

# RJJ0621DPP

P Channel Power MOS FET  
High Speed Switching

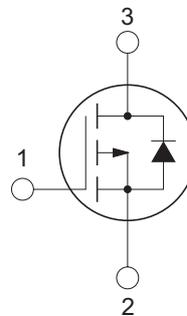
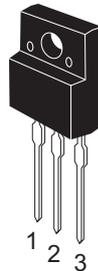
REJ03G1624-0200  
Rev.2.00  
Jun 16, 2008

## 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	$^\circ\text{C}$	

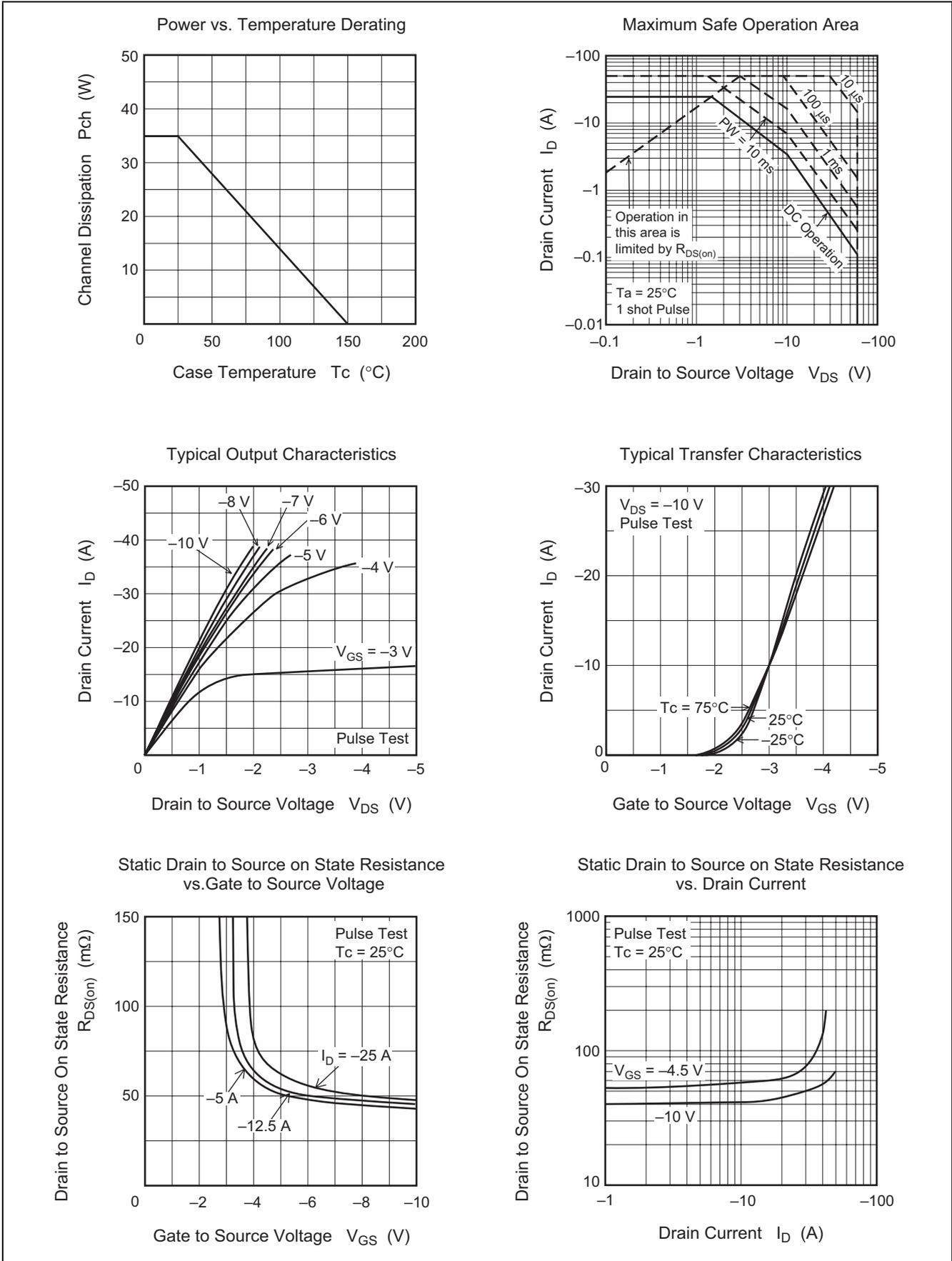
Note: 1. Pulse width limited by safe operating area.

## Electrical Characteristics

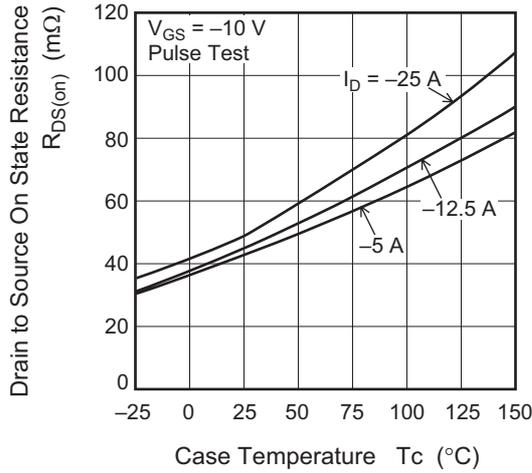
(T<sub>c</sub> = 25°C)

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 V <sub>GS</sub> = -10 V R <sub>G</sub> = 25 Ω
Rise time	t <sub>r</sub>	—	25	—	ns	
Turn-off delay time	t <sub>d(off)</sub>	—	100	—	ns	
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

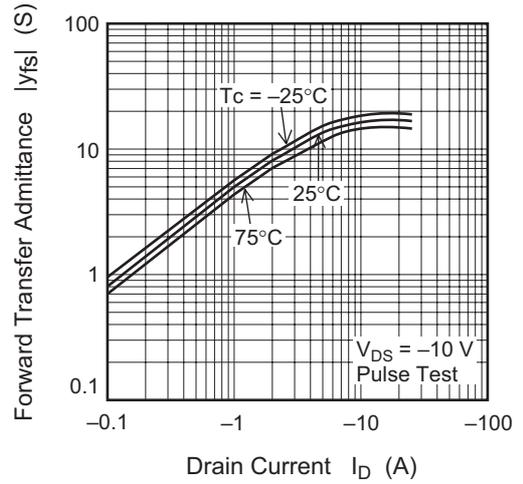
### Main Characteristics



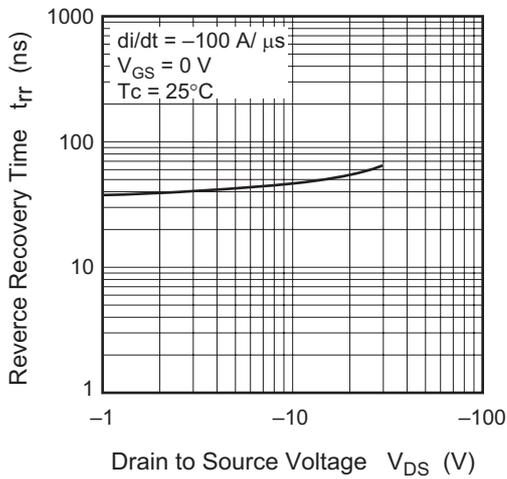
Drain to Source on State Resistance vs. Temperature



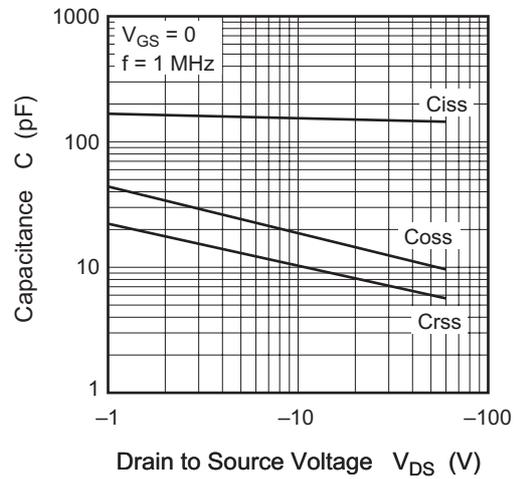
Forward Transfer Admittance vs. Drain Current



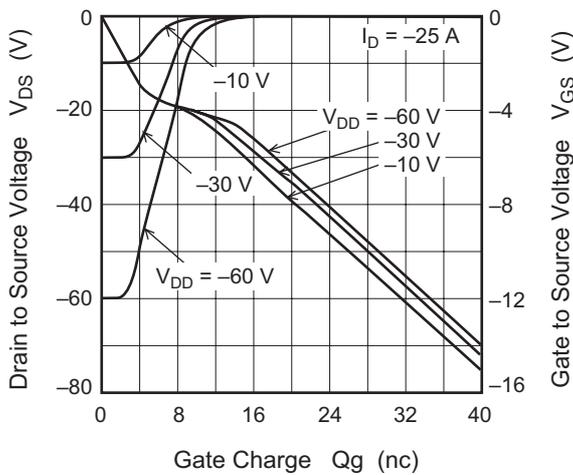
Body-Drain Diode Reverse Recovery Time



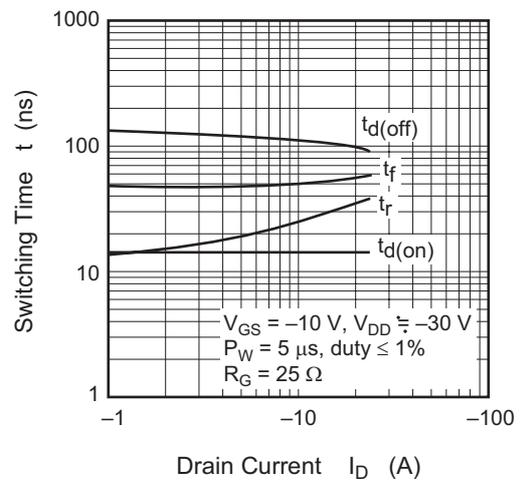
Typical Capacitance vs. Drain to Source Voltage



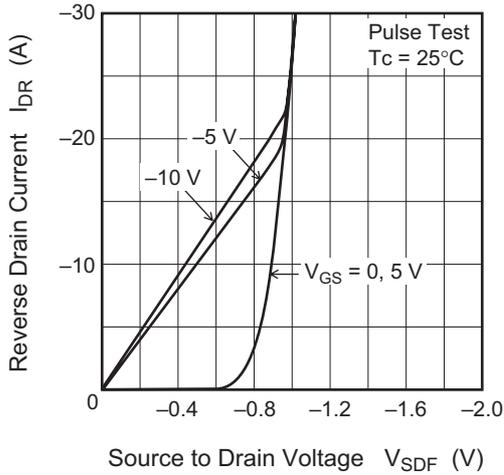
Dynamic Input Characteristics



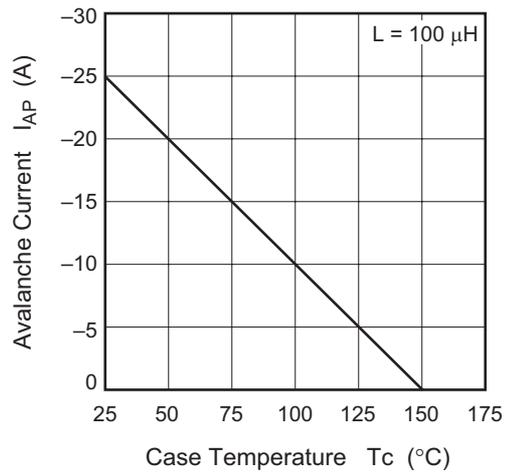
Switching Characteristics



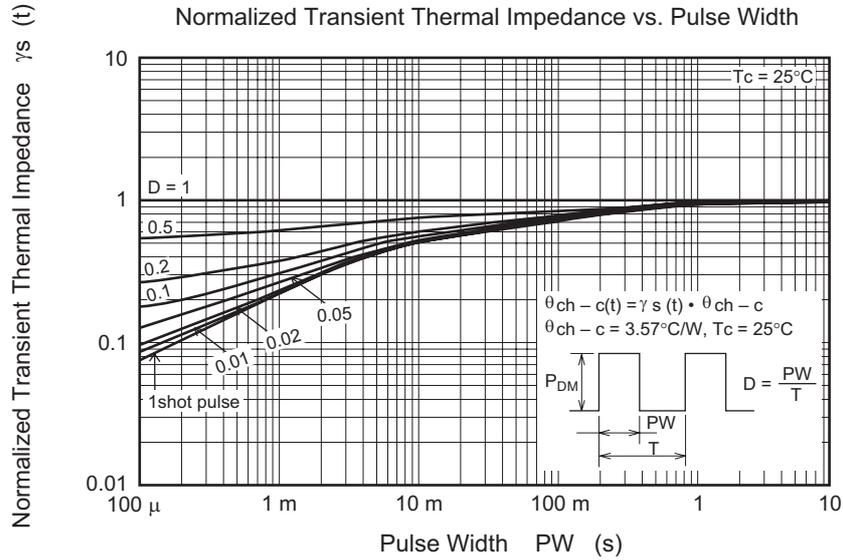
Reverse Drain Current vs. Source to Drain Voltage



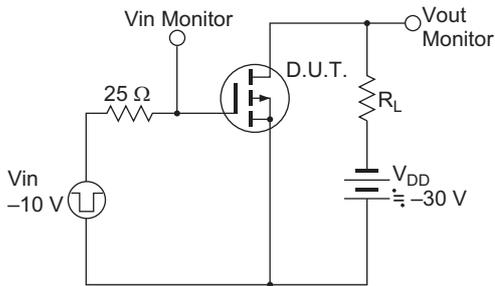
Avalanche Current vs. Case Temperature



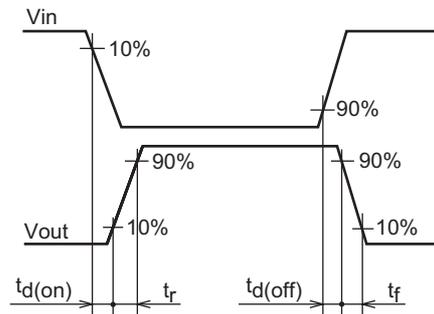
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



Switching Time Waveform





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Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

**Renesas Technology Europe Limited**  
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.  
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

**Renesas Technology (Shanghai) Co., Ltd.**  
Unit 204, 205, AZIACenter, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120  
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7858/7898

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**Renesas Technology Taiwan Co., Ltd.**  
10th Floor, No.99, Fushing North Road, Taipei, Taiwan  
Tel: <886> (2) 2715-2888, Fax: <886> (2) 3518-3399

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

**Renesas Technology Korea Co., Ltd.**  
Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea  
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

**Renesas Technology Malaysia Sdn. Bhd**  
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia  
Tel: <603> 7955-9390, Fax: <603> 7955-9510