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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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RJK6011DJE

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1577-0300

Rev.3.00

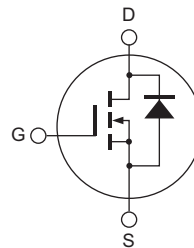
Oct 03, 2008

Features

- Low on-resistance
- Low drive current
- High density mounting

Outline

RENESAS Package code: PRSS0003DC-A
(Package name: TO-92 Mod)



1. Source
2. Drain
3. Gate

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	600	V
Gate to source voltage	V_{GSS}	± 30	V
Drain current	I_D	0.1	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	0.4	A
Body-drain diode reverse drain current	I_{DR}	0.1	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ ^{Note1}	0.4	A
Channel dissipation	Pch	0.9	W
Channel to ambient thermal impedance	θ_{ch-a}	139	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

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

Electrical Characteristics

(Ta = 25°C)

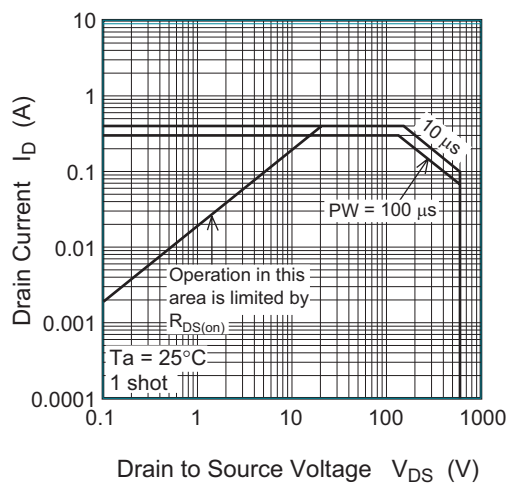
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 600 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3	—	5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	35	52	Ω	$I_D = 0.05 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note2}
Input capacitance	C_{iss}	—	25	—	pF	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	4.7	—	pF	
Reverse transfer capacitance	C_{rss}	—	0.9	—	pF	
Turn-on delay time	$t_{d(on)}$	—	33	—	ns	$I_D = 0.05 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 6000 \Omega$ $R_g = 10 \Omega$
Rise time	t_r	—	16	—	ns	
Turn-off delay time	$t_{d(off)}$	—	54	—	ns	
Fall time	t_f	—	300	—	ns	
Total gate charge	Q_g	—	3.7	—	nC	$V_{DD} = 480 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 0.1 \text{ A}$
Gate to source charge	Q_{gs}	—	0.4	—	nC	
Gate to drain charge	Q_{gd}	—	2.7	—	nC	
Body-drain diode forward voltage	V_{DF}	—	0.80	1.35	V	$I_F = 0.1 \text{ A}$, $V_{GS} = 0$ ^{Note2}

Notes: 2. Pulse test

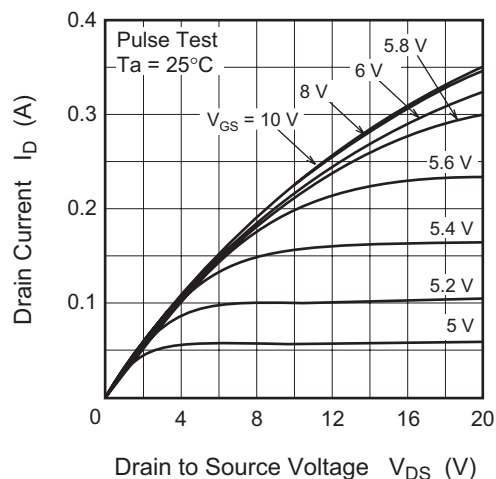
3. Since this device is equipped with high voltage FET chip ($V_{DSS} \geq 600 \text{ V}$), high voltage may be supplied.
Therefore, please be sure to confirm about Electric discharge between Drain terminal and other terminal.

Main Characteristics

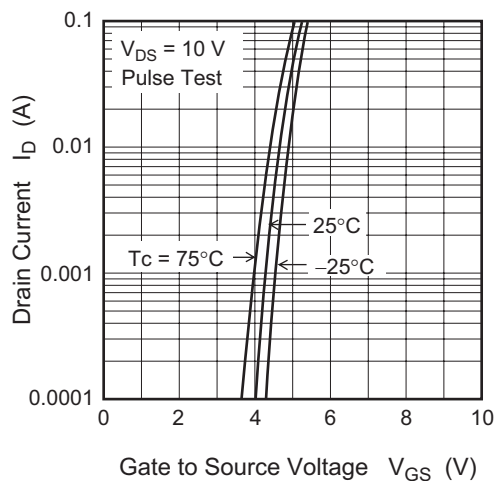
Maximum Safe Operation Area



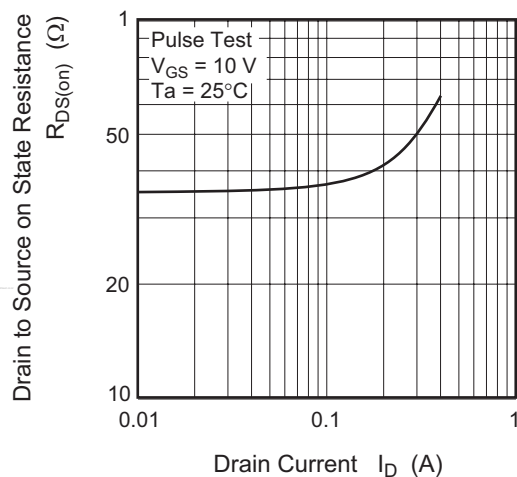
Typical Output Characteristics



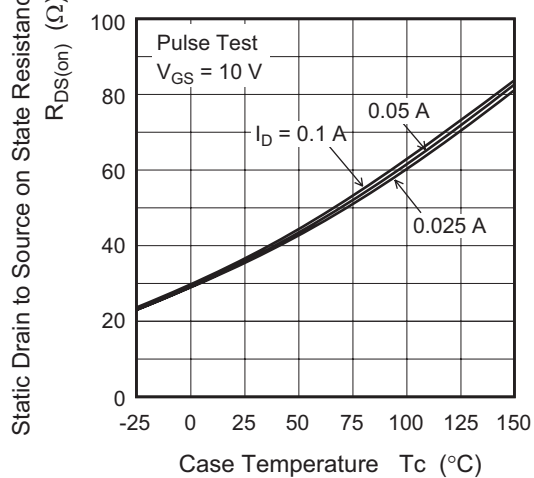
Typical Transfer Characteristics



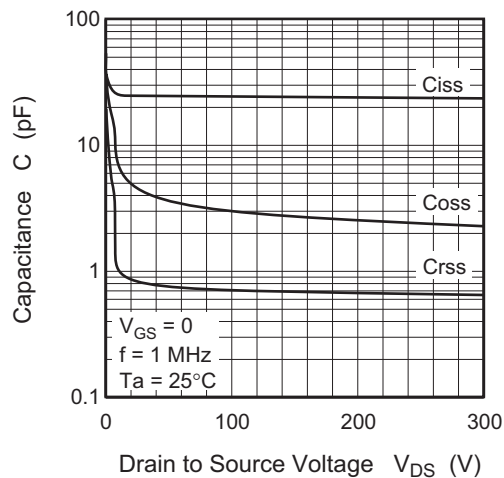
Static Drain to Source on State Resistance vs. Drain Current (Typical)

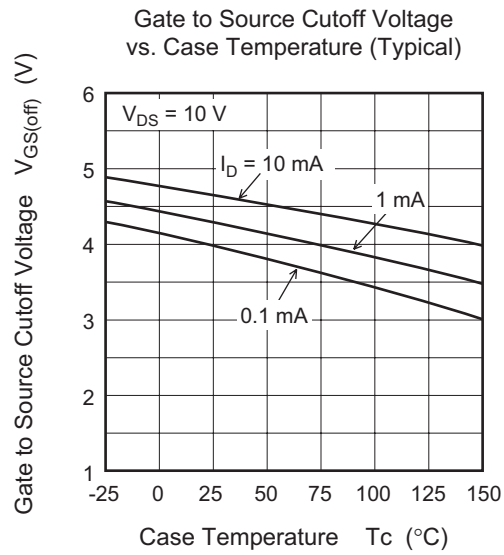
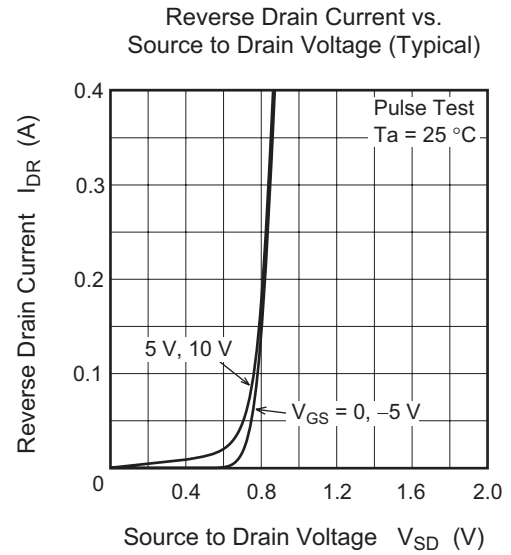
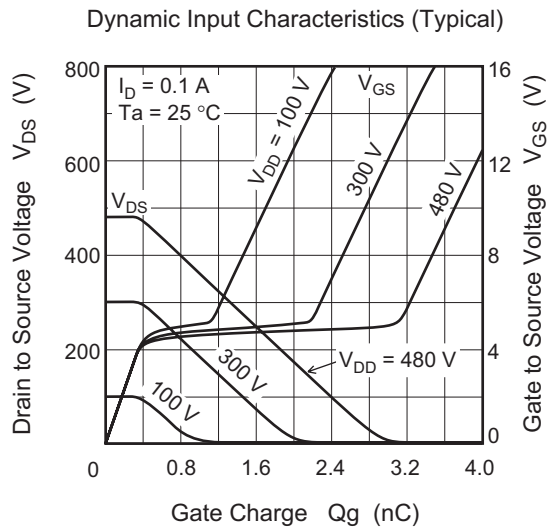


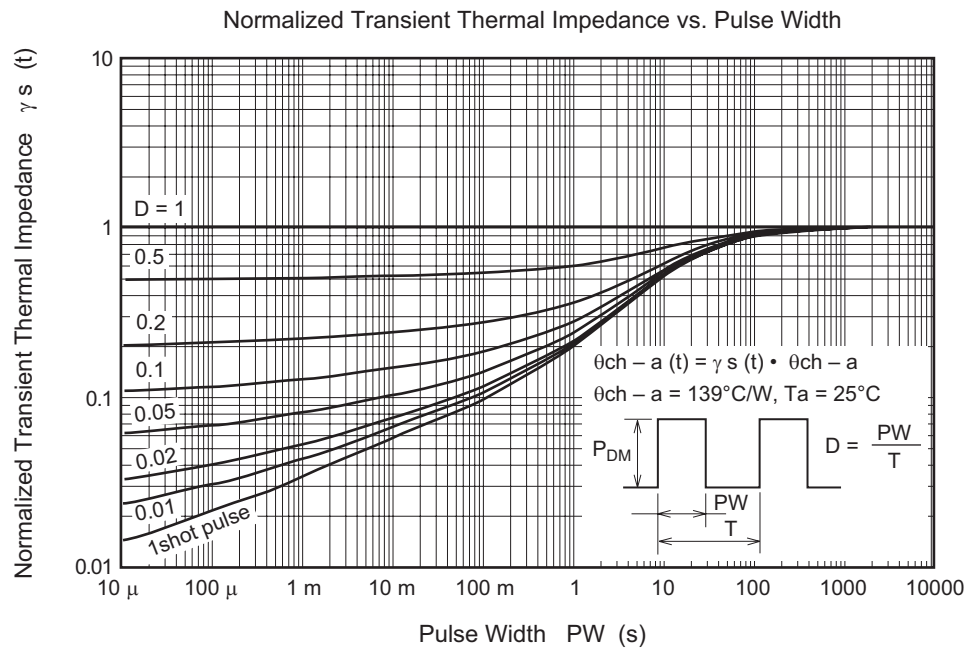
Static Drain to Source on State Resistance vs. Temperature (Typical)



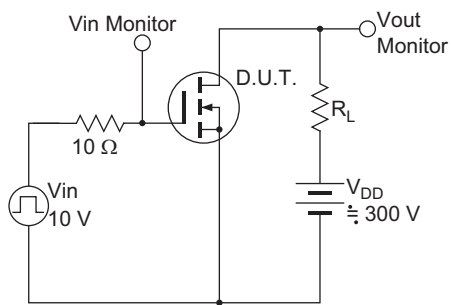
Typical Capacitance vs. Drain to Source Voltage (Typical)



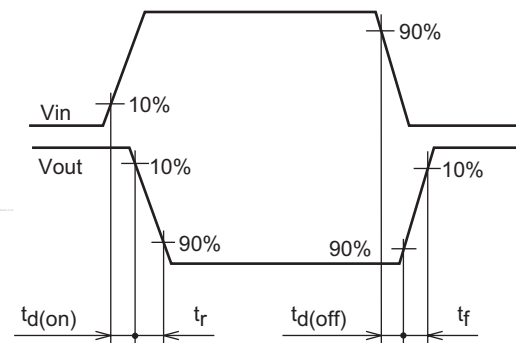




Switching Time Test Circuit



Waveform



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
TO-92 Mod	SC-51	PRSS0003DC-A	TO-92 Mod / TO-92 ModV	0.35g	

Since RJK6011DJE is equipped with high voltage FET chip ($V_{DSS} \geq 600$ V), high voltage may be supplied. Therefore, please be sure to confirm about Electric discharge between Drain terminal and other terminal.

Ordering Information

Part No.	Quantity	Shipping Container
RJK6011DJE-00-Z0	2500 pcs	Hold Box, Radial Taping

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