005

## Features

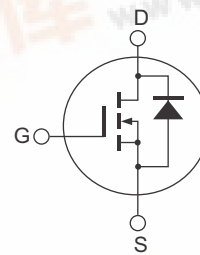
- Low on-resistance
- Low drive current
- High speed switching

## Outline

RENESAS Package code: PRSS0004ZD-B  
(Package name: DPAK (L)-(2) )



RENESAS Package code: PRSS0004ZD-C  
(Package name: DPAK (S) )



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

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V <sub>DSS</sub>	200	V
Gate to source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	6	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note 1</sup>	24	A
Body-drain diode reverse drain current	I <sub>DR</sub>	6	A
Body-drain diode reverse drain peak current	I <sub>DR (pulse)</sub> <sup>Note 1</sup>	24	A
Channel dissipation	P <sub>ch</sub> <sup>Note 2</sup>	25	W
Channel to case thermal Impedance	θ <sub>ch-c</sub>	5	°C/W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Value at Tc = 25°C

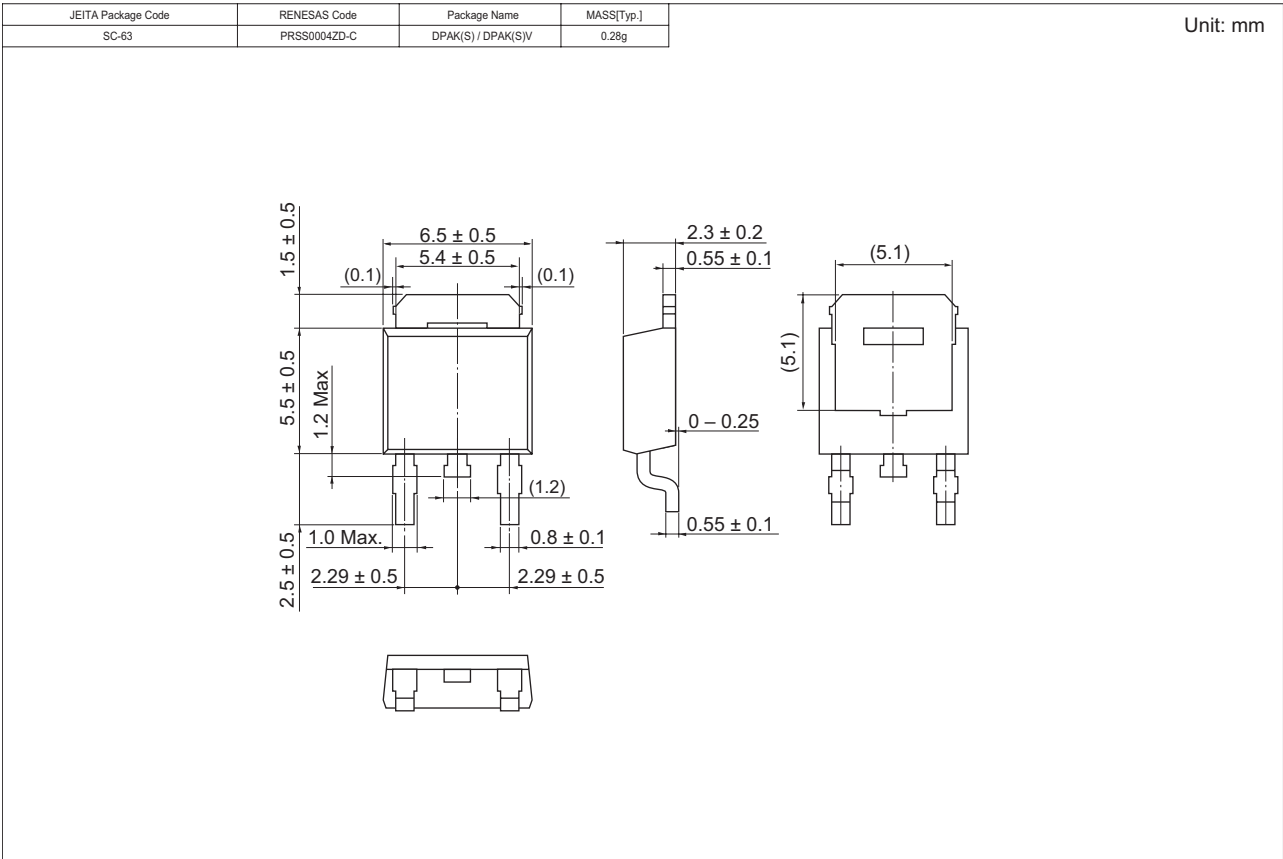
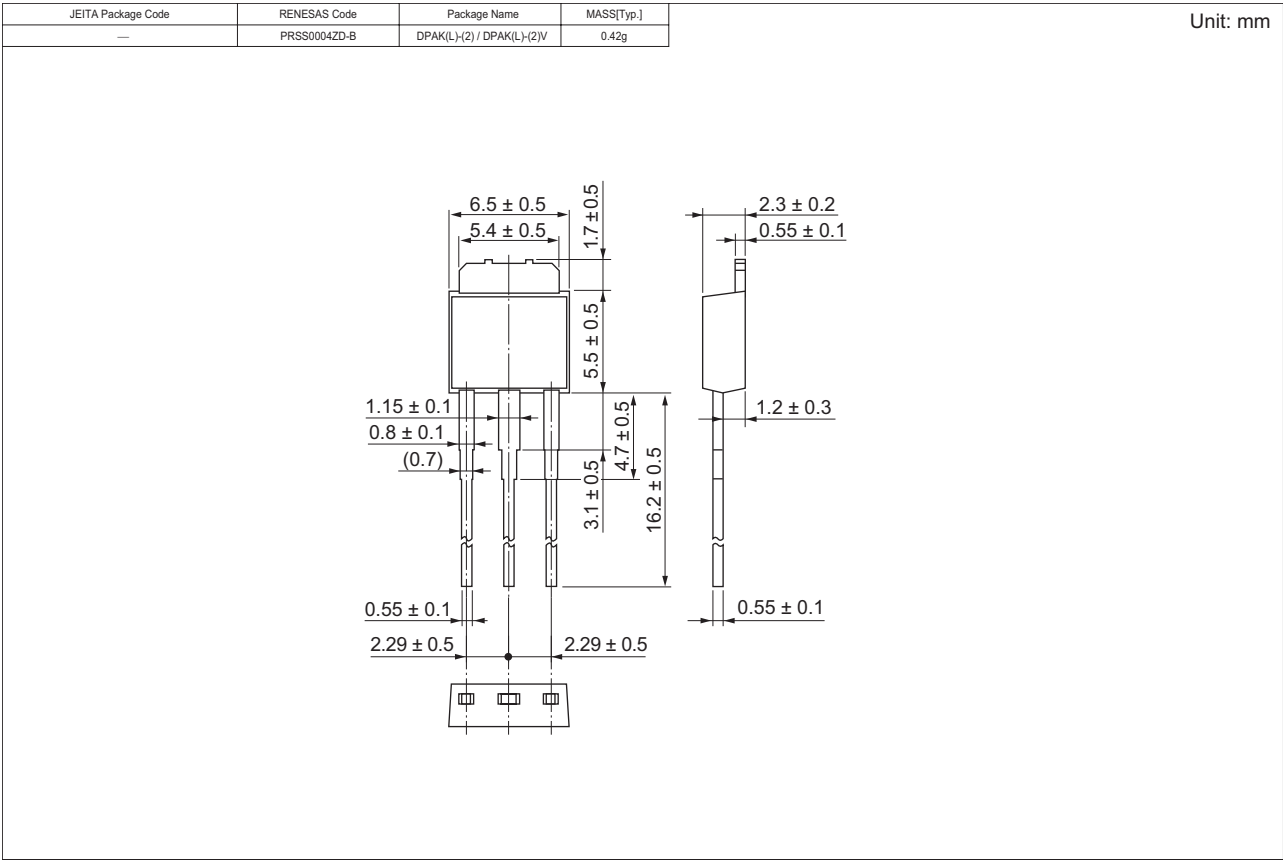
## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR) DSS</sub>	200	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±0.1	μA	V <sub>GS</sub> = ±30 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	1	μA	V <sub>DS</sub> = 200 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS (off)</sub>	3.0	—	4.5	V	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 mA
Static drain to source on state resistance	R <sub>DS (on)</sub>	—	0.52	0.65	Ω	I <sub>D</sub> = 3 A, V <sub>GS</sub> = 10 V <sup>Note 3</sup>
Forward transfer admittance	y <sub>fs</sub>	2.0	3.4	—	S	I <sub>D</sub> = 3 A, V <sub>DS</sub> = 10 V <sup>Note 3</sup>
Input capacitance	C <sub>iss</sub>	—	300	—	pF	V <sub>DS</sub> = 25 V
Output capacitance	C <sub>oss</sub>	—	44	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	12.5	—	pF	f = 1 MHz
Total gate charge	Q <sub>g</sub>	—	9.8	—	nC	V <sub>DD</sub> = 160 V
Gate to source charge	Q <sub>gs</sub>	—	2.0	—	nC	V <sub>GS</sub> = 10 V
Gate to drain charge	Q <sub>gd</sub>	—	5.2	—	nC	I <sub>D</sub> = 6 A
Turn-on delay time	t <sub>d (on)</sub>	—	23	—	ns	I <sub>D</sub> = 3 A
Rise time	t <sub>r</sub>	—	24	—	ns	V <sub>GS</sub> = 10 V
Turn-off delay time	t <sub>d (off)</sub>	—	43.5	—	ns	R <sub>L</sub> = 33.3 Ω
Fall time	t <sub>f</sub>	—	11	—	ns	R <sub>g</sub> = 10 Ω
Body-drain diode forward voltage	V <sub>DF</sub>	—	1.0	1.5	V	I <sub>F</sub> = 6 A, V <sub>GS</sub> = 0
Body-drain diode reverse recovery time	t <sub>rr</sub>	—	90	—	ns	I <sub>F</sub> = 6 A, V <sub>GS</sub> = 0
Body-drain diode reverse recovery charge	Q <sub>rr</sub>	—	400	—	nC	di <sub>F</sub> /dt = 100 A/μs

Note: 3. Pulse test

Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
H5N2005DL-E	3200 pcs	Box (Sack)
H5N2005DSTL-E	3000 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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