

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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# RJJ0621DPP

P Channel Power MOS FET  
High Speed Switching

REJ03G1624-0200

Rev.2.00

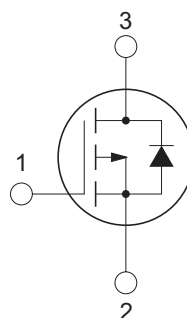
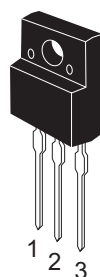
Jun 16, 2008

## Features

- $V_{DSS}$  : -60 V
- $R_{DS(on)}$  : 56 mΩ (MAX)
- $I_D$  : -25 A
- Lead Mount Type (TO-220FN)

## Outline

RENESAS Package code: PRSS0003AB-A  
(Package name : TO-220FN)



1. Gate
2. Drain
3. Source

## Application

- DC-DC converter, Motor control, Solenoid control, etc.

## Absolute Maximum Ratings

( $T_c = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit	Conditions
Drain to source voltage	$V_{DSS}$	-60	V	$V_{GS} = 0\text{ V}$
Gate to source voltage	$V_{GSS}$	+10/-20	V	$V_{DS} = 0\text{ V}$
Drain current (DC)	$I_D$	-25	A	
Drain current (Pulsed)*1	$I_{D(pulse)}$	-50	A	
Avalanche current	$I_{AP}$	-25	A	$L = 100\ \mu\text{H}$
Channel dissipation	$P_{ch}$	35	W	
Channel to case thermal impedance	$\theta_{ch-c}$	3.57	$^\circ\text{C/W}$	
Channel temperature	$T_{ch}$	-55 to +150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	

Note: 1. Pulse width limited by safe operating area.

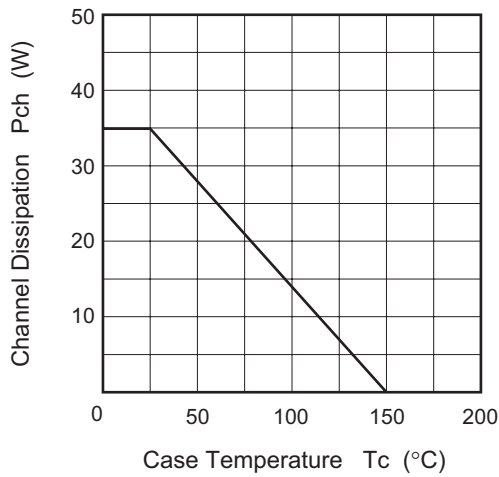
## Electrical Characteristics

(T<sub>c</sub> = 25°C)

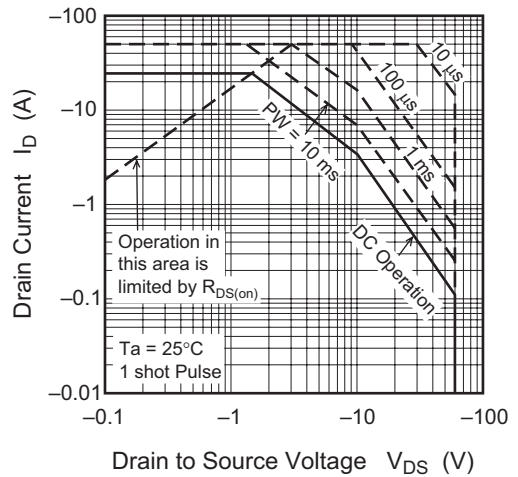
Item	Symbol	Min.	Typ.	Max.	Unit	Conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	-60	—	—	V	I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0 V
Drain to source leakage current	I <sub>DSS</sub>	—	—	-1	μA	V <sub>DS</sub> = -60 V, V <sub>GS</sub> = 0 V
Gate to source leak current	I <sub>GSS</sub>	—	—	0.1	μA	V <sub>GS</sub> = +10 V, V <sub>DS</sub> = 0 V
Gate to source leak current	I <sub>GSS</sub>	—	—	-0.1	μA	V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V
Gate to source cutoff voltage	V <sub>GS(off)</sub>	-1.0	-1.7	-2.5	V	I <sub>D</sub> = -1 mA, V <sub>DS</sub> = -10 V
Static drain to source on state resistance	R <sub>DS(on)</sub>	—	45	56	mΩ	I <sub>D</sub> = -12.5 A, V <sub>GS</sub> = -10 V
		—	65	95	mΩ	I <sub>D</sub> = -12.5 A, V <sub>GS</sub> = -4.5 V
Input capacitance	C <sub>iss</sub>	—	1550	—	pF	V <sub>DS</sub> = -10 V V <sub>GS</sub> = 0 V f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	190	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	100	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	15	—	ns	V <sub>DD</sub> = -30 V I <sub>D</sub> = -12.5 A
Rise time	t <sub>r</sub>	—	25	—	ns	
Turn-off delay time	t <sub>d(off)</sub>	—	100	—	ns	V <sub>GS</sub> = -10 V R <sub>G</sub> = 25 Ω
Fall time	t <sub>f</sub>	—	50	—	ns	
Body-drain diode forward voltage	V <sub>DF</sub>	—	-0.9	-1.5	V	I <sub>F</sub> = -12.5 A, V <sub>GS</sub> = 0 V

## Main Characteristics

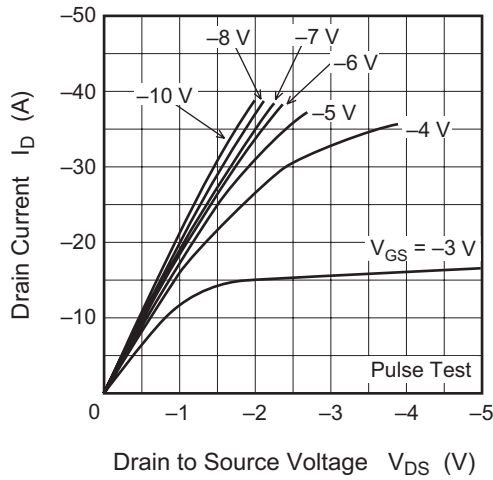
Power vs. Temperature Derating



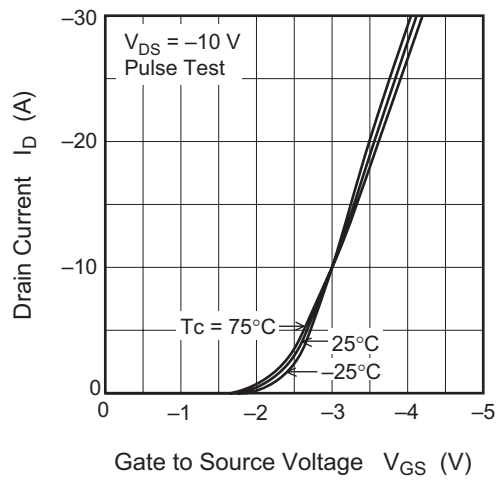
Maximum Safe Operation Area



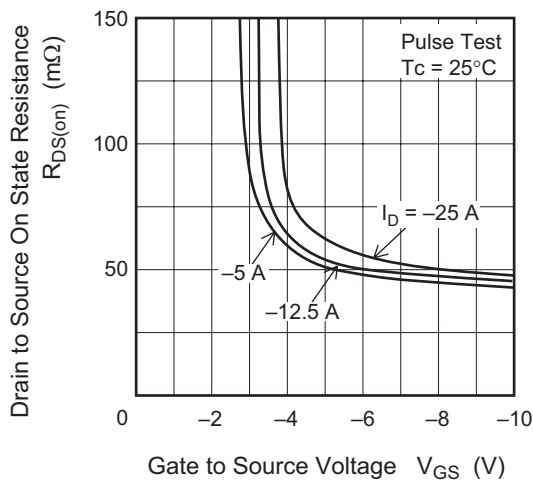
Typical Output Characteristics



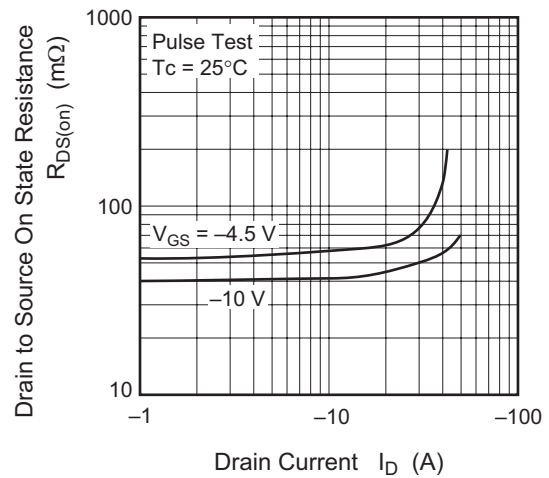
Typical Transfer Characteristics



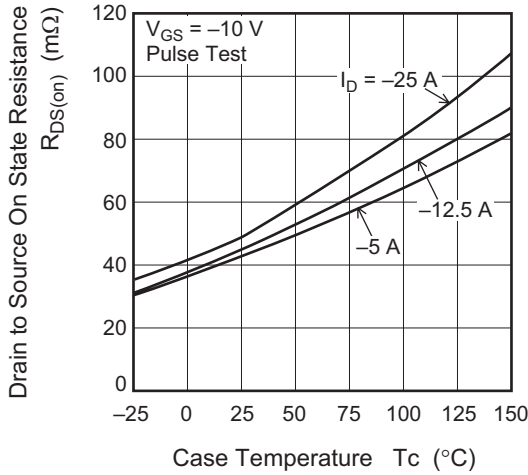
Static Drain to Source on State Resistance vs. Gate to Source Voltage



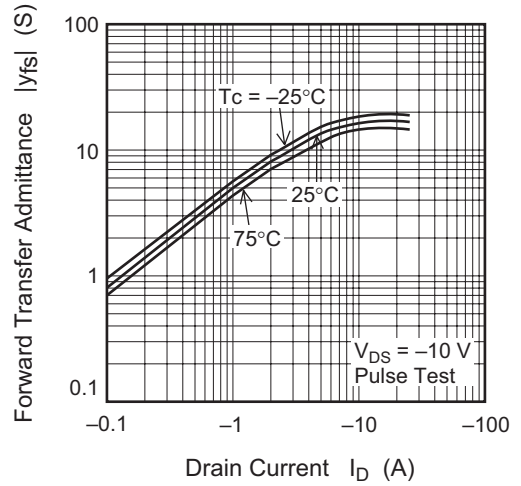
Static Drain to Source on State Resistance vs. Drain Current



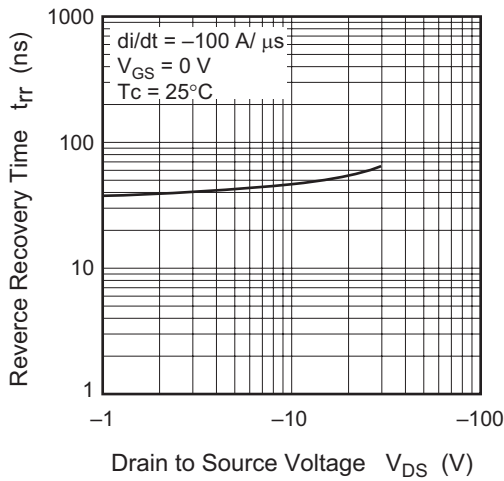
Drain to Source on State Resistance vs. Temperature



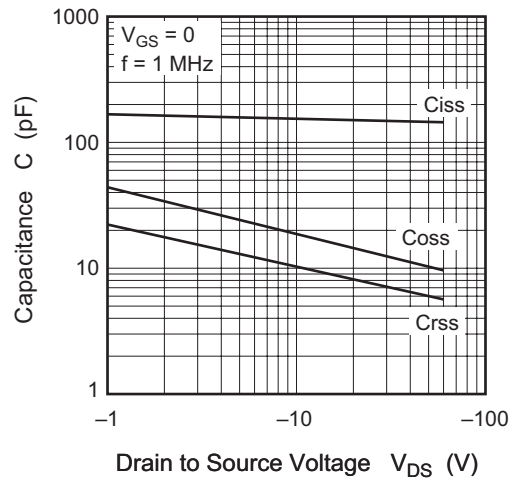
Forward Transfer Admittance vs. Drain Current



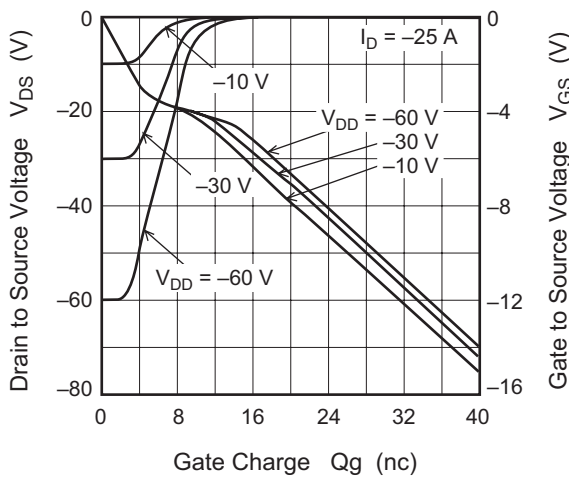
Body-Drain Diode Reverse Recovery Time



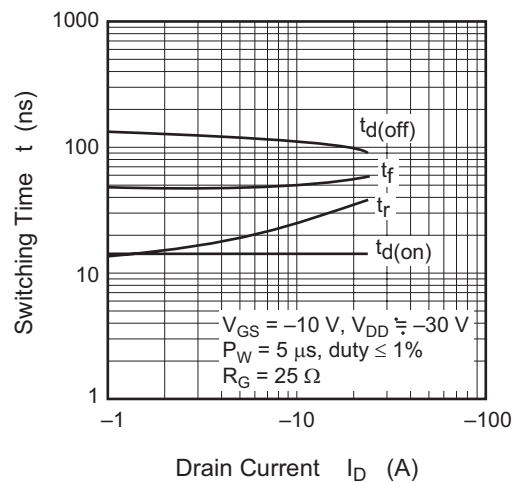
Typical Capacitance vs. Drain to Source Voltage



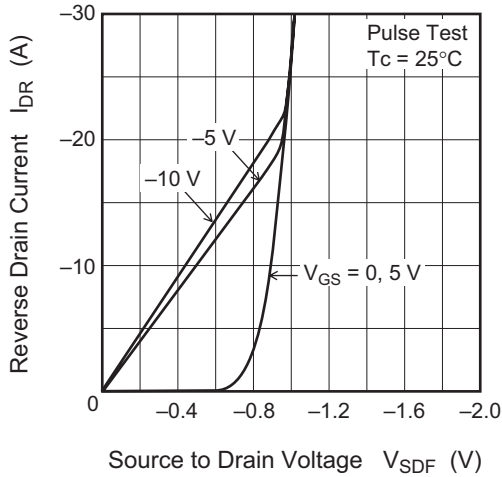
Dynamic Input Characteristics



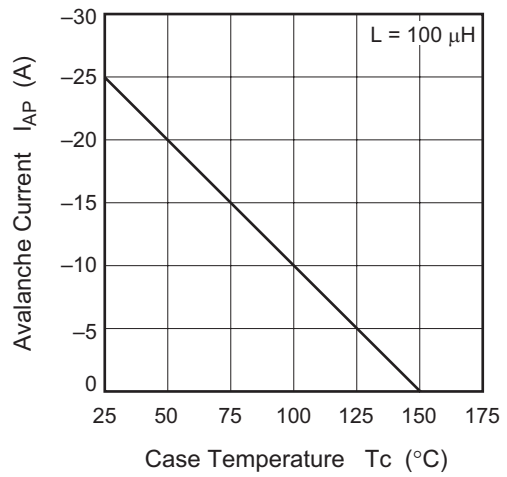
Switching Characteristics



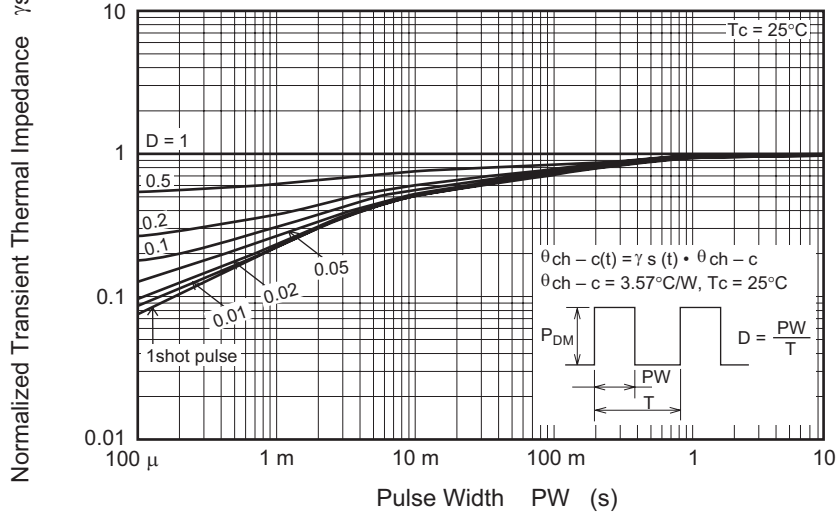
Reverse Drain Current vs. Source to Drain Voltage



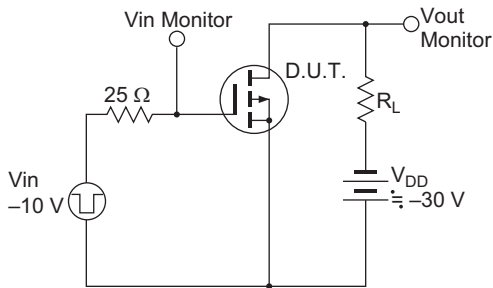
Avalanche Current vs. Case Temperature



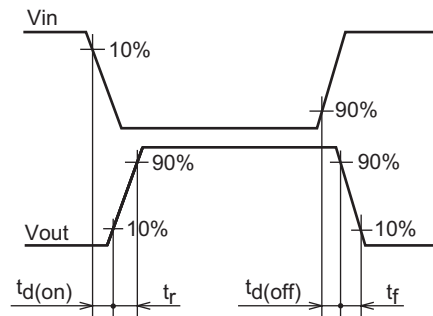
Normalized Transient Thermal Impedance vs. Pulse Width



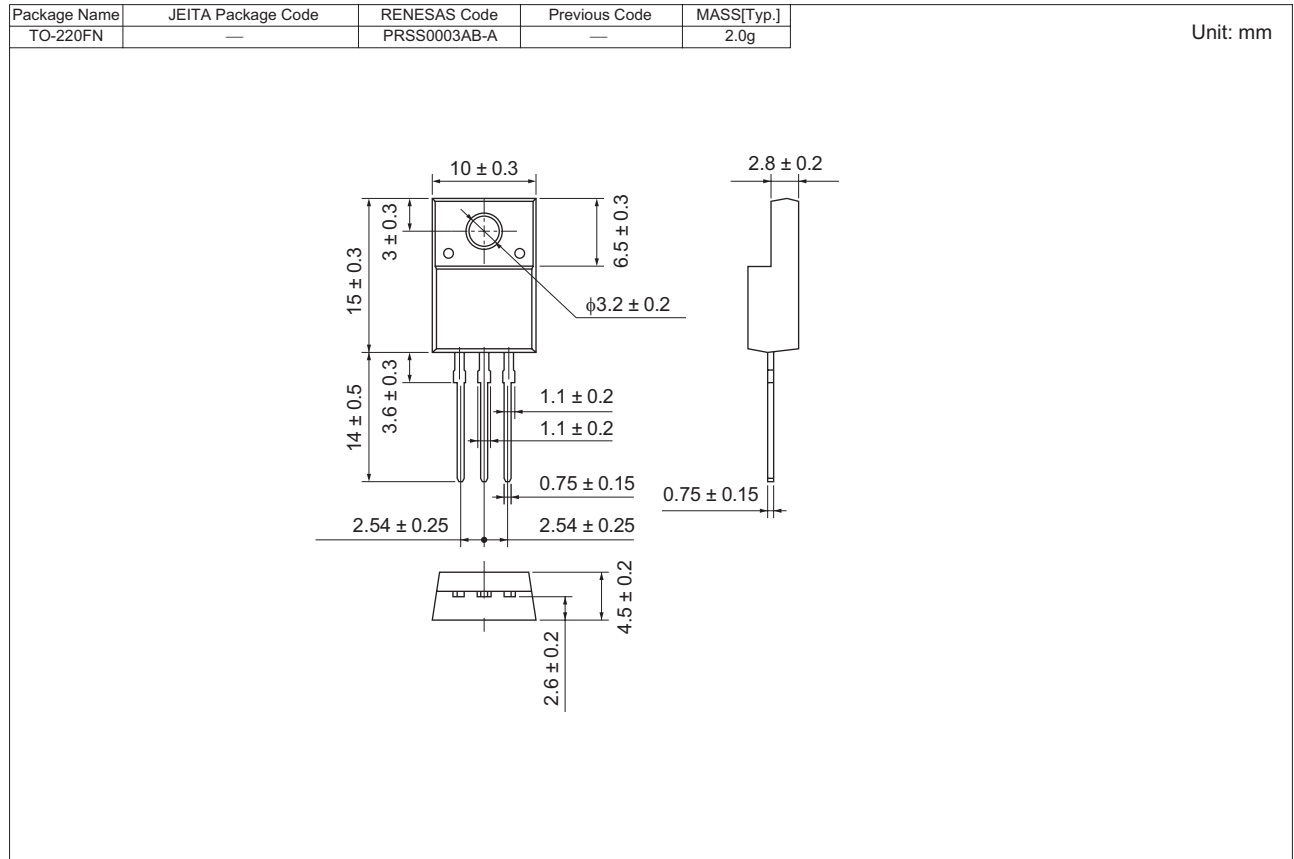
Switching Time Test Circuit



Switching Time Waveform



### Package Dimensions



### Ordering Information

Part No.	Quantity	Shipping Container
RJJ0621DPP-00-T2	50 pcs	Magazine (Tube)



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