To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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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RJK1562DJE

Silicon N Channel MOS FET
High Speed Power Switching

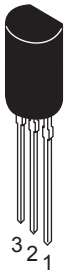
REJ03G1889-0100
Rev.1.00
Jan 07, 2010

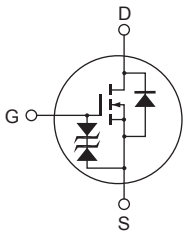
Features

- Capable of 2.5 V gate drive
- Low on-resistance
  $R_{DS(on)}$ = 1.2 Ω typ. (at I_D = 0.5 A, V_{GS} = 2.5 V, Ta = 25°C)
- Low drive current

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}	150	V
Gate to source voltage	V_{GSS}	±10	V
Drain current	I_D Note1	1	A
Drain peak current	$I_{D\ (pulse)}$ Note2	4	A
Body-drain diode reverse drain current	I_{DR}	1	A
Body-drain diode reverse drain peak current	I_{DR} Note2	4	A
Channel dissipation	Pch	0.9	W
Channel to ambient thermal impedance	θch-a	139	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. Limited by maximum safe operation area
2. PW ≤ 10 μs, duty cycle ≤ 1%

Electrical Characteristics

(Ta = 25°C)

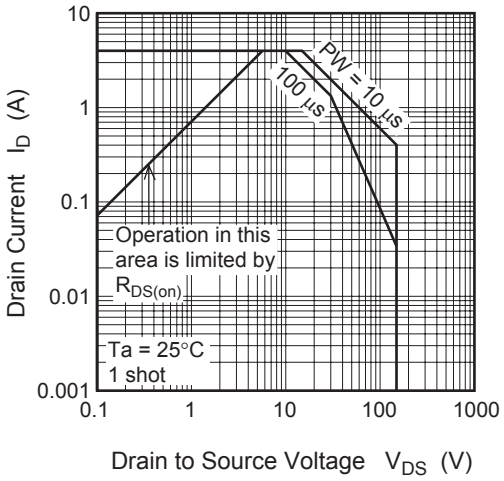
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	150	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±10	—	—	V	I_G = ±100 μA, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	V_{DS} = 150 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	μA	V_{GS} = ±10 V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	V_{DS} = 10 V, I_D = 1 mA
Static drain to source on state resistance	$R_{DS(on)}$	—	1.2	1.4	Ω	I_D = 0.5 A, V_{GS} = 4 V Note3
	$R_{DS(on)}$	—	1.2	1.6	Ω	I_D = 0.5 A, V_{GS} = 2.5 V Note3
Input capacitance	Ciss	—	300	—	pF	V_{DS} = 25 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	18	—	pF	
Reverse transfer capacitance	Crss	—	4.4	—	pF	
Turn-on delay time	$t_{d(on)}$	—	6	—	ns	I_D = 0.5 A V_{GS} = 4 V R_L = 160 Ω Rg = 10 Ω
Rise time	t_r	—	11	—	ns	
Turn-off delay time	$t_{d(off)}$	—	16	—	ns	
Fall time	t_f	—	78	—	ns	
Total gate charge	Qg	—	3.0	—	nC	V_{DD} = 120 V V_{GS} = 4 V I_D = 1 A
Gate to source charge	Qgs	—	0.5	—	nC	
Gate to drain charge	Qgd	—	1.2	—	nC	
Body-drain diode forward voltage	V_{DF}	—	0.84	1.30	V	I_F = 1 A, V_{GS} = 0 Note3
Body-drain diode reverse recovery time	t_{rr}	—	42	—	ns	I_F = 1 A, V_{GS} = 0 di_F/dt = 100 A/μs

Notes: 3. Pulse test

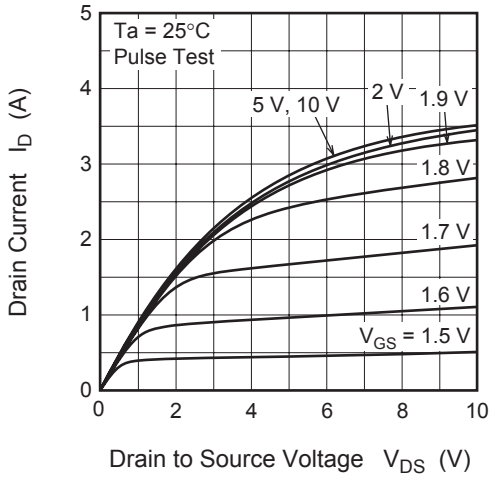
4. This device is sensitive to electrostatic discharge.
   It is recommended to adopt appropriate cautions when handling this product.

Main Characteristics

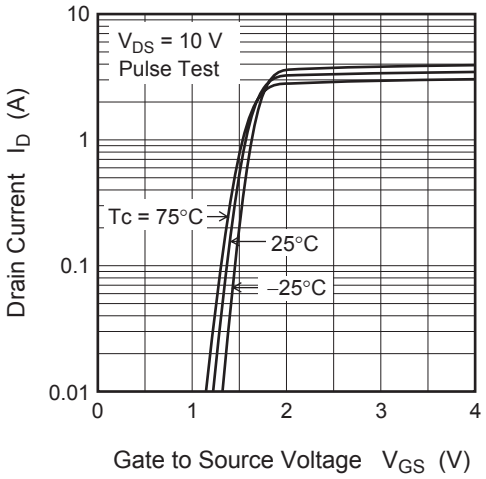
Maximum Safe Operation Area



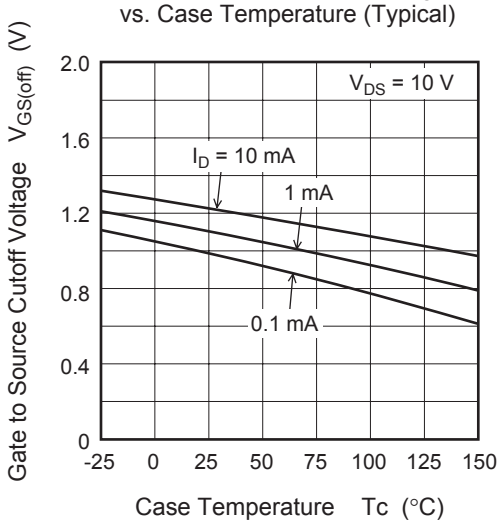
Typical Output Characteristics



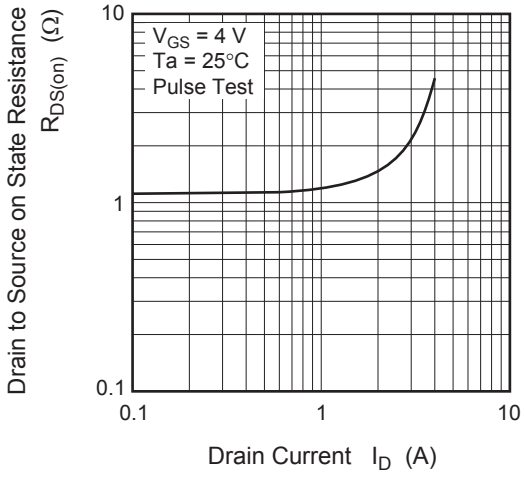
Typical Transfer Characteristics



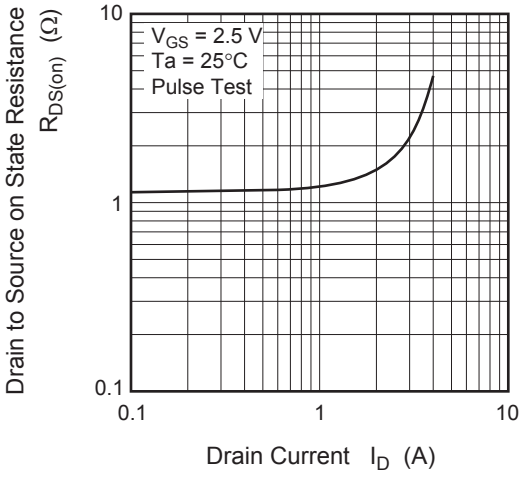
Gate to Source Cutoff Voltage vs. Case Temperature (Typical)



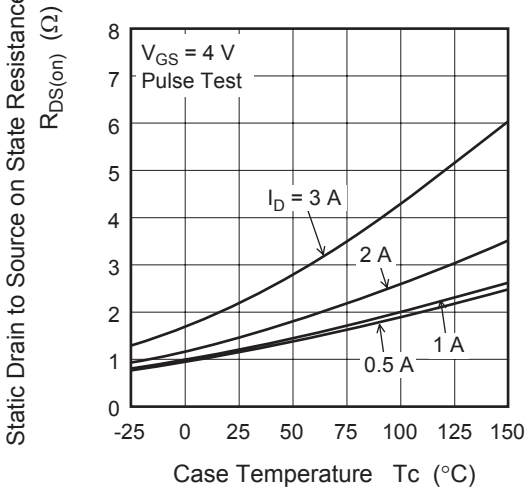
Static Drain to Source on State Resistance vs. Drain Current (Typical) (1)



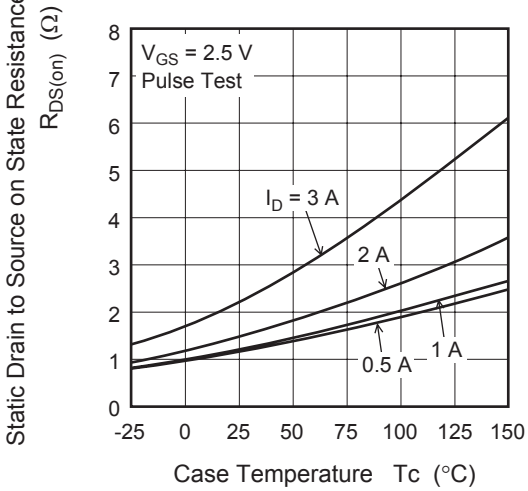
Static Drain to Source on State Resistance vs. Drain Current (Typical) (2)



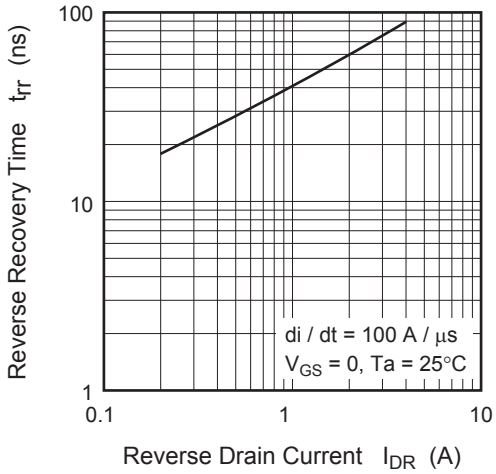
Static Drain to Source on State Resistance vs. Temperature (Typical) (1)



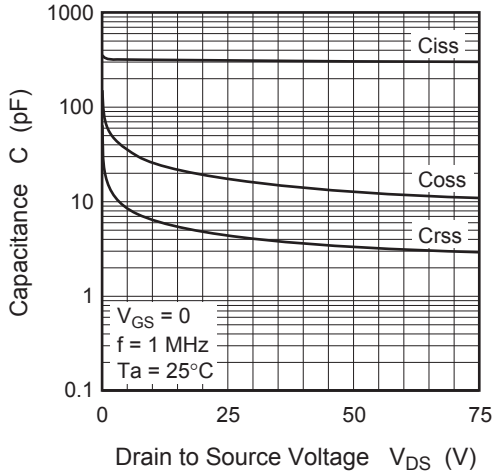
Static Drain to Source on State Resistance vs. Temperature (Typical) (2)



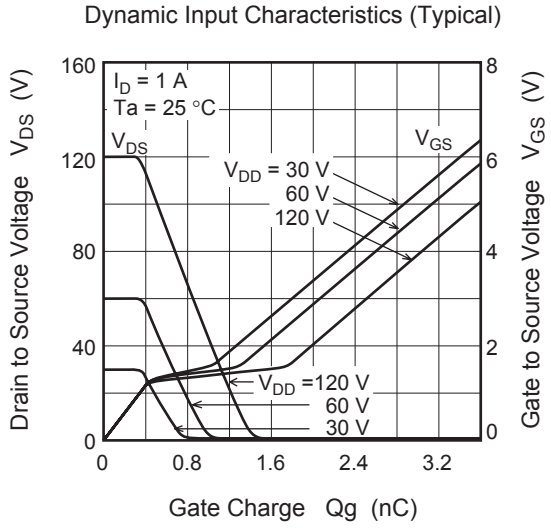
Body-Drain Diode Reverse Recovery Time (Typical)



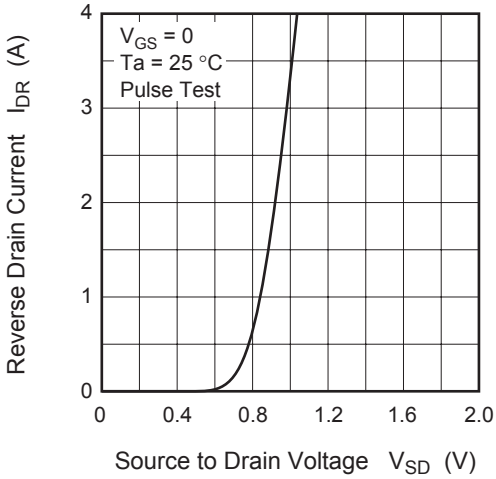
Typical Capacitance vs. Drain to Source Voltage



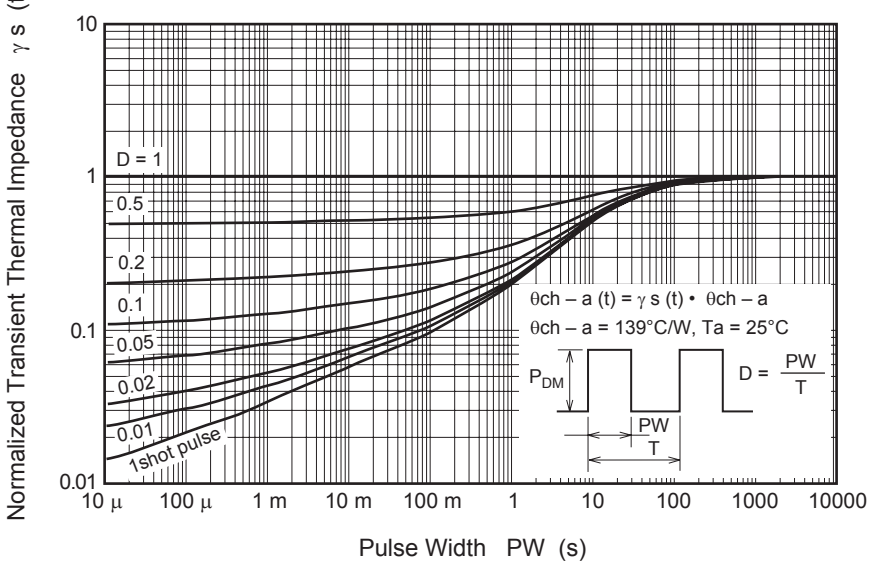
Dynamic Input Characteristics (Typical)



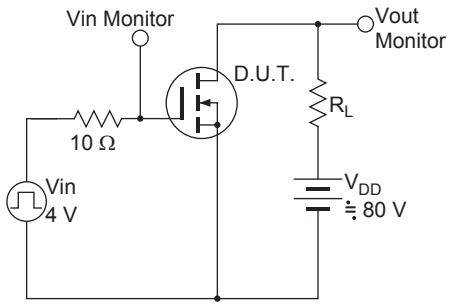
Reverse Drain Current vs. Source to Drain Voltage (Typical)



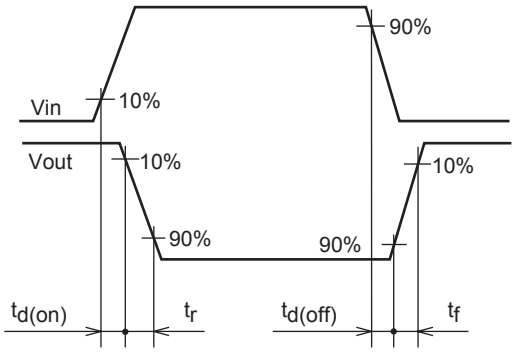
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



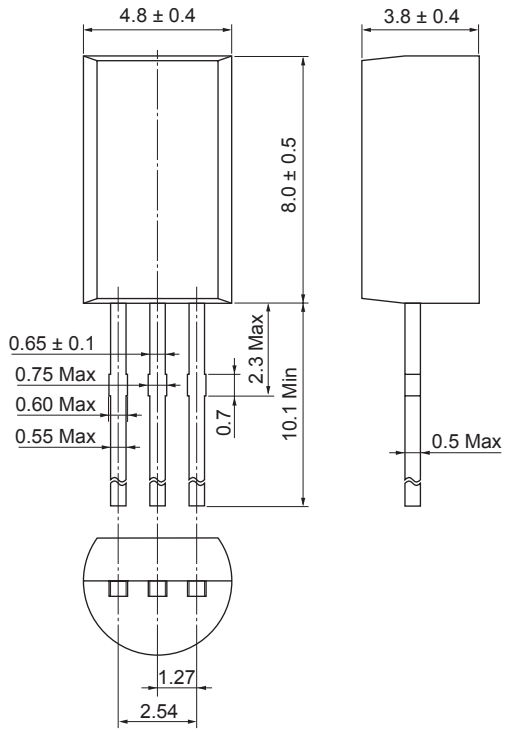
Waveform



Package Dimensions

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

Unit: mm

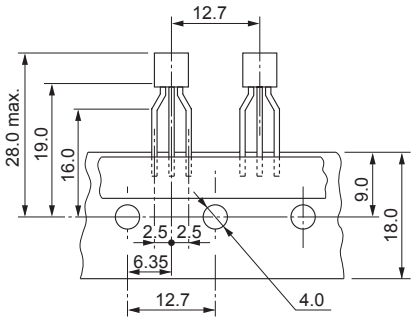


Ordering Information

Part No.	Quantity	Shipping Container
RJK1562DJE-00-Z0	2500 pcs	Hold Box, Radial Taping

Note: Leads forming applied as following figure.

Unit: mm



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Colophon .7.2