

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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## H5N2510DL, H5N2510DS

Silicon N Channel MOS FET  
High Speed Power Switching

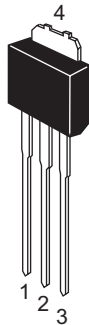
REJ03G1110-0200  
(Previous: ADE-208-1379)  
Rev.2.00  
Sep 07, 2005

### Features

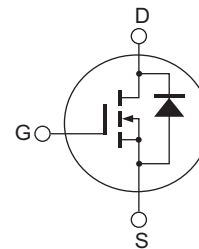
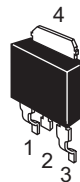
- Low on-resistance
- Low drive current
- High speed switching

### 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>	250	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	5	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note 1</sup>	20	A
Body-drain diode reverse drain current	I <sub>DR</sub>	5	A
Body-drain diode reverse drain peak current	I <sub>DR (pulse)</sub> <sup>Note 1</sup>	20	A
Channel dissipation	P <sub>ch</sub> <sup>Note 2</sup>	25	W
Channel to case thermal Impedance	θ ch-c	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

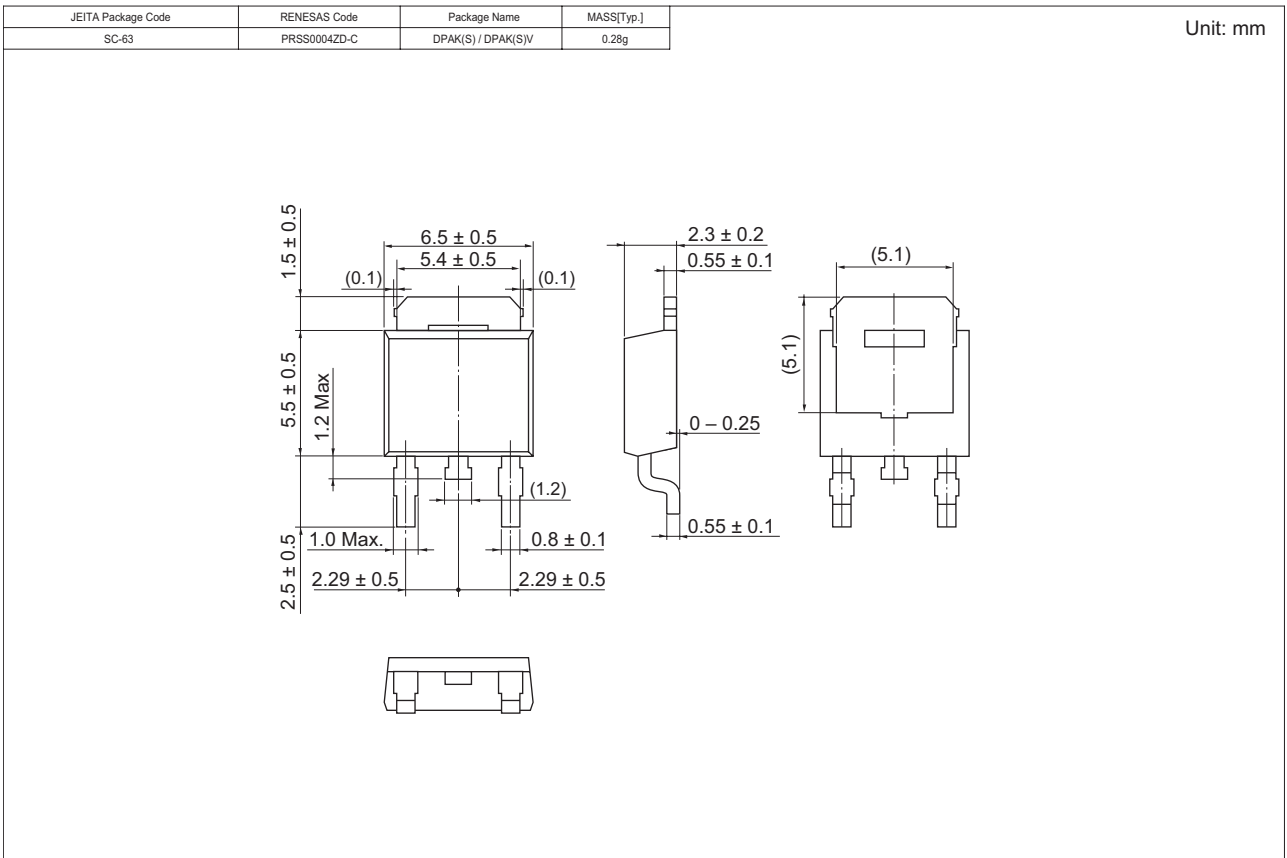
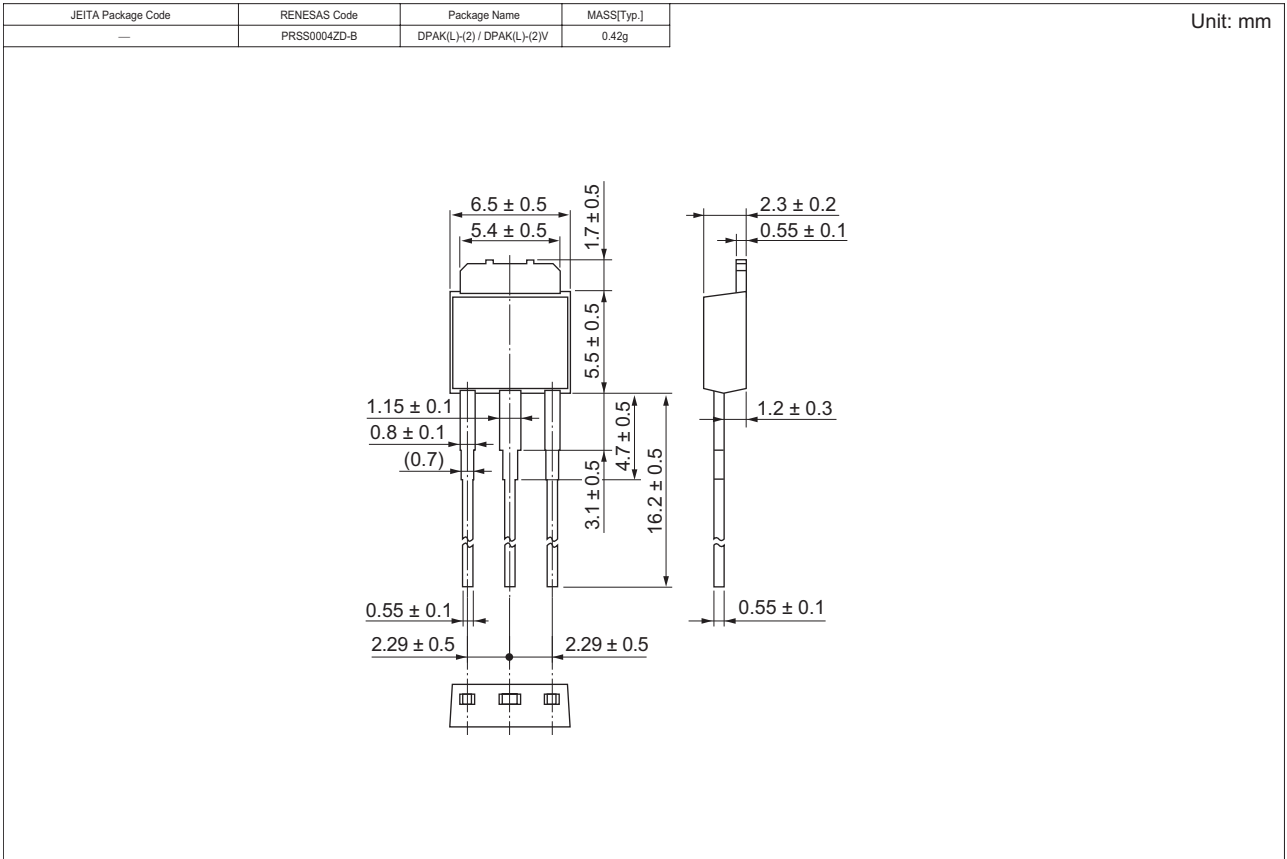
## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR) DSS</sub>	250	—	—	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> = ±20 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	1	μA	V <sub>DS</sub> = 250 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS (off)</sub>	1.0	—	2.5	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>	—	0.68	0.89	Ω	I <sub>D</sub> = 2.5 A, V <sub>GS</sub> = 10 V <sup>Note 3</sup>
	R <sub>DS (on)</sub>	—	0.72	0.97	Ω	I <sub>D</sub> = 2.5 A, V <sub>GS</sub> = 10 V <sup>Note 3</sup>
Forward transfer admittance	y <sub>fs</sub>	3.2	5.3	—	S	I <sub>D</sub> = 2.5 A, V <sub>DS</sub> = 4 V <sup>Note 3</sup>
Input capacitance	C <sub>iss</sub>	—	365	—	pF	V <sub>DS</sub> = 25 V V <sub>GS</sub> = 0 f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	42	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	12	—	pF	
Total gate charge	Q <sub>g</sub>	—	15.8	—	nC	V <sub>DD</sub> = 200 V
Gate to source charge	Q <sub>gs</sub>	—	1.2	—	nC	V <sub>GS</sub> = 10 V
Gate to drain charge	Q <sub>gd</sub>	—	5.4	—	nC	I <sub>D</sub> = 5 A
Turn-on delay time	t <sub>d (on)</sub>	—	15	—	ns	I <sub>D</sub> = 2.5 A
Rise time	t <sub>r</sub>	—	18.5	—	ns	V <sub>GS</sub> = 10 V
Turn-off delay time	t <sub>d (off)</sub>	—	65	—	ns	R <sub>L</sub> = 50 Ω
Fall time	t <sub>f</sub>	—	10	—	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> = 5 A, V <sub>GS</sub> = 0
Body-drain diode reverse recovery time	t <sub>rr</sub>	—	91	—	ns	I <sub>F</sub> = 5 A, V <sub>GS</sub> = 0
Body-drain diode reverse recovery charge	Q <sub>rr</sub>	—	430	—	nC	di <sub>F</sub> /dt = 100 A/μs

Note: 3. Pulse test

Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
H5N2510DL-E	3200 pcs	Box (Sack)
H5N2510DSTL-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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