RJJ1011DPD

P Channel Power MOS FET
High Speed Switching

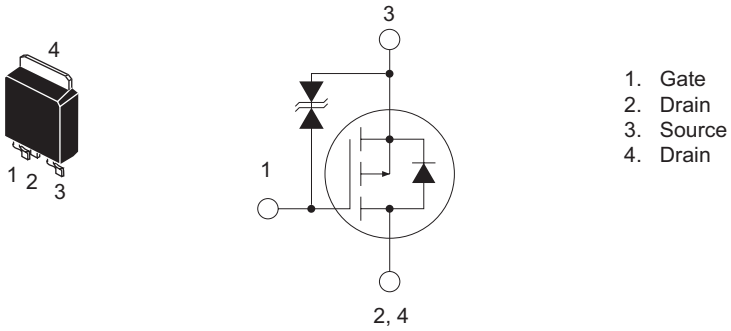
REJ03G1623-0200
Rev.2.00
Jun 16, 2008

Features

- V_{DSS} : –100 V
- $R_{DS(on)}$: 0.30 Ω (Max)
- I_D : –6 A
- Surface mount package (MP-3A)

Outline

RENESAS Package code: PRSS0004ZA-A
(Package name: MP-3A)



1. Gate
2. Drain
3. Source
4. Drain

Application

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

Absolute Maximum Ratings

(Tc = 25°C)

Item	Symbol	Ratings	Unit	Conditions
Drain to source voltage	V_{DSS}	–100	V	V_{GS} = 0 V
Gate to source voltage	V_{GSS}	±20	V	V_{DS} = 0 V
Drain current (DC)	I_D	–6	A	
Drain current (Pulsed)*[1]	$I_{D(pulse)}$	–12	A	
Avalanche current	I_{AP}	–6	A	L = 100 µH
Channel dissipation	P_{ch}	30	W	
Channel to case thermal impedance	θch-c	4.17	°C/W	
Channel temperature	Tch	–55 to +150	°C	
Storage temperature	Tstg	–55 to +150	°C	

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

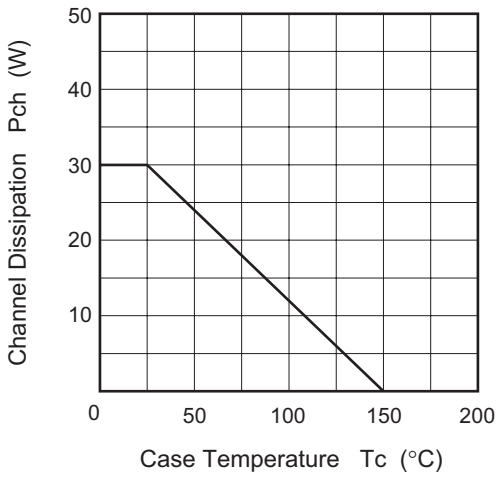
Electrical Characteristics

(Tc = 25°C)

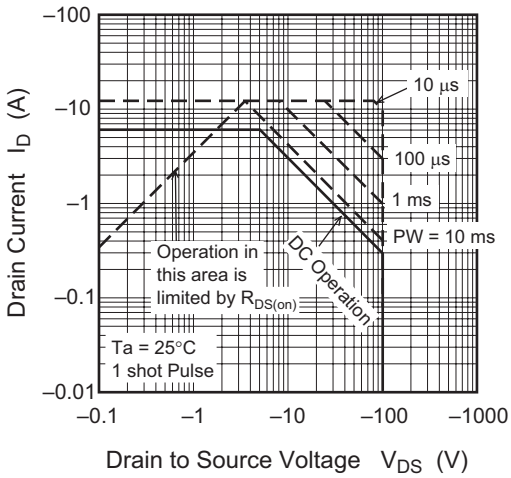
Item	Symbol	Min.	Typ.	Max.	Unit	Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	–100	—	—	V	I_D = –1 mA, V_{GS} = 0 V
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0 V
Drain to source leakage current	I_{DSS}	—	—	–1	mA	V_{DS} = –100 V, V_{GS} = 0 V
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±16 V, V_{DS} = 0 V
Gate-source cutoff voltage	$V_{GS(off)}$	–1.0	–1.9	–2.5	V	I_D = –1 mA, V_{DS} = –10 V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.26	0.30	Ω	I_D = –3 A, V_{GS} = –10 V
		—	0.30	0.50	Ω	I_D = –3 A, V_{GS} = –4.5 V
Input capacitance	Ciss	—	930	—	pF	V_{DS} = –10 V V_{GS} = 0 V f = 1 MHz
Output capacitance	Coss	—	80	—	pF	
Reverse transfer capacitance	Crss	—	50	—	pF	
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	V_{DD} = –50 V I_D = –3 A V_{GS} = –10 V R_G = 25 Ω
Rise time	t_r	—	15	—	ns	
Turn-off delay time	$t_{d(off)}$	—	65	—	ns	
Fall time	t_f	—	35	—	ns	
Source-drain voltage	V_{SD}	—	–0.85	–1.2	V	I_S = –3 A, V_{GS} = 0 V

Main Characteristics

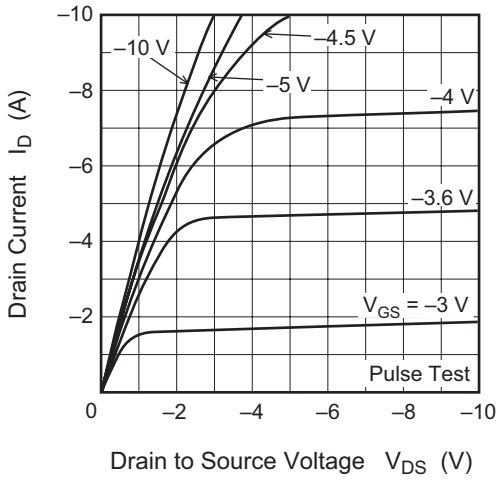
Power vs. Temperature Derating



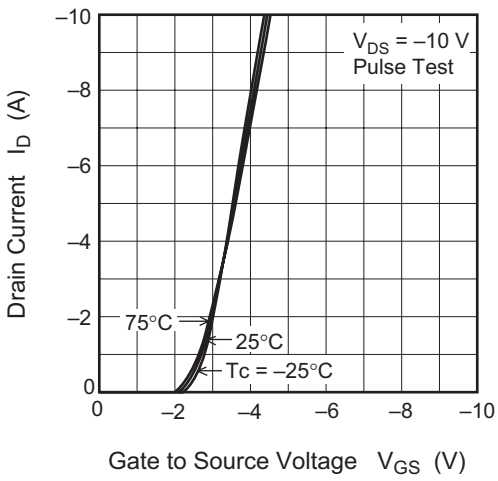
Maximum Safe Operation Area



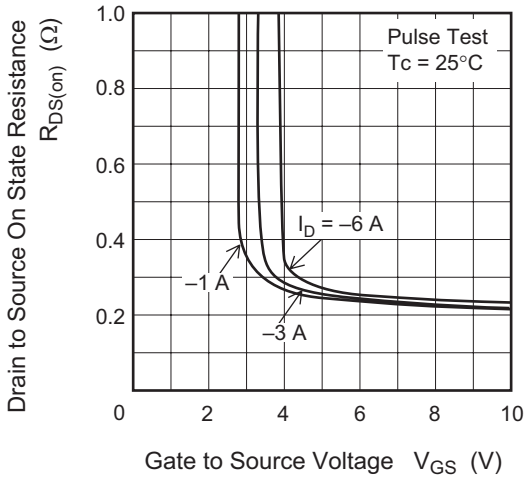
Typical Output Characteristics



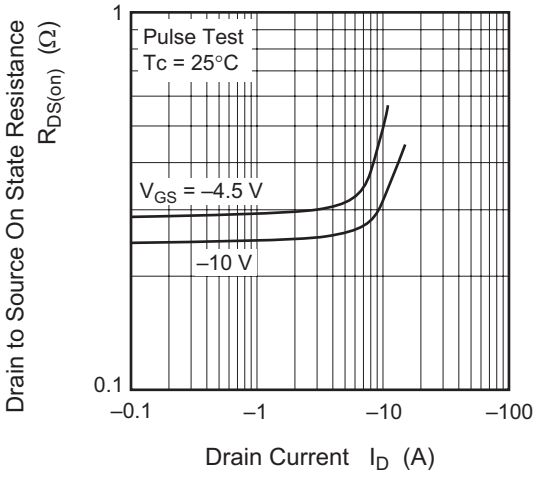
Typical Transfer Characteristics



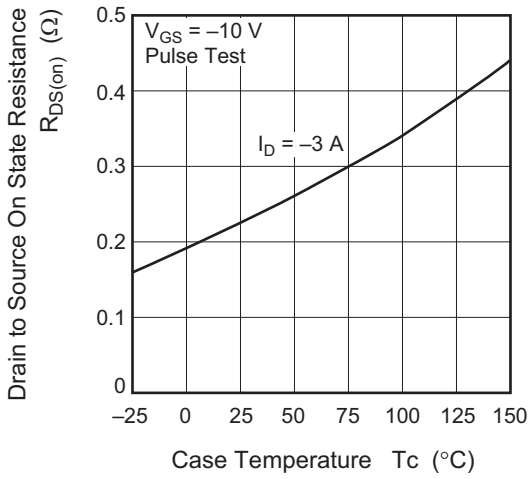
Static Drain to Source on State Resistance vs.Gate to Source Voltage



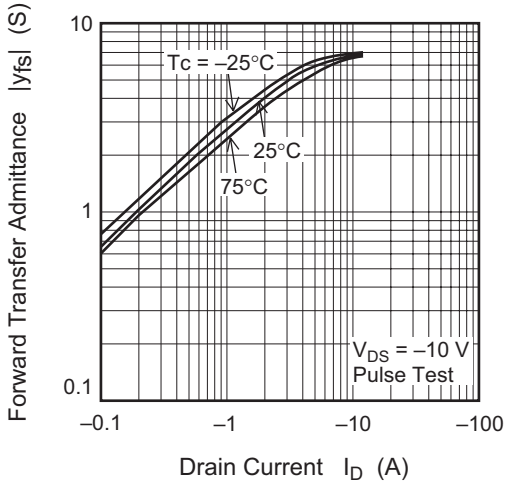
Static Drain to Source on State Resistance vs. Drain Current



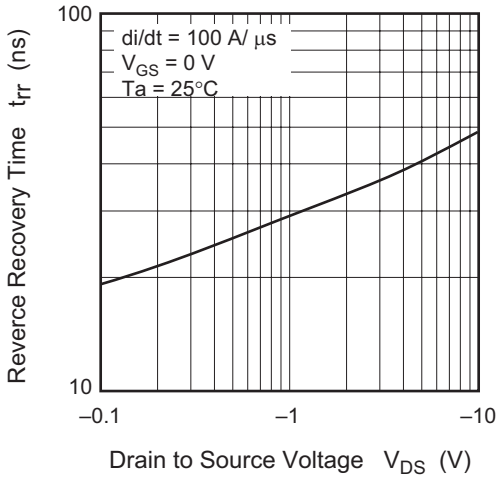
Drain to Source on State Resistance vs. Temperature



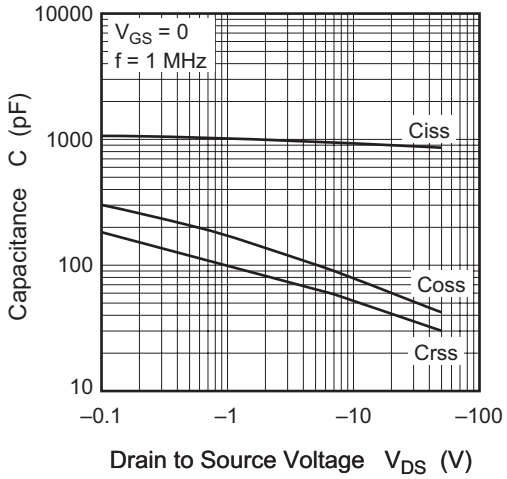
Forward Transfer Admittance vs. Drain Current



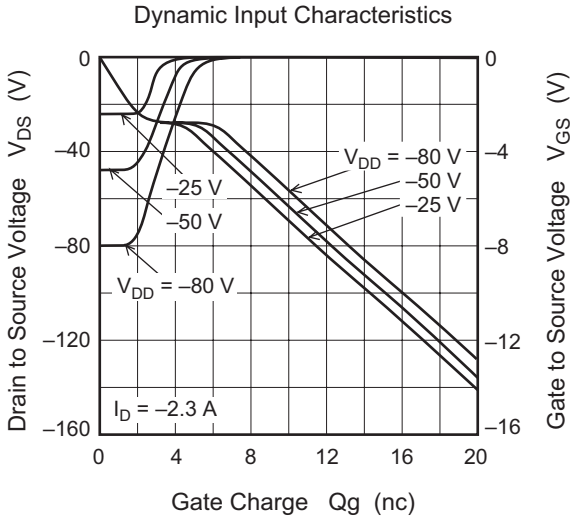
Body-Drain Diode Reverce Recovery Time



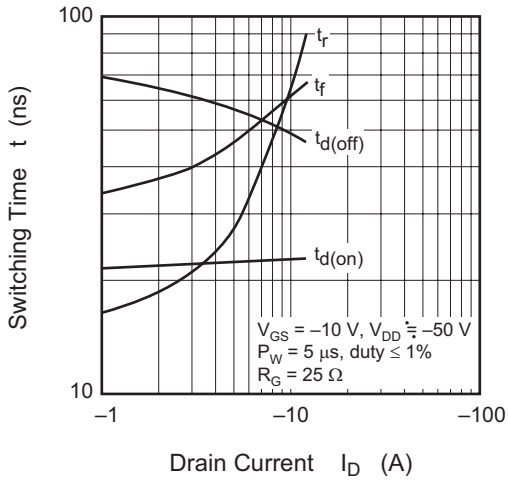
Typical Capacitance vs. Drain to Source Voltage



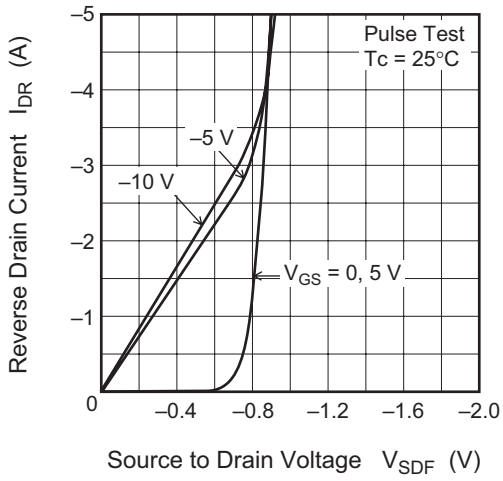
Dynamic Input Characteristics



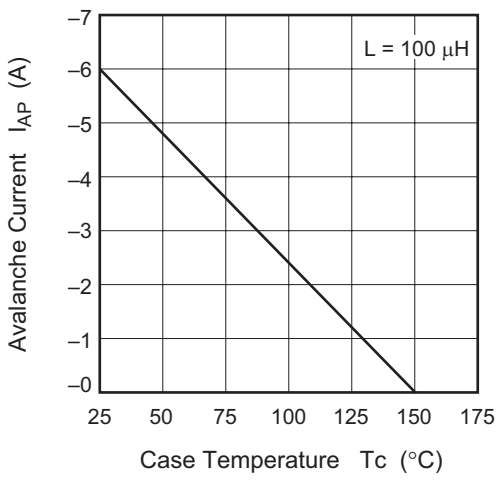
Switching Characteristics



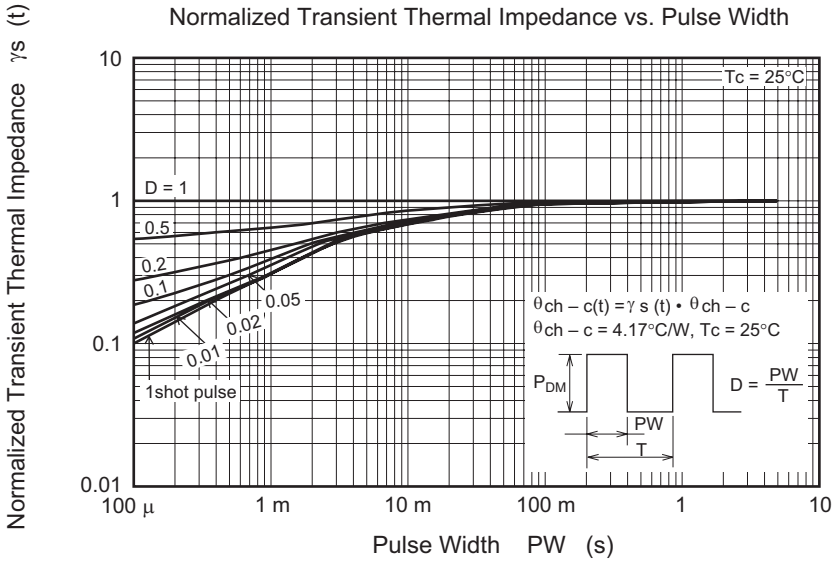
Reverse Drain Current vs.
Source to Drain Voltage



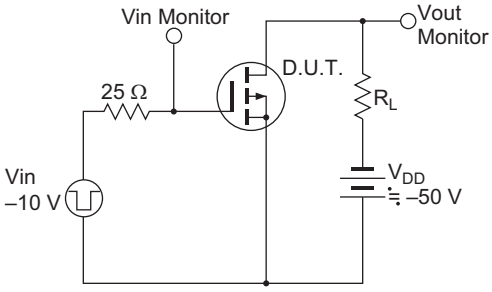
Avalanche Current vs. Case Temperature



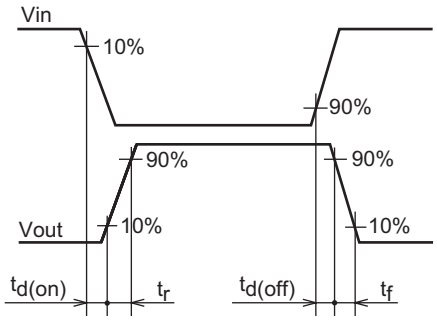
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



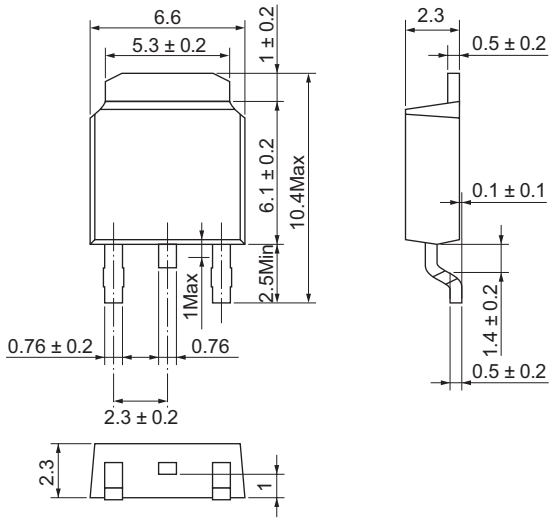
Switching Time Waveform



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
MP-3A	SC-63	PRSS0004ZA-A	—	0.32g

Unit: mm



Ordering Information

Part No.	Quantity	Shipping Container
RJJ1011DPD-00-J2	3000 pcs	Taping

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