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

April 1st, 2010
Renesas Electronics Corporation

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EOL product

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2SK2085

Silicon N Channel MOS FET

REJ03G0996-0200
(Previous: ADE-208-1343)
Rev.2.00
Sep.07,2005

Application

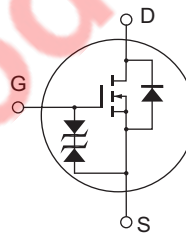
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source
- Suitable for switching regulator, DC - DC converter

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}	100	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	1.0	A
Drain peak current	$I_{D(pulse)}^{*1}$	4.0	A
Body to drain diode reverse drain current	I_{DR}	1.0	A
Channel dissipation	P_{ch}^{*2}	0.9	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
 2. Value at $T_c = 25^\circ C$

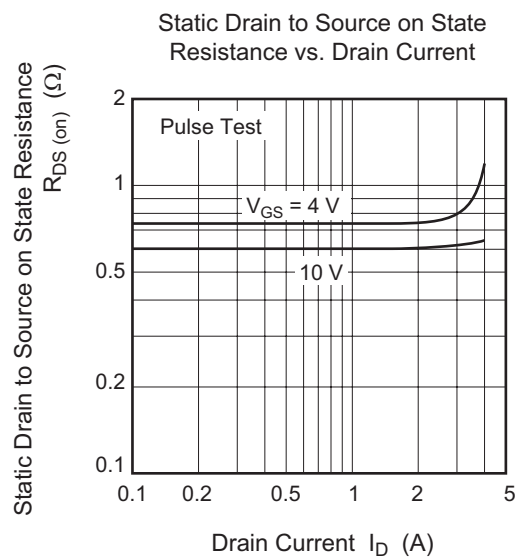
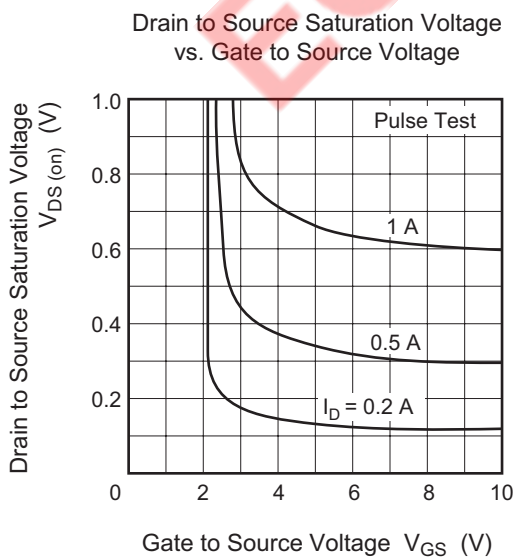
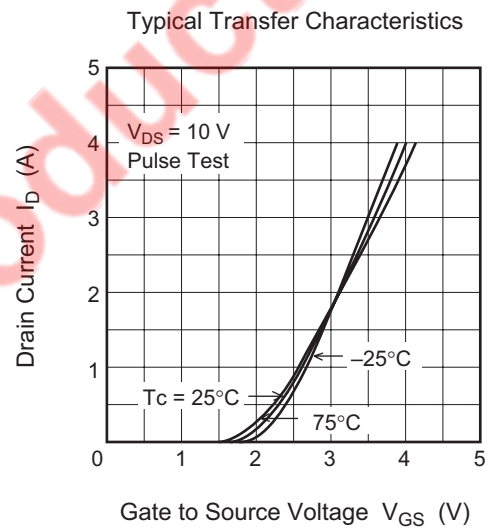
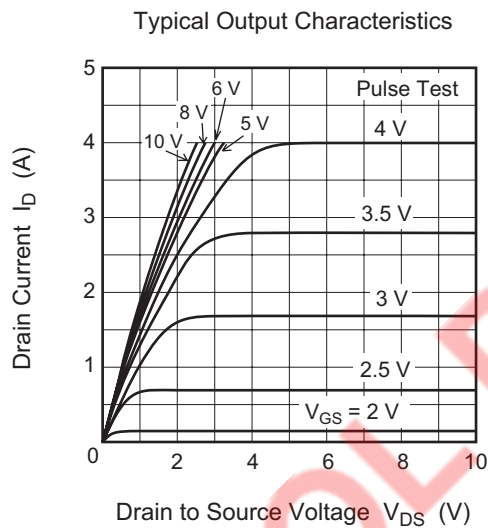
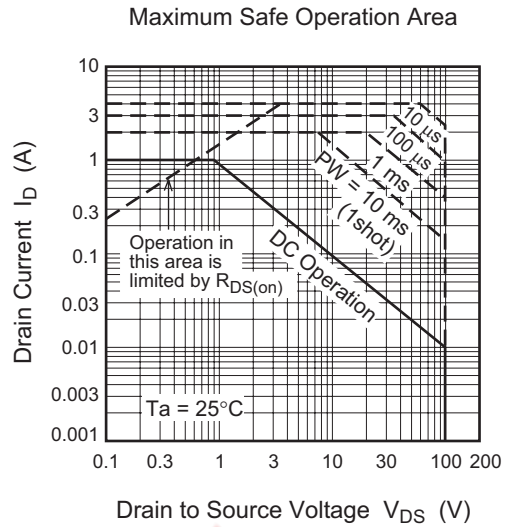
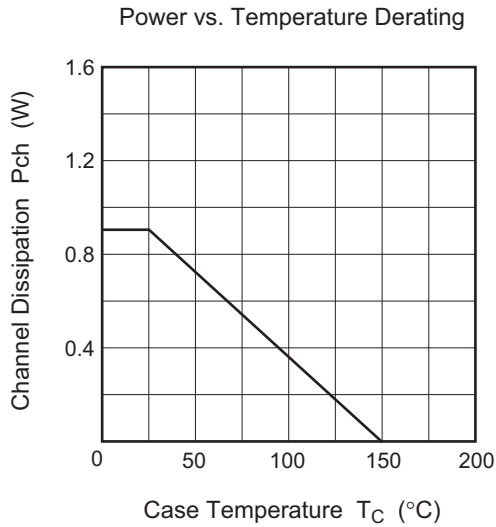
Electrical Characteristics

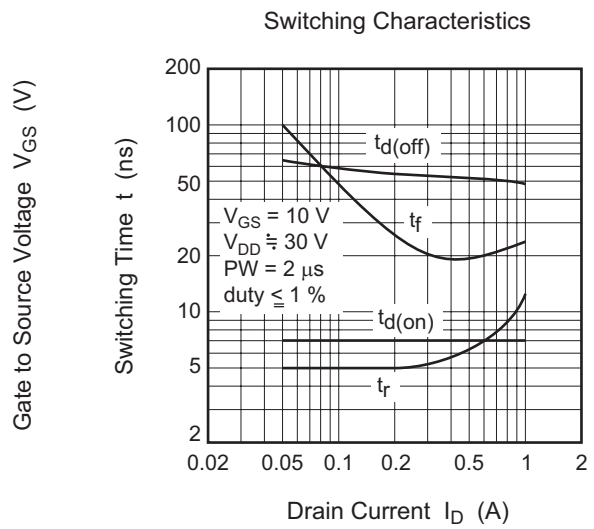
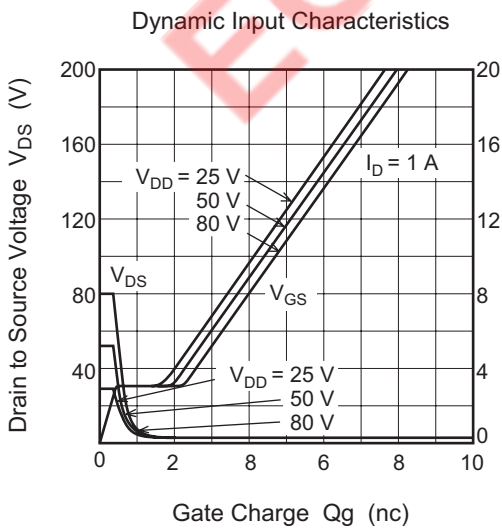
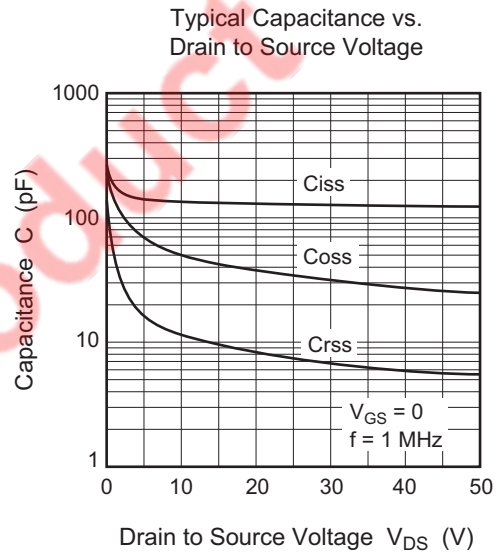
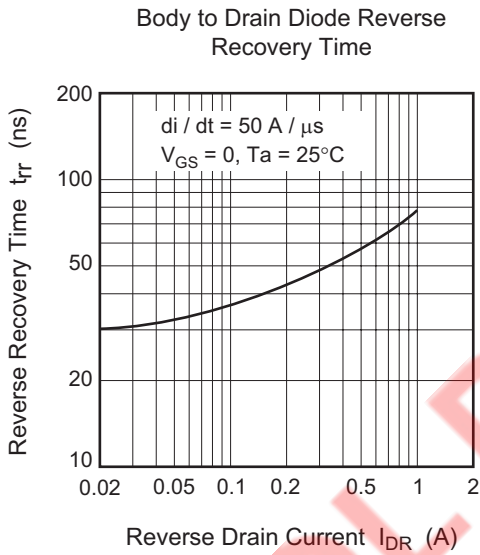
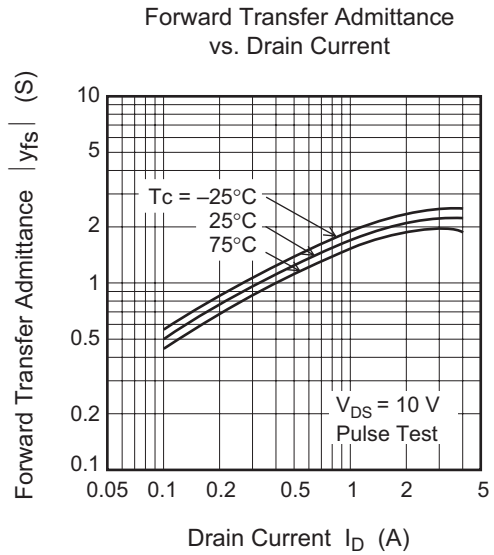
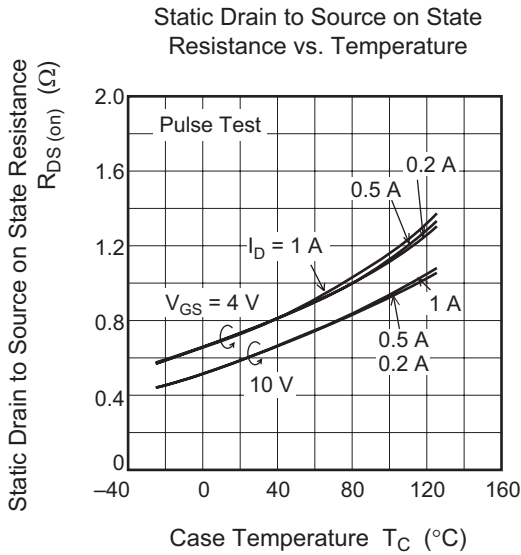
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	100	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	100	μA	$V_{DS} = 80 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.6	0.9	Ω	$I_D = 0.5 \text{ A}$, $V_{GS} = 10 \text{ V}^{*3}$
		—	0.75	1.35	Ω	$I_D = 0.5 \text{ A}$, $V_{GS} = 4 \text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	0.7	1.2	—	S	$I_D = 0.5 \text{ A}$, $V_{DS} = 10 \text{ V}^{*3}$
Input capacitance	C_{iss}	—	130	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	50	—	pF	
Reverse transfer capacitance	C_{rss}	—	12	—	pF	
Turn-on delay time	$t_{d(on)}$	—	7	—	ns	$I_D = 0.5 \text{ A}$, $V_{GS} = 10 \text{ V}$, $R_L = 60 \Omega$
Rise time	t_r	—	6.5	—	ns	
Turn-off delay time	$t_{d(off)}$	—	55	—	ns	
Fall time	t_f	—	20	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.85	—	V	$I_F = 1.0 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	80	—	ns	$I_F = 1.0 \text{ A}$, $V_{GS} = 0$, $di_F / dt = 50 \text{ A} / \mu s$

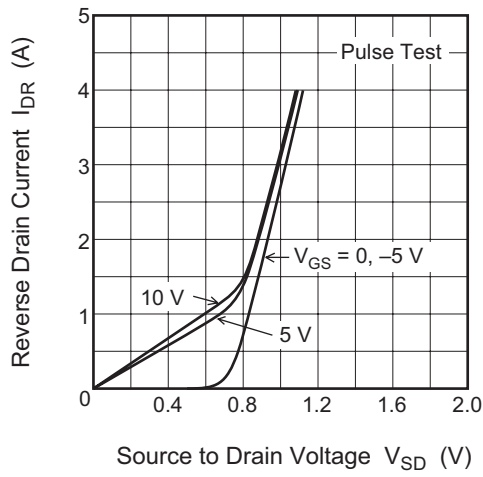
Note: 3. Pulse Test

Main Characteristics

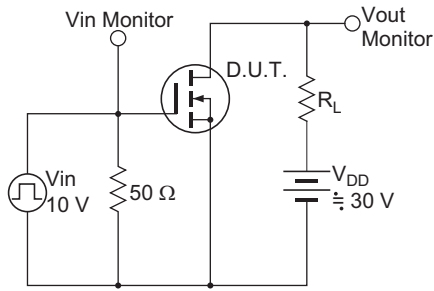




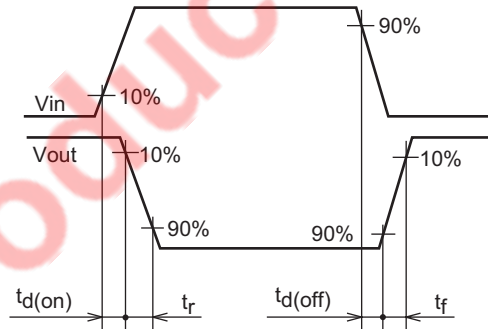
Reverse Drain Current vs. Source to Drain Voltage



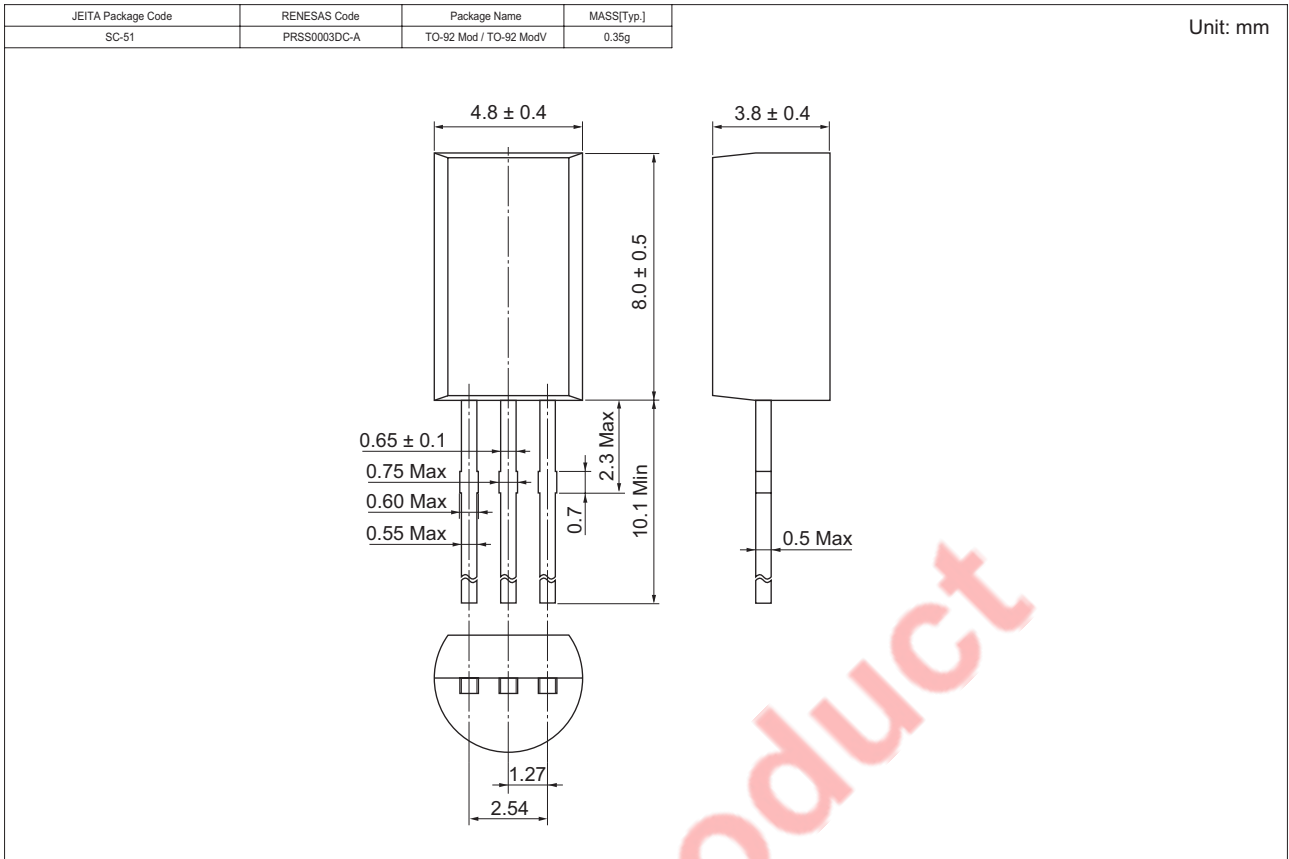
Switching Time Test Circuit



Waveforms



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK2085TZ-E	2500 pcs	Taping

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