

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

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EOL announced Product

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# H5N2512FN

Silicon N Channel MOS FET  
High Speed Power Switching

REJ03G1767-0100

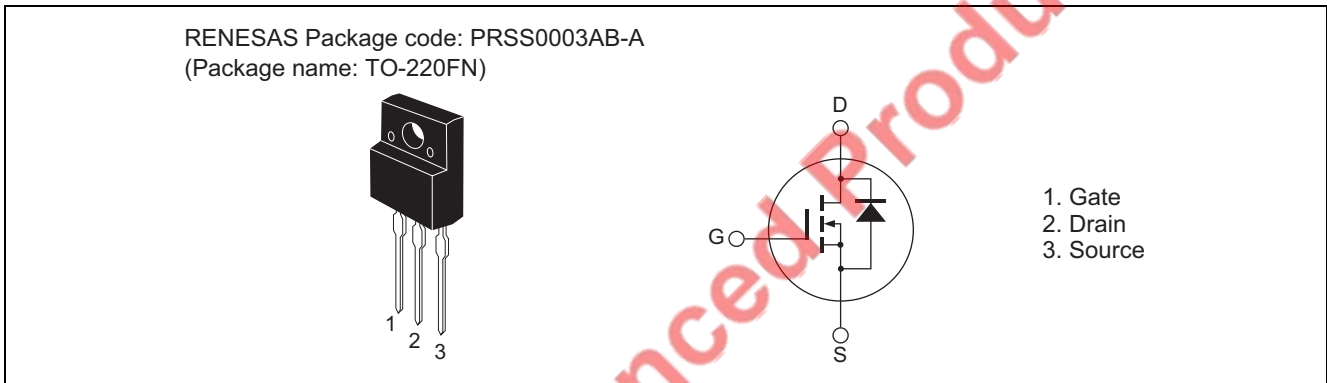
Rev.1.00

Jul 02, 2009

## Features

- Low on-resistance
- Low leakage current
- High speed switching
- Built-in fast recovery diode

## Outline



## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	250	V
Gate to source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	18	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note1</sup>	72	A
Body-drain diode reverse drain current	I <sub>DR</sub>	18	A
Body-drain diode reverse drain peak current	I <sub>DR (pulse)</sub> <sup>Note1</sup>	72	A
Avalanche current	I <sub>AP</sub> <sup>Note3</sup>	18	A
Channel dissipation	P <sub>ch</sub> <sup>Note2</sup>	35	W
Channel to case thermal impedance	θ <sub>ch-c</sub>	3.57	°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

3. T<sub>ch</sub> ≤ 150°C

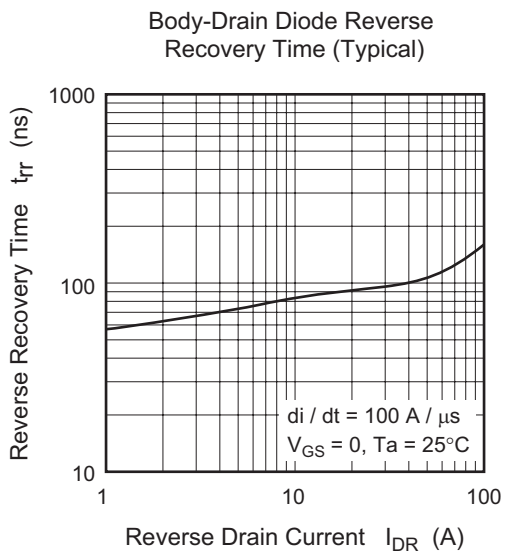
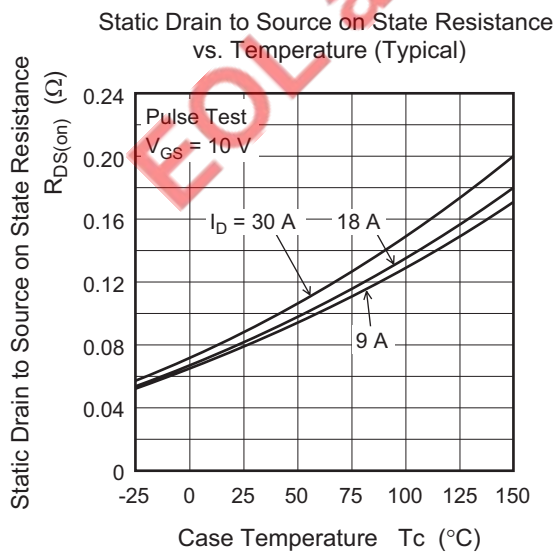
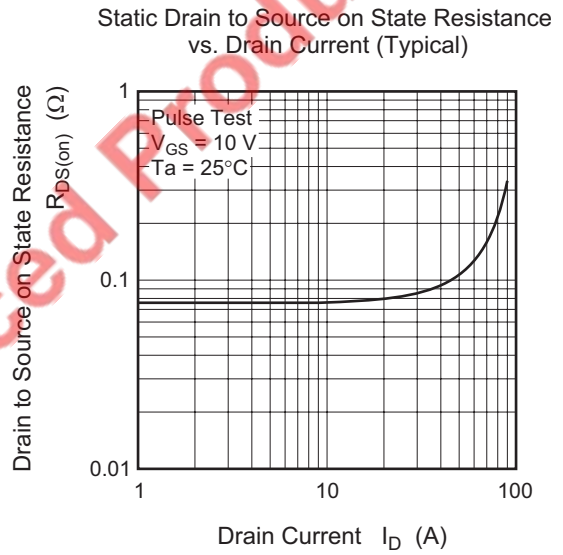
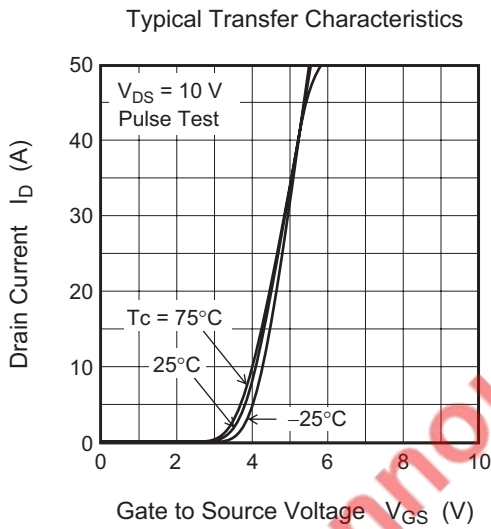
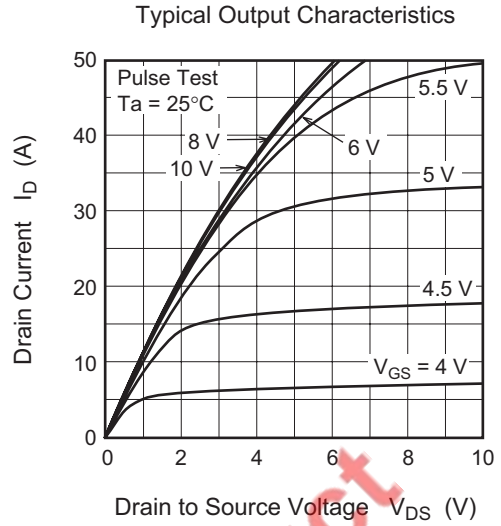
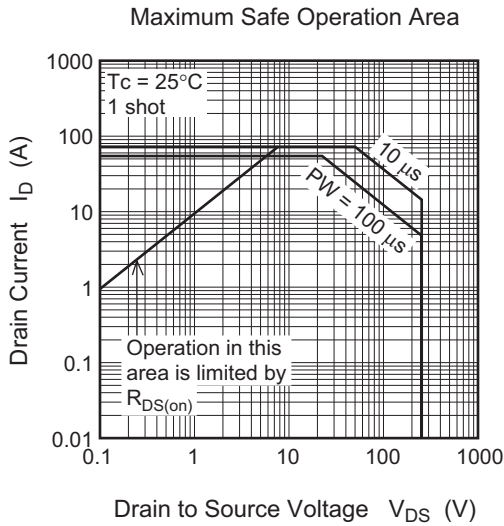
## Electrical Characteristics

(Ta = 25°C)

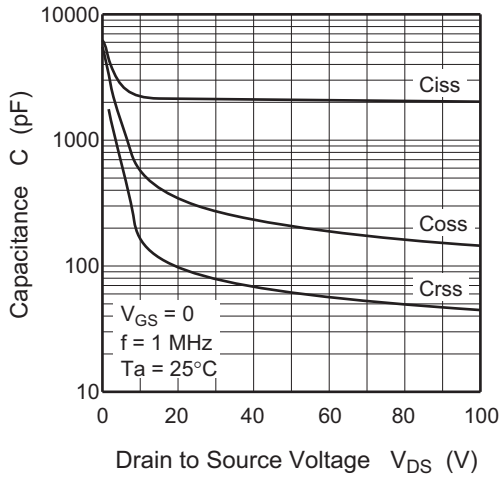
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	250	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	10	$\mu\text{A}$	$V_{DS} = 250 \text{ V}$ , $V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 0.1$	$\mu\text{A}$	$V_{GS} = \pm 30 \text{ V}$ , $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.5	—	4.0	V	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ mA}$
Forward transfer admittance	$ y_{fs} $	9	16	—	S	$I_D = 9 \text{ A}$ , $V_{DS} = 10 \text{ V}$ <sup>Note4</sup>
Static drain to source on state resistance	$R_{DS(on)}$	—	0.082	0.105	$\Omega$	$I_D = 9 \text{ A}$ , $V_{GS} = 10 \text{ V}$ <sup>Note4</sup>
Input capacitance	$C_{iss}$	—	2200	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	$C_{oss}$	—	300	—	pF	$V_{GS} = 0$ ,
Reverse transfer capacitance	$C_{rss}$	—	85	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	32	—	ns	$I_D = 9 \text{ A}$
Rise time	$t_r$	—	60	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	160	—	ns	$R_L = 13.9 \Omega$
Fall time	$t_f$	—	60	—	ns	$R_g = 10 \Omega$
Total gate charge	$Q_g$	—	81	—	nC	$V_{DD} = 200 \text{ V}$
Gate to source charge	$Q_{gs}$	—	10	—	nC	$V_{GS} = 10 \text{ V}$
Gate to drain charge	$Q_{gd}$	—	38	—	nC	$I_D = 18 \text{ A}$
Body-drain diode forward voltage	$V_{DF}$	—	0.9	1.4	V	$I_F = 18 \text{ A}$ , $V_{GS} = 0$ <sup>Note4</sup>
Body-drain diode reverse recovery time	$t_{rr}$	—	110	—	ns	$I_F = 18 \text{ A}$ , $V_{GS} = 0$ $diF/dt = 100 \text{ A}/\mu\text{s}$
Body-drain diode reverse recovery time	$Q_{rr}$	—	0.39	—	$\mu\text{C}$	

Notes: 4. Pulse test

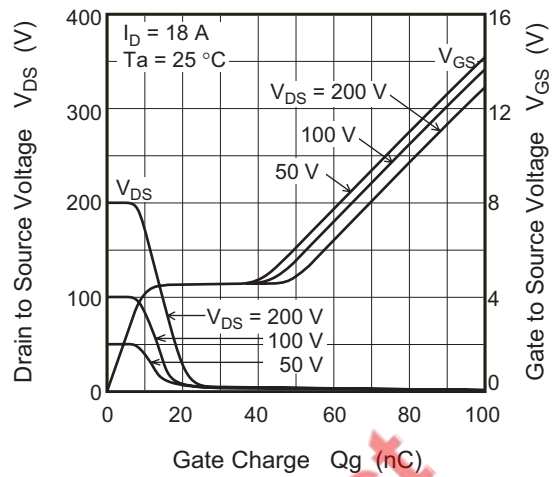
Main Characteristics



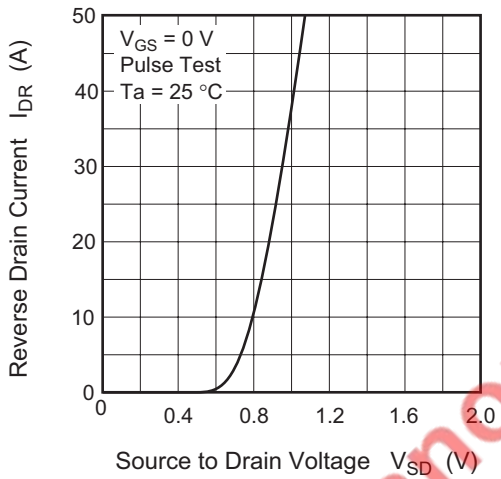
Typical Capacitance vs. Drain to Source Voltage



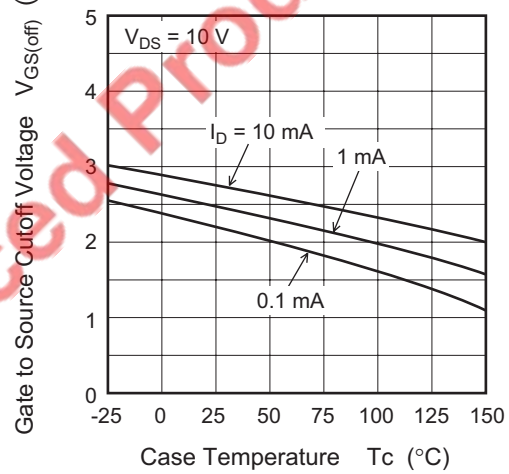
Dynamic Input Characteristics (Typical)



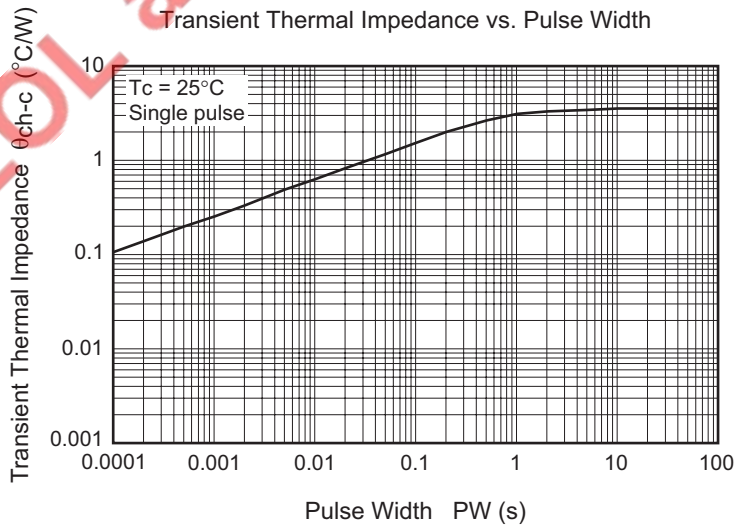
Reverse Drain Current vs. Source to Drain Voltage (Typical)



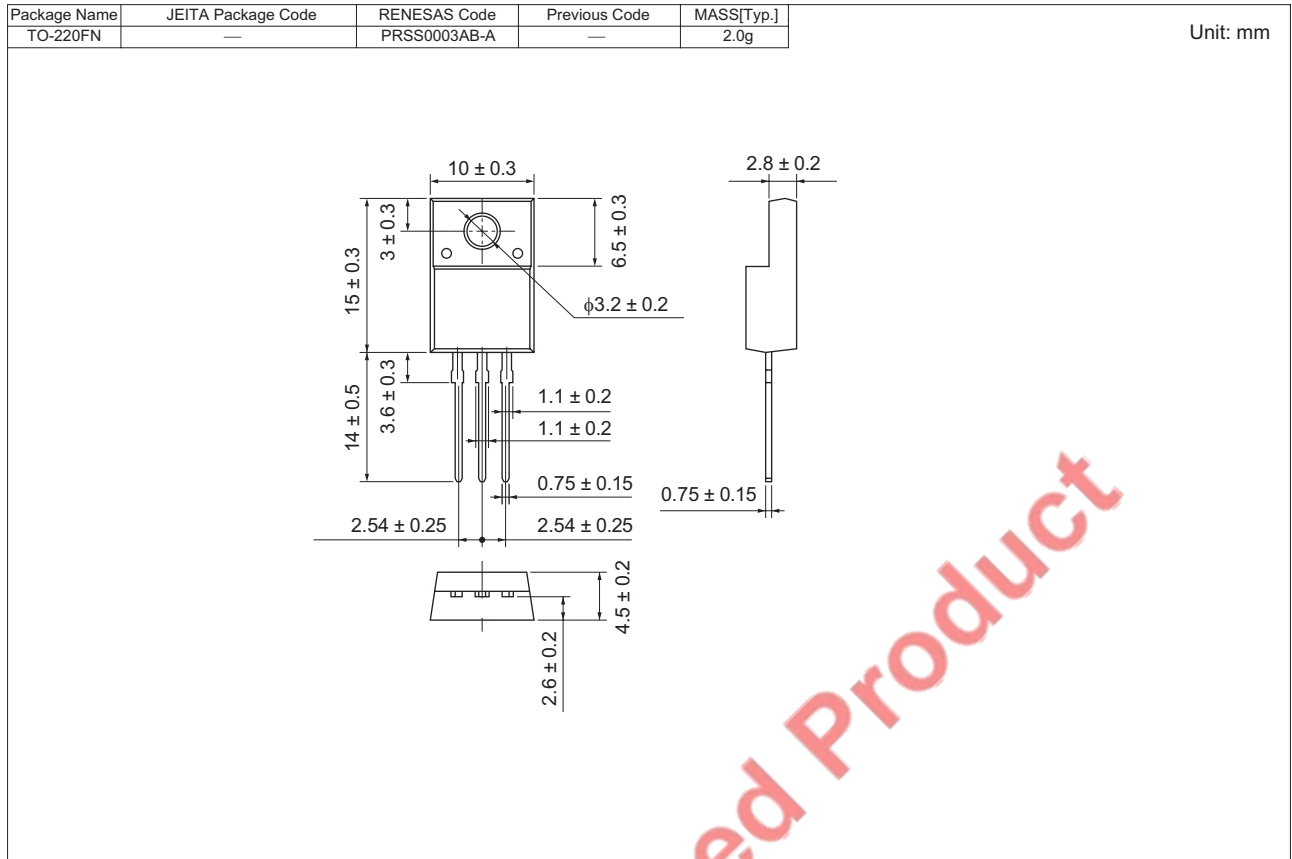
Gate to Source Cutoff Voltage vs. Case Temperature (Typical)



Transient Thermal Impedance vs. Pulse Width



Package Dimensions



Ordering Information

Part No.	Quantity	Shipping Container
H5N2512FN-E	1050 pcs	Box (Tube)

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Notes:

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