

# H5N2514P

Silicon N Channel MOS FET  
High Speed Power Switching

REJ03G1203-0100

Rev.1.00

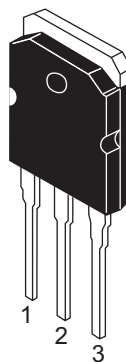
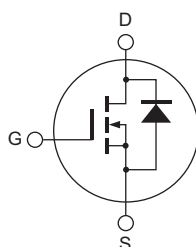
May 25.2005

## Features

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

## Outline

RENESAS Package code: PRSS0004ZE-A  
(Package name: TO-3P)



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

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	$V_{DSS}$	250	V
Gate to Source voltage	$V_{GSS}$	$\pm 30$	V
Drain current	$I_D$	70	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	210	A
Body-Drain diode reverse Drain current	$I_{DR}$	70	A
Body-Drain diode reverse Drain peak current	$I_{DR(pulse)}$ <sup>Note1</sup>	210	A
Avalanche current	$I_{AP}$ <sup>Note3</sup>	35	A
Avalanche energy	$E_{AR}$ <sup>Note3</sup>	76.5	mJ
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	200	W
Channel to case thermal impedance	$\theta_{ch-c}$	0.625	°C/W
Channel temperature	$T_{ch}$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

Notes: 1.  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$

2. Value at  $T_c = 25^\circ C$

3.  $ST_{ch} = 25^\circ C$ ,  $T_{ch} \leq 150^\circ C$

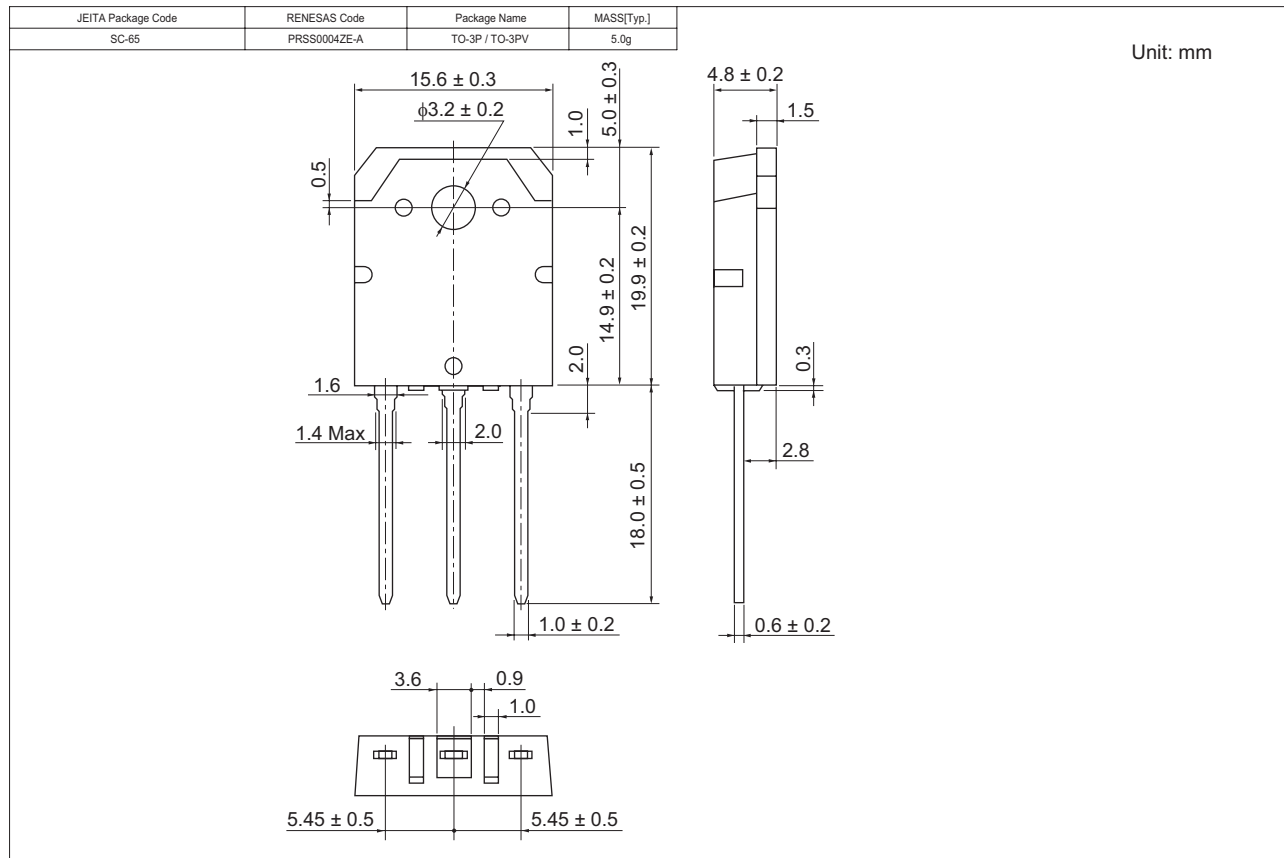
## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	250	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Zero Gate voltage Drain current	$I_{DSS}$	—	—	1	$\mu\text{A}$	$V_{DS} = 250 \text{ V}$ , $V_{GS} = 0$
Gate to Source leak current	$I_{GSS}$	—	—	$\pm 0.1$	$\mu\text{A}$	$V_{GS} = \pm 30 \text{ V}$ , $V_{DS} = 0$
Gate to Source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ mA}$
Forward transfer admittance	$ y_{fs} $	29	49	—	S	$I_D = 35 \text{ A}$ , $V_{DS} = 10 \text{ V}$ <sup>Note4</sup>
Static Drain to Source on state resistance	$R_{DS(on)}$	—	0.025	0.030	$\Omega$	$I_D = 35 \text{ A}$ , $V_{GS} = 10 \text{ V}$ <sup>Note4</sup>
Input capacitance	$C_{iss}$	—	5500	—	pF	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	820	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	115	—	pF	
Turn-on delay time	$t_{d(on)}$	—	70	—	ns	$I_D = 35 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 3.6 \Omega$ $R_g = 10 \Omega$
Rise time	$t_r$	—	350	—	ns	
Turn-off delay time	$t_{d(off)}$	—	270	—	ns	
Fall time	$t_f$	—	230	—	ns	
Total Gate charge	$Q_g$	—	155	—	nC	$V_{DD} = 200 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 70 \text{ A}$
Gate to Source charge	$Q_{gs}$	—	35	—	nC	
Gate to Drain charge	$Q_{gd}$	—	75	—	nC	
Body-Drain diode forward voltage	$V_{DF}$	—	1.10	1.65	V	$I_F = 70 \text{ A}$ , $V_{GS} = 0$ <sup>Note4</sup>
Body-Drain diode reverse recovery time	$t_{rr}$	—	220	—	ns	$I_F = 70 \text{ A}$ , $V_{GS} = 0$ $diF/dt = 100 \text{ A}/\mu\text{s}$
Body-Drain diode reverse recovery charge	$Q_{rr}$	—	1.8	—	$\mu\text{C}$	

Notes: 4. Pulse test

## Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
H5N2514P-E	30 pcs	Plastic magazine

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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450 Holger Way, San Jose, CA 95134-1368, U.S.A  
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

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Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.  
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#### **Renesas Technology Taiwan Co., Ltd.**

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Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

#### **Renesas Technology (Shanghai) Co., Ltd.**

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China  
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

#### **Renesas Technology Singapore Pte. Ltd.**

1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632  
Tel: <65> 6213-0200, Fax: <65> 6278-8001